Appendix F:

ENVIRONMENTAL CONSTRAINTS
# Environmental Overview

Underground Storage Tank/Hazardous Materials, Air Quality, Traffic Noise, and Aquatic and Terrestrial Ecosystems

I-265, Gene Snyder Freeway

Louisville, Jefferson County, Kentucky

Prepared for

Parsons Brinckerhoff, Inc.

October 18, 2013

Revised May 28, 2014

Prepared by

Third Rock Consultants, LLC

Prepared by:

Cory Bloyd

Jennifer Shelby, PE

Steve Evans

James Storm

www.thirdrockconsultants.com

Environmental Analysis & Restoration

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## APPENDICES

Appendix A – Environmental Data Resources (EDR) Database Information
Appendix B – Interim Guidance Update on Mobile Source Air Toxics (MSAT) Analysis
I. INTRODUCTION
Third Rock Consultants, LLC (Third Rock) was retained by Parsons Brinckerhoff, Inc. to perform an Environmental Overview to identify resources related to underground storage tank/hazardous materials, air quality, traffic noise, and aquatic and terrestrial ecosystems, for the proposed I-265 (Gene Snyder Freeway) corridor project. The project is a strategic corridor programming study to identify and evaluate improvements to I-265 (Gene Snyder Freeway) from I-65 to the new East End Bridge in Louisville, Kentucky. The study focuses on identifying short-term improvements that can be quickly and effectively implemented as well as long-term solutions by examining the future transportation needs and determining options for future improvement projects. The Study Corridor incorporates I-265 from I-65 to the new East End Bridge. The interchanges located along the corridor are included in the study as well. The Study Corridor includes the right-of-way (access limits) along the mainline of I-265 expanding out to a 250 foot buffer on each side of the mainline centerline. The proposed project is shown on Exhibits 1 through 4, pages 2 through 5.

II. UNDERGROUND STORAGE TANKS / HAZARDOUS MATERIALS
A. Methodology
A Third Rock Environmental Professional utilized a desktop data review and limited cursory site reconnaissance to assess potential underground storage tank and hazardous material concerns related to the project. The desktop data review was conducted in an effort to identify potential recognized environmental conditions located within the Study Corridor in which a recognized environmental condition is defined as follows:

The presence or likely presence of any Hazardous Substances or Petroleum Products on a Property under conditions that indicate an existing release, a past release, or a material threat of a release of any Hazardous Substances or Petroleum Products into structures on the Property or into the ground, groundwater, or surface water of the Property. The term includes Hazardous Substances or Petroleum Products even under conditions in compliance with laws. The term is not intended to include de minimis conditions that generally do not represent a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. (Phase I Environmental Site Assessment Process, ASTM Standard E-1527-05).

B. Database Search
Environmental Data Resources, Inc. (EDR) was contacted to provide an electronic review of applicable environmental databases located within the Study Corridor. Various databases were researched, including those pursuant to ASTM standards. A copy of the databases researched and the associated acronyms is included in Appendix A.

The database search resulted in the identification of a total of 37 mapped facilities of potential environmental significance located within the Study Corridor. Numerous other facilities were identified by EDR, however, based upon the database listing, the additional sites are not expected to represent an environmental condition and are thus not included in this overview. A list of the facilities identified by EDR that potentially represent an environmental condition are included in Table 1, pages 6 and 7.

III. PROGRAMMING STUDY CORRIDOR
The proposed project is shown on Exhibits 1 through 4, pages 2 through 5. The Environmental Overview study focuses on identifying short-term improvements that can be quickly and effectively implemented as well as long-term solutions by examining the future transportation needs and determining options for future improvement projects. The Study Corridor incorporates I-265 (Gene Snyder Freeway) from I-65 to the new East End Bridge. The interchanges located along the corridor are included in the study as well. The Study Corridor includes the right-of-way (access limits) along the mainline of I-265 expanding out to a 250 foot buffer on each side of the mainline centerline. The proposed project is shown on Exhibits 1 through 4, pages 2 through 5.

IV. CONCLUSIONS
The study was conducted in an effort to identify potential recognized environmental conditions located within the Study Corridor in which a recognized environmental condition is defined as follows:

The presence or likely presence of any Hazardous Substances or Petroleum Products on a Property under conditions that indicate an existing release, a past release, or a material threat of a release of any Hazardous Substances or Petroleum Products into structures on the Property or into the ground, groundwater, or surface water of the Property. The term includes Hazardous Substances or Petroleum Products even under conditions in compliance with laws. The term is not intended to include de minimis conditions that generally do not represent a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. (Phase I Environmental Site Assessment Process, ASTM Standard E-1527-05).

V. RECOMMENDATIONS
The study was conducted in an effort to identify potential recognized environmental conditions located within the Study Corridor in which a recognized environmental condition is defined as follows:

The presence or likely presence of any Hazardous Substances or Petroleum Products on a Property under conditions that indicate an existing release, a past release, or a material threat of a release of any Hazardous Substances or Petroleum Products into structures on the Property or into the ground, groundwater, or surface water of the Property. The term includes Hazardous Substances or Petroleum Products even under conditions in compliance with laws. The term is not intended to include de minimis conditions that generally do not represent a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. (Phase I Environmental Site Assessment Process, ASTM Standard E-1527-05).
TABLE 1 – POTENTIAL UST SITES OF CONCERN

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<th>ADDRESS</th>
<th>DATABASE</th>
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<td>No Name</td>
<td>8801 US 42, Prospect KY</td>
<td>LEAD</td>
</tr>
<tr>
<td>18</td>
<td>BS Express Diazinon Spill</td>
<td>Intersection of I-71 &amp; I-265, Louisville KY</td>
<td>CERCLIS, PRP</td>
</tr>
<tr>
<td>25</td>
<td>Old Brownsboro Crossing</td>
<td>9067 Brownsboro Road, Louisville KY</td>
<td>KY SHWS</td>
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<tr>
<td>27</td>
<td>Kahuna 225 Cleaners</td>
<td>2504 Springhill Boulevard, Louisville KY</td>
<td>EDR Hist Cleaners</td>
</tr>
<tr>
<td>34</td>
<td>Ford KY Truck Plant</td>
<td>3001 Chamberlain Lane, Louisville KY</td>
<td>CERCLIS-NPRAP, PCB Transformer-KY SHWS, KY UST, RCRA-LQG, TRIS, PADS, ERNS, ICIS</td>
</tr>
<tr>
<td>38</td>
<td>Target Store # 1071</td>
<td>4001 Towne Center Drive, Louisville KY</td>
<td>RCRA-LQG</td>
</tr>
<tr>
<td>45</td>
<td>Highland Cleaners</td>
<td>12419 Lagrange Road, Louisville KY</td>
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<td>45</td>
<td>Thornton Oil Corp # 31</td>
<td>12412 Lagrange Road, Louisville KY</td>
<td>UST</td>
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<tr>
<td>45</td>
<td>Clean 1 Cleaners</td>
<td>12907 Factory Lane, Louisville KY</td>
<td>EDR Hist Cleaners</td>
</tr>
<tr>
<td>45</td>
<td>Alexander Residence</td>
<td>12910 Factory Lane, Louisville KY</td>
<td>SHWS</td>
</tr>
<tr>
<td>45</td>
<td>Kroger Fuel L-739</td>
<td>13003 Factory Lane, Louisville KY</td>
<td>UST</td>
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<td>49</td>
<td>No Name</td>
<td>2833 South Winchester Acres Road, Louisville KY</td>
<td>LEAD</td>
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<tr>
<td>53</td>
<td>Sam Meyers Cleaners</td>
<td>2300 Terra Crossing Boulevard, Louisville KY</td>
<td>EDR Hist Cleaners</td>
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<td>Midtown Auto Connection</td>
<td>13000 Shelbyville Road, Louisville KY</td>
<td>EDR Hist Auto Stations</td>
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<td>Louisville Water Company Middletown Substation</td>
<td>209 N. English Station Road, Louisville KY</td>
<td>UST</td>
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<td>70</td>
<td>Thornton Oil Corp # 95</td>
<td>13124 Shelbyville Road, Louisville KY</td>
<td>EDR Hist Auto Stat, UST</td>
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<td>The Hogan Group</td>
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<td>SHWS</td>
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<td>The Cleanery</td>
<td>14043 Shelbyville Road, Louisville KY</td>
<td>EDR Hist Cleaners, RCRA-CEQOG</td>
</tr>
<tr>
<td>74</td>
<td>Dairy Mart # 235</td>
<td>14041 Shelbyville Road, Louisville KY</td>
<td>UST, SB 193</td>
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<td>Green Horizon Organic Compost Facility</td>
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<tr>
<td>84</td>
<td>Sam Meyers Cleaners</td>
<td>12613 Taylorsville Road, Louisville KY</td>
<td>EDR Hist Cleaners</td>
</tr>
<tr>
<td>84</td>
<td>Kroger</td>
<td>12611 Taylorsville Road, Louisville KY</td>
<td>UST</td>
</tr>
<tr>
<td>93</td>
<td>Valvoline Instant Oil Change</td>
<td>7150 Cedar Springs Boulevard, Louisville KY</td>
<td>EDR Hist Auto Stat, RCRA-CEQOG</td>
</tr>
<tr>
<td>93</td>
<td>Murphy Oil USA # 6793</td>
<td>7100 Cedar Springs Boulevard, Louisville KY</td>
<td>UST</td>
</tr>
<tr>
<td>99</td>
<td>Halls Service</td>
<td>7701 Bardstown Road, Louisville KY</td>
<td>EDR Hist Auto Stat, UST</td>
</tr>
<tr>
<td>99</td>
<td>Newton’s Corvette Auto Repair</td>
<td>7703 Bardstown Road, Louisville KY</td>
<td>EDR Hist Auto Stat</td>
</tr>
<tr>
<td>99</td>
<td>BP Keil Brothers Oil</td>
<td>7723 Bardstown Road, Louisville KY</td>
<td>EDR Hist Auto Stat</td>
</tr>
</tbody>
</table>
findings of the EDR database report. Major Study Corridor roadways were driven during the windshield survey. The findings of the EDR report were confirmed to be accurate as numerous gas stations were observed at the various interchanges with I-265. A more detailed Study Corridor examination is recommended as part of a Phase I Underground Storage Tank/Hazardous Materials Baseline Assessment conducted once project alternatives have been developed.

B. AIR QUALITY

The study corridor is in the Louisville Interstate Air Quality Control Region. This project is not listed in the latest (FY 2013-2016) Statewide Transportation Implementation Program (STIP). Additionally, there are currently no required traffic control measures (TCMs) in the State Implementation Plan (SIP). Jefferson County is an attainment area for 8-hour Ozone, is a non-attainment area for PM2.5, and is currently in attainment for PM10. Though a portion of Jefferson County is a non-attainment area for nitrogen dioxide (NO2), it is currently in attainment for PM2.5. The potential impact of the project related to each criteria pollutant is described below.

C. Oil, Gas, and Water Wells

No oil or gas wells are mapped within the Study Corridor. The presence of water wells should be expected throughout the entire Study Corridor. The underground storage tank (UST) and hazardous material concerns for this project are similar to those of any proposed highway development. Active and abandoned UST sites can be expected along any major roadway within the Study Corridor. It can be assumed that numerous convenience stores and gas stations with UST potential are located within the Study Corridor. Particularly along the major intersections with I-265. The EDR report identified 18 such active and former UST sites located along the I-265 corridor. It is possible that automotive repair shops not identified by the EDR report are present throughout the Study Corridor that could also represent UST potential. Further investigation into the locations of USTs is recommended once project alternatives are developed.

D. Waste Disposal

There are no permitted waste disposal facilities located within the Study Corridor.

E. Underground Storage Tanks

Sulfur dioxide (SO2) is primarily an industrial source concern and generally not a mobile source concern. A portion of Jefferson County is considered non-attainment for the SO2 NAQS (201). However, this project corridor is not within the non-attainment area, thus sulfur dioxide for this area will not be a project-level concern.

E. Particulate Matter (PM)

Jefferson County is in non-attainment for PM2.5 (1997), thus, PM2.5 will be a project-level concern. Currently there are no TCMs included in the SIP. The PM2.5 checklist and Interagency Consultation
exhaust propagate noise at levels dependent projected to reduce annual MSAT emissions by Noise Standard requires that noise abatement measures be considered when traffic noise (USEPA)'s national control programs that are The Federal Highway Administration (FHWA) of the US Environmental Protection Agency IV. TRAFFIC NOISE changes in traffic volumes or vehicle mix could cause an increase in MSAT emissions. However, MSAT emissions will likely be lower than present levels in the design year as a result of the TIP and STIP. Any project components that result in appreciable potential MSAT effects and the slope of the roadway. These traffic noises are measured in decibels in the A-scale (dBA). The A-scale is designed to best approximate the way noise is heard by the human ear. Due to the logarithmic nature of noise measurements, a three dBA increase in the noise level represents a doubling in the noise level, but this increase is barely detectible by the human ear. A 10 dBA increase is perceived as a doubling of the noise-level. Noise levels decrease in proportion with the square of the distance from the source such that a 4.5 dBA decrease is usually achieved when the distance from the roadway is doubled (FHWA 2011). According to the FHWA, traffic noise impacts occur when the predicted traffic noise levels approach (are within one dBA) or exceed the noise abatement criteria (NAC) or when the predicted traffic noise levels substantially exceed the existing noise level. The noise abatement criteria are established to address traffic noise levels that interfere with speech communication. Noise Abatement Criteria are broken into seven activity categories (A to G) by description of land use and evaluation location (exterior or interior). Activity Category B, C, E, F, and G receptors are located within the project area with the potential for some Activity Category D (interior use) receptors. No criteria are established for Activity Categories F and G, which include manufacturing, retail, industry, and other similar facilities and undeveloped land, respectively, because they are not noise sensitive. A higher NAC threshold is established for Activity Category E receptors, which includes exterior areas of developed lands such as hotel pools and restaurant patios. However, there are an abundance of the more sensitive Activity Category B and C receptors in close proximity to the project have been identified in lieu of all potential noise receptors in close proximity to the project and each other, the cost per benefited receptor is often low enough that a noise barrier is reasonable. During any future Phase 1 design, all noise sensitive receptors within 500 feet of the project have to be assessed to determine whether impacts are predicted and if so whether noise abatement is feasible and reasonable. For the purposes of this overview clusters of noise receptors in close proximity to the project have been identified in lieu of all potential noise sensitive receptors on Exhibits 1 through 4, pages 2 through 5. Where noise impacts occur, Kentucky Transportation Cabinet (KYTC) guidelines state that noise abatement measures should be considered. In order to be implemented, noise abatement measures must be both reasonable and feasible. Noise barriers are generally not reasonable for localized impacted receptors; however, if a large number of impacted receptors are located in close proximity to the project and each other, the cost per benefited receptor is often low enough that a noise barrier is reasonable.
V. AQUATIC AND TERRESTRIAL ECOSYSTEMS

The Study Corridor is located within agricultural cropland, pasture, suburban/residential areas, commercial/industrial parks, blocks of forest, forested stream riparian, and wetland.

Third Rock biologist performed an aquatic and terrestrial windshear survey of the corridor on October 9, 2013. Topographic and aerial maps were utilized in order to facilitate a review of the project corridor. Habitats for federal and state-listed species and water resources were documented via literature review, mapping efforts, and the windshear survey.

A. Aquatic Resources

While wetlands can be found throughout the Study Corridor, the largest concentrations occur in the southeastern portion of the corridor, between Billtown Road and I-64. A total of 33 National Wetland Inventory (NWI) wetlands totaling approximately 30.2 acres are found within the corridor. They include freshwater ponds, lakes, emergent, and forested wetland types.

The Environmental Protection Agency's (EPA) environmental review tool NEPAssist (EPA, 2012) identified 10 stream crossings present in the Study Corridor. Nine of these crossings occur south of the I-265/I-64, Kentucky. They include; gray bat (Myotis grisescens), Indiana bat (Myotis sodalis), clubshell (Pleurobema clava), fat pocketbook (Plethobasus capax), orangefoot pimpleback (Pleurobema cooperianus), ring pink (Oboraria retusa), pink mudpout (Lampsilis abaptus), sheepnose (Plethobema cyphius), rough pigitore (Pleurobema plenum), rabbitsfoot (Quadrula vulgata), spectacledace (Cuernwateria monodon), running buffalo clover (Trifolium alexandrinum), Kentucky glade cress (L. americanus), interior least tern (S. antillarum), bald eagle (Haliaeetus leucocephalus), American burying beetle (Nicrophorus americanus), and Louisville cave beetle (Pleurobema platei).

No habitat for the federally listed running buffalo clover, Kentucky glade cress, and Louisville cave beetle exists within the study area, but critical habitat areas of Kentucky glade cress do exist outside of the project corridor to the south within McNeely Lake Park. Habitat for running buffalo clover is potentially present within the Study Corridor.

No habitat for the federally listed running buffalo clover, Kentucky glade cress, and Louisville cave beetle was observed during the windscreen survey. The literature and mapping review indicates that no habitat for Kentucky glade cress or Louisville cave beetle exists within the study area, but critical habitat areas of Kentucky glade cress do exist outside of the project corridor to the south within McNeely Lake Park. Habitat for running buffalo clover is potentially present within the Study Corridor.

According to U.S Fish and Wildlife Service (USFWS) mapped IB summer habitat polygons (USFWS 2014), the northern extent of the project area falls within the 5 mile radius of a known “sensitive & maternity” summer habitat polygon and is within one mile of, but not inside, a 2.5 mile radius “non-maternity summer” polygon. A portion of the project area to the south also falls within the 5 mile radius of a known maternity location. Summer roosting habitat for the federally endangered Indiana bat and proposed endangered northern long-eared bat was identified within the Study Corridor during the windshield survey. The highest concentrations of Indiana bat and northern long-eared bat habitat are found at the western terminus of the corridor and in the southeastern portion of the corridor, between Billtown Road and I-64, where forested blocks dominate the landscape. Gray bat foraging and travel stream corridors have been identified within the study corridor at several stream crossings, most of which are south of the I-265/I-64 interchange. During any future Phase 1 design all known cave and portal locations within 1 km have to be assessed to determine whether potential bat hibernacula may be impacted by the proposed project.
2. State Threatened and Endangered Species

Through literature review, mapping efforts, and a windshield survey it was determined that habitat for the following species listed by the Kentucky State Nature Preserves Commission (KSNPC) and Kentucky Department of Fish and Wildlife Resources (KDFWR) for Jefferson County may be present within the project corridor: king rail, pied-billed grebe, double-crested cormorant, black-crowned night-heron, hooded merganser, least bittern, bald eagle, peregrine falcon, little blue heron, limpkin, great egret, blue-winged teal, Bachman's sparrow, eastern slender glass lizard, Kirtland's snake, Alabama shad, northern metalmark, Louisville crayfish, Bousfield's amphipod, northern fox grape, Wood's bunchflower, Short's goldenrod, grassleaf arrowhead, pickerel-weed, Allegheny chinkapin, and Carolina fanwort. Potential state listed threatened and endangered species habitat present within the corridor may change pending receipt of agency coordination responses during any future Phase I design.

REFERENCES


APPENDICES
To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

**Number of Days to Update:** Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

### FEDERAL RECORDS

**NPL:** National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA’s Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

**Date of Government Version:** 04/26/2013

**Date Data Arrived at EDR:** 05/09/2013

**Date Made Active in Reports:** 07/10/2013

**Number of Days to Update:** 62

**Source:** EPA

**Telephone:** N/A

**Last EDR Contact:** 07/12/2013

**Next Scheduled EDR Contact:** 10/21/2013

**Data Release Frequency:** Quarterly

#### NPL Site Boundaries

Sources:

- EPA’s Environmental Photographic Interpretation Center (EPIC)
  
  **Telephone:** 202-564-7333

- EPA Region 1
  
  **Telephone:** 517-518-1143

- EPA Region 2
  
  **Telephone:** 214-655-6599

- EPA Region 3
  
  **Telephone:** 215-514-5418

- EPA Region 4
  
  **Telephone:** 202-564-7333

- EPA Region 5
  
  **Telephone:** 913-551-7247

- EPA Region 6
  
  **Telephone:** 214-655-6599

- EPA Region 7
  
  **Telephone:** 303-312-6774

- EPA Region 8
  
  **Telephone:** 215-814-5418

- EPA Region 9
  
  **Telephone:** 913-551-7247

- EPA Region 10
  
  **Telephone:** 415-947-4246

- EPA Region 11
  
  **Telephone:** 206-553-8665

#### Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

**Date of Government Version:** 04/26/2013

**Date Data Arrived at EDR:** 05/09/2013

**Date Made Active in Reports:** 07/10/2013

**Number of Days to Update:** 62

**Source:** EPA

**Telephone:** N/A

**Last EDR Contact:** 07/12/2013

**Next Scheduled EDR Contact:** 10/21/2013

**Data Release Frequency:** Quarterly

#### DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425(j), sites may be deleted from the NPL where no further response is appropriate.

**Date of Government Version:** 04/26/2013

**Date Data Arrived at EDR:** 05/09/2013

**Date Made Active in Reports:** 07/10/2013

**Number of Days to Update:** 62

**Source:** EPA

**Telephone:** N/A

**Last EDR Contact:** 07/12/2013

**Next Scheduled EDR Contact:** 10/21/2013

**Data Release Frequency:** Quarterly
### GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

#### US ENG CONTROLS: Engineering Controls Sites List
A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or affect human health.

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<td></td>
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</tbody>
</table>

#### US INST CONTROL: Sites with Institutional Controls
A listing of sites with institutional controls in place. Institutional controls include administrative measures such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

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<td>42</td>
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<td>Variies</td>
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</table>

#### ERNS: Emergency Response Notification System
Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

<table>
<thead>
<tr>
<th>Date of Government Version</th>
<th>Date Data Arrived at EDR</th>
<th>Date Made Active in Reports</th>
<th>Number of Days to Update</th>
<th>Source</th>
<th>Telephone</th>
<th>Last EDR Contact</th>
<th>Next Scheduled EDR Contact</th>
<th>Data Release Frequency</th>
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<td>12/31/2012</td>
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#### HMIRS: Hazardous Materials Information Reporting System
HMIRS contains hazardous material spills reported to DOT.

<table>
<thead>
<tr>
<th>Date of Government Version</th>
<th>Date Data Arrived at EDR</th>
<th>Date Made Active in Reports</th>
<th>Number of Days to Update</th>
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<th>Last EDR Contact</th>
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</table>

#### DOT OPS: Incident and Accident Data
Department of Transportation: Office of Pipeline Safety Incident and accident data.

<table>
<thead>
<tr>
<th>Date of Government Version</th>
<th>Date Data Arrived at EDR</th>
<th>Date Made Active in Reports</th>
<th>Number of Days to Update</th>
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<tr>
<td>07/13/2012</td>
<td>08/07/2012</td>
<td>09/20/2012</td>
<td>42</td>
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</table>

#### US CDL: Clandestine Drug Labs
A listing of clandestine drug lab locations. The U.S. Department of Justice (“The Department”) provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or drug labs. In most cases, the source of the entries is the Department, and the Department has not verified the entry, and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

<table>
<thead>
<tr>
<th>Date of Government Version</th>
<th>Date Data Arrived at EDR</th>
<th>Date Made Active in Reports</th>
<th>Number of Days to Update</th>
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#### CONSENT: Superfund (CERCLA) Consent Decrees
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

<table>
<thead>
<tr>
<th>Date of Government Version</th>
<th>Date Data Arrived at EDR</th>
<th>Date Made Active in Reports</th>
<th>Number of Days to Update</th>
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#### US CDL CONTROL: Sites with Engineering Controls
A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or affect human health.

<table>
<thead>
<tr>
<th>Date of Government Version</th>
<th>Date Data Arrived at EDR</th>
<th>Date Made Active in Reports</th>
<th>Number of Days to Update</th>
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</table>

#### US CDL INST CONTROL: Sites with Institutional Controls
A listing of sites with institutional controls in place. Institutional controls include administrative measures such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

<table>
<thead>
<tr>
<th>Date of Government Version</th>
<th>Date Data Arrived at EDR</th>
<th>Date Made Active in Reports</th>
<th>Number of Days to Update</th>
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</tbody>
</table>
TRIS: Toxic Chemical Release Inventory System
TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SAPA Title III Section 313.

UMTRA: Uranium Mill Tailings Sites
Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Suitable D Criteria.

US MINES: Mines Master Index File
Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

ROD: Records Of Decision
ROD documents mandate a permanent remedy at an NPRL Superfund site containing technical and health information to aid in the cleanup.

URALR: Uranium Mining Records
Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

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FTTS: FIFRA/TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCD). NCD supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database. This database is no longer updated.

HIST FTTS INS: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCD). NCD supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database. This database is no longer updated.

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<table>
<thead>
<tr>
<th>Facility Index System</th>
<th>FINDS contains both facility information and 'pointers' to other sources that contain more detail. For example, the Facility Registry System (FRS) is a source of facility information. The Environmental Protection Agency (EPA) has published a list of facilities that have been identified as potentially responsible parties (PRPs) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), which is the source of facility information for the RCRA Corrective Action program. This program is administered by the EPA and is designed to achieve the dual objectives of preventing and remedying contamination of the environment caused by hazardous substances, pollutants, or wastes. The program is designed to be flexible and adaptable to a wide range of situations and to facilitate the rapid and effective response to incidents of contamination.</th>
<th>Number of Days to Update: 29</th>
<th>Next Scheduled EDR Contact: 10/21/2013</th>
<th>Data Release Frequency: Quarterly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radinfo: Radiation Information Database</td>
<td>The Radinfo database contains information about radiation exposure. The database is used to track exposure to radiation by individuals and to monitor the radiation levels in the environment. The database is updated on a quarterly basis.</td>
<td>Number of Days to Update: 29</td>
<td>Next Scheduled EDR Contact: 10/24/2013</td>
<td>Data Release Frequency: Quarterly</td>
</tr>
<tr>
<td>RAAATS: RCRA Administrative Action Tracking System</td>
<td>The RAAATS database contains information about enforcement actions taken under the Resource Conservation and Recovery Act (RCRA). The database includes information about the actions taken and the parties involved. The database is updated on a quarterly basis.</td>
<td>Number of Days to Update: 35</td>
<td>Next Scheduled EDR Contact: 10/21/2013</td>
<td>Data Release Frequency: Quarterly</td>
</tr>
<tr>
<td>BRS: Biennial Reporting System</td>
<td>The BRS database contains information about the amount of hazardous waste generated by facilities. The database is updated annually.</td>
<td>Number of Days to Update: 46</td>
<td>Next Scheduled EDR Contact: 11/11/2013</td>
<td>Data Release Frequency: Varies</td>
</tr>
<tr>
<td>PADS: PCB Activity Database System</td>
<td>The PADS database contains information about the generation, transport, and disposal of PCBs. The database is updated on a quarterly basis.</td>
<td>Number of Days to Update: 77</td>
<td>NextScheduled EDR Contact: 11/11/2013</td>
<td>Data Release Frequency: Annually</td>
</tr>
<tr>
<td>MLTS: Material Licensing Tracking System</td>
<td>The MLTS database contains information about the licensing of materials. The database is updated on a quarterly basis.</td>
<td>Number of Days to Update: 114</td>
<td>Next Scheduled EDR Contact: 11/11/2013</td>
<td>Data Release Frequency: Annually</td>
</tr>
<tr>
<td>PRP: Potentially Responsible Parties</td>
<td>The PRP database contains information about the parties that are potentially responsible for environmental damage. The database is updated on a quarterly basis.</td>
<td>Number of Days to Update: 72</td>
<td>Next Scheduled EDR Contact: 10/14/2013</td>
<td>Data Release Frequency: Quarterly</td>
</tr>
<tr>
<td>SRC: Section 7 Tracking System</td>
<td>The SRC database contains information about Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended. The database includes information about the active ingredients and devices being produced.</td>
<td>Number of Days to Update: 20</td>
<td>Next Scheduled EDR Contact: 10/28/2013</td>
<td>Data Release Frequency: Annually</td>
</tr>
<tr>
<td>SSTS: Section 7 Tracking System</td>
<td>The SSTS database contains information about Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended. The database includes information about the active ingredients and devices being produced.</td>
<td>Number of Days to Update: 20</td>
<td>Next Scheduled EDR Contact: 11/01/2013</td>
<td>Data Release Frequency: Annually</td>
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<td><strong>Date of Government Version:</strong> 11/1/2011</td>
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<td><strong>Date Made Active in Reports:</strong> 10/25/2012</td>
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<td><strong>Number of Days to Update:</strong> 7</td>
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<td><strong>Source:</strong> Environmental Protection Agency</td>
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<td><strong>Telephone:</strong> 703-238-4024</td>
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<td><strong>Last EDR Contact:</strong> 08/16/2013</td>
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<td><strong>Data Update Frequency:</strong> Varies</td>
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**LEAD SMELTER 2: Lead Smelter Sites**
A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931 and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust.

| Date of Government Version: 04/03/2001 |
| **Date Made Active in Reports:** 12/20/2010 |
| **Number of Days to Update:** 36 |
| **Source:** American Journal of Public Health |
| **Telephone:** 703-350-6453 |
| **Last EDR Contact:** 08/02/2008 |
| **Next Scheduled EDR Contact:** N/A |

**FEDERAL FACILITY: Federal Facility Site Information Listing**
A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Renewal Office is involved in cleanup activities.

| Date of Government Version: 07/12/2012 |
| **Date Made Active in Reports:** 12/03/2012 |
| **Number of Days to Update:** 72 |
| **Source:** Environmental Protection Agency |
| **Telephone:** 703-420-8705 |
| **Last EDR Contact:** 07/08/2012 |
| **Next Scheduled EDR Contact:** 10/21/2013 |

**SCCIT DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing**
The State Coalition for Remediation of Drycleaners was established in 1996, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established air toxics and drycleaners programs in California, Colorado, Connecticut, Florida, Illinois, Indiana, Kansas, Massachusetts, Minnesota, Missouri, New York, North Carolina, Ohio, Oregon, Pennsylvania, South Carolina, Tennessee, Texas, Utah, Virginia, West Virginia, and Wisconsin.

| Date of Government Version: 03/07/2011 |
| **Date Made Active in Reports:** 05/07/2011 |
| **Number of Days to Update:** 94 |
| **Source:** Environmental Protection Agency |
| **Telephone:** 703-308-4044 |
| **Last EDR Contact:** 08/13/2012 |
| **Next Scheduled EDR Contact:** 10/04/2013 |
| **Data Update Frequency:** Varies |

**US ARS MINOR: Air Facility System Data**
A listing of minor source facilities.

| Date of Government Version: 02/23/2013 |
| **Date Made Active in Reports:** 08/02/2013 |
| **Number of Days to Update:** 150 |
| **Contact Information:** EPA |
| **Telephone:** 703-564-5962 |
| **Last EDR Contact:** 08/30/2013 |
| **Next Scheduled EDR Contact:** 11/13/2013 |

**US ARS MINOR: Air Facility System Data**
A listing of minor source facilities.

| Date of Government Version: 02/06/2009 |
| **Date Made Active in Reports:** 09/10/2009 |
| **Number of Days to Update:** 100 |
| **Contact Information:** EPA |
| **Telephone:** 703-306-0909 |
| **Last EDR Contact:** 11/30/2009 |
| **Next Scheduled EDR Contact:** 02/24/2010 |

**PBC TRANSFORMER: PCB Transformer Registration Database**
The database contains information on all PCB registration submissions.

| Date of Government Version: 05/20/2011 |
| **Date Made Active in Reports:** 11/09/2011 |
| **Number of Days to Update:** 83 |
| **Contact Information:** EPA |
| **Telephone:** 703-306-0517 |
| **Last EDR Contact:** 08/02/2012 |
| **Next Scheduled EDR Contact:** 11/11/2013 |
| **Data Update Frequency:** Varies |

**COAL ASH DOE: Steam-Electric Plan Operation Data**
A listing of power plants that store ash in surface ponds.
GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/13/2005
Date Made Active in Reports: 10/22/2005
Number of Days to Update: 75
Source: Department of Energy
Telephone: 202-564-8719
Last EDR Contact: 07/19/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Varies

IN SWF/LF: Solid Waste Facilities List
Solid Waste Facilities and Landfill Sites. SWFLF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet the RCRA Subtitle D Section 404 criteria for solid waste landfills or disposal sites.

Date of Government Version: 08/07/2009
Date Made Active in Reports: 09/23/2009
Number of Days to Update: 30
Source: Department of Energy
Telephone: 202-564-8719
Last EDR Contact: 07/19/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Varies

IN SHWS: List of Hazardous Waste Response Sites Scored Using the Indiana Scoring Model
State Hazardous Waste Sites. SHWS type records are the state's equivalent to CERCLIS. These sites may or may not be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: 08/07/2009
Date Made Active in Reports: 09/23/2009
Number of Days to Update: 30
Source: Department of Energy
Telephone: 202-564-8719
Last EDR Contact: 07/19/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Varies

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Date of Government Version: 08/07/2009
Date Made Active in Reports: 09/23/2009
Number of Days to Update: 30
Source: Department of Energy
Telephone: 202-564-8719
Last EDR Contact: 07/19/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Varies

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Date of Government Version: 08/07/2009
Date Made Active in Reports: 09/23/2009
Number of Days to Update: 30
Source: Department of Energy
Telephone: 202-564-8719
Last EDR Contact: 07/19/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Varies

IN UIC: UIC Information
A listing of underground injection control wells.

Date of Government Version: 07/18/2013
Date Made Active in Reports: 08/23/2013
Number of Days to Update: 23
Source: Kentucky Geological Survey
Telephone: 859-225-0944
Last EDR Contact: 07/19/2013
Next Scheduled EDR Contact: 11/04/2013
Data Release Frequency: Quarterly

IN UIC: UIC Site Listing
A listing of class II well locations.

Date of Government Version: 06/03/2013
Date Made Active in Reports: 06/05/2013
Number of Days to Update: 23
Source: Department of Natural Resources
Telephone: 317-232-0045
Last EDR Contact: 08/14/2013
Next Scheduled EDR Contact: 11/15/2013
Data Release Frequency: Quarterly

IN NPDES: NPDES Permit Listing
A listing of active NPDES Permit Section facility locations.

Date of Government Version: 08/07/2009
Date Made Active in Reports: 08/14/2009
Number of Days to Update: 23
Source: Department of Environmental Management
Telephone: 317-233-0676
Last EDR Contact: 07/19/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Varies

IN UIC: UIC Site Listing
A listing of underground injection control wells.

Date of Government Version: 07/18/2013
Date Made Active in Reports: 08/23/2013
Number of Days to Update: 23
Source: Kentucky Geological Survey
Telephone: 859-225-0944
Last EDR Contact: 07/19/2013
Next Scheduled EDR Contact: 11/04/2013
Data Release Frequency: Quarterly

IN UIC: UIC Information
A listing of underground injection control wells.

Date of Government Version: 07/18/2013
Date Made Active in Reports: 08/23/2013
Number of Days to Update: 23
Source: Kentucky Geological Survey
Telephone: 859-225-0944
Last EDR Contact: 07/19/2013
Next Scheduled EDR Contact: 11/04/2013
Data Release Frequency: Quarterly
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<td>Data Release Frequency:</td>
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</tbody>
</table>

**KY SPILLS: State spills**

A listing of spill and release related incidents.

<table>
<thead>
<tr>
<th>Date of Government Version:</th>
<th>05/13/2013</th>
<th>Source: Department of Environmental Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date Data Arrived at EDR:</td>
<td>04/23/2013</td>
<td>Telephone: 502-564-6176</td>
</tr>
<tr>
<td>Date Made Active in Reports:</td>
<td>04/30/2013</td>
<td>Last EDR Contact: 04/23/2013</td>
</tr>
<tr>
<td>Number of Days to Update:</td>
<td>10</td>
<td>Next Scheduled EDR Contact: 04/30/2013</td>
</tr>
<tr>
<td>Data Release Frequency:</td>
<td>Semi-Annually</td>
<td>Data currency varies by state.</td>
</tr>
</tbody>
</table>

**KY UST: Underground Storage Tank Database**

A list of closed sites in the State Superfund Database. Institutional controls would be in place at any site that uses Contained or Managed as a Closure Option.

<table>
<thead>
<tr>
<th>Date of Government Version:</th>
<th>05/16/2013</th>
<th>Source: Department of Environmental Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date Data Arrived at EDR:</td>
<td>04/23/2013</td>
<td>Telephone: 502-564-6176</td>
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<tr>
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<td>04/30/2013</td>
<td>Last EDR Contact: 04/23/2013</td>
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<tr>
<td>Number of Days to Update:</td>
<td>10</td>
<td>Next Scheduled EDR Contact: 04/30/2013</td>
</tr>
<tr>
<td>Data Release Frequency:</td>
<td>Semi-Annually</td>
<td>Data currency varies by state.</td>
</tr>
</tbody>
</table>

**IN SHWS: Deleted Commissioner's Bulletin Site List**

A listing of sites deleted/removed from the Commissioner's Bulletin List.

<table>
<thead>
<tr>
<th>Date of Government Version:</th>
<th>04/23/2013</th>
<th>Source: Department of Environmental Protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date Data Arrived at EDR:</td>
<td>04/23/2013</td>
<td>Telephone: 317-234-0254</td>
</tr>
<tr>
<td>Date Made Active in Reports:</td>
<td>04/30/2013</td>
<td>Last EDR Contact: 04/23/2013</td>
</tr>
<tr>
<td>Number of Days to Update:</td>
<td>10</td>
<td>Next Scheduled EDR Contact: 04/30/2013</td>
</tr>
<tr>
<td>Data Release Frequency:</td>
<td>Varies</td>
<td>Data currency varies by state.</td>
</tr>
</tbody>
</table>

**IN BULK: Registered Bulk Fertilizer and Pesticide Storage Facilities**

A listing of registered dry or liquid bulk fertilizer and pesticide storage facilities.

<table>
<thead>
<tr>
<th>Date of Government Version:</th>
<th>05/16/2013</th>
<th>Source: Office of Indiana State Chemist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date Data Arrived at EDR:</td>
<td>04/23/2013</td>
<td>Telephone: 317-234-0966</td>
</tr>
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<td>04/30/2013</td>
<td>Last EDR Contact: 04/23/2013</td>
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<tr>
<td>Number of Days to Update:</td>
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<td>Next Scheduled EDR Contact: 10/21/2013</td>
</tr>
<tr>
<td>Data Release Frequency:</td>
<td>Varies</td>
<td>Data currency varies by state.</td>
</tr>
</tbody>
</table>
GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

KY CDL: Clandestine Drug Lab Listing
A listing of clandestine drug labs that have been cleaned up.

| Date of Government Version: 07/08/2013 | Source: Department of Environmental Management |
| Date Data Arrived at EDR: 07/08/2013 | Telephone: 317-416-5031 |
| Date Made Active in Reports: 07/16/2013 | Last EDR Contact: 07/16/2013 |
| Number of Days to Update: 23 | Next Scheduled EDR Contact: 10/21/2013 |
| Data Release Frequency: Quarterly |

KY CDL: Clandestine Drug Lab Listing
A listing of clandestine drug lab locations.

| Date of Government Version: 06/26/2013 | Source: Department of Environmental Management |
| Date Data Arrived at EDR: 06/26/2013 | Telephone: 317-416-5031 |
| Date Made Active in Reports: 07/10/2013 | Last EDR Contact: 07/16/2013 |
| Number of Days to Update: 21 | Next Scheduled EDR Contact: 10/21/2013 |
| Data Release Frequency: Quarterly |

IN CDL: Clandestine Drug Lab Listing
A listing of clandestine drug labs that have been cleaned up.

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| Date Data Arrived at EDR: 07/08/2013 | Telephone: 317-416-5031 |
| Date Made Active in Reports: 07/16/2013 | Last EDR Contact: 07/16/2013 |
| Number of Days to Update: 23 | Next Scheduled EDR Contact: 10/21/2013 |
| Data Release Frequency: Quarterly |

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| Date Made Active in Reports: 07/10/2013 | Last EDR Contact: 07/16/2013 |
| Number of Days to Update: 21 | Next Scheduled EDR Contact: 10/21/2013 |
| Data Release Frequency: Quarterly |

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| Data Release Frequency: Quarterly |

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| Number of Days to Update: 21 | Next Scheduled EDR Contact: 10/21/2013 |
| Data Release Frequency: Quarterly |
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota, and Wisconsin) and Tribal Nations.)

**INDIAN UST R5: Underground Storage Tanks on Indian Land**

- **Date Data Arrived at EDR:** 02/08/2013
- **Date Made Active in Reports:** 04/12/2013
- **Number of Days to Update:** 63

- **Date Data Arrived at EDR:** 08/03/2012
- **Date Made Active in Reports:** 11/05/2012
- **Number of Days to Update:** 94

- **Date of Government Version:** 09/28/2012

- **Telephone:** 404-562-8677

**Location of open dumps on Indian land.**

**INDIAN ODI: Report on the Status of Open Dumps on Indian Land**

- **Date Data Arrived at EDR:** 08/28/2012
- **Date Made Active in Reports:** 10/16/2012
- **Number of Days to Update:** 49

- **Date of Government Version:** 08/27/2012

- **Telephone:** 703-308-8245

**A listing of leaking underground storage tank locations on Indian land.**

**INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land**

- **Date Data Arrived at EDR:** 12/03/2007
- **Date Made Active in Reports:** 01/24/2008
- **Number of Days to Update:** 52

- **Date Data Arrived at EDR:** 09/13/2011
- **Date Made Active in Reports:** 11/11/2011
- **Number of Days to Update:** 59

- **Source:** EPA Region 7

**LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.**

**INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land**

- **Date Data Arrived at EDR:** 02/06/2005
- **Date Made Active in Reports:** 07/19/2005
- **Number of Days to Update:** 62

- **Date Data Arrived at EDR:** 03/28/2003
- **Date Made Active in Reports:** 04/12/2013
- **Number of Days to Update:** 106

- **Source:** EPA Region 8

**LUSTs on Indian land in Arizona, California, New Mexico, and Nevada.**

**INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land**

- **Date Data Arrived at EDR:** 12/31/2005
- **Date Made Active in Reports:** 01/24/2006
- **Number of Days to Update:** 52

- **Date Data Arrived at EDR:** 03/28/2003
- **Date Made Active in Reports:** 04/12/2013
- **Number of Days to Update:** 106

- **Source:** EPA Region 9

**LUSTs on Indian land in the states of New Mexico and Nevada.**

**INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land**

- **Date Data Arrived at EDR:** 02/08/2013
- **Date Made Active in Reports:** 04/12/2013
- **Number of Days to Update:** 63

- **Date of Government Version:** 09/12/2011

- **Source:** EPA Region 4

**LUSTs on Indian land in Florida, Mississippi, and North Carolina.**

**INDIAN LUST R4: Underground Storage Tanks on Indian Land**

- **Date Data Arrived at EDR:** 02/08/2013
- **Date Made Active in Reports:** 04/12/2013
- **Number of Days to Update:** 63

- **Date Data Arrived at EDR:** 02/08/2013
- **Date Made Active in Reports:** 04/12/2013
- **Number of Days to Update:** 63

- **Source:** EPA Region 1

**LUSTs on Indian land in Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont, and ten Tribal Nations.**

**INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land**

- **Date Data Arrived at EDR:** 02/05/2013
- **Date Made Active in Reports:** 04/12/2013
- **Number of Days to Update:** 63

- **Date Data Arrived at EDR:** 02/05/2013
- **Date Made Active in Reports:** 04/12/2013
- **Number of Days to Update:** 63

- **Source:** EPA Region 1

**A listing of leaking underground storage tank locations on Indian land.**

**INDIAN LUST R2: Leaking Underground Storage Tanks on Indian Land**

- **Date Data Arrived at EDR:** 09/12/2011
- **Date Made Active in Reports:** 11/11/2011
- **Number of Days to Update:** 59

- **Date Data Arrived at EDR:** 08/28/2012
- **Date Made Active in Reports:** 11/11/2013
- **Number of Days to Update:** 164

- **Source:** EPA Region 5

**LUSTs on Indian land in Iowa, Kansas, and Nebraska.**

**INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land**

- **Date Data Arrived at EDR:** 12/31/2002
- **Date Made Active in Reports:** 07/24/2003
- **Number of Days to Update:** 246

- **Date Data Arrived at EDR:** 02/08/2013
- **Date Made Active in Reports:** 04/12/2013
- **Number of Days to Update:** 43

- **Source:** EPA Region 7

**LUSTs on Indian land in Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, and Tribal Nations.**

**INDIAN LUST R3: Leaking Underground Storage Tanks on Indian Land**

- **Date Data Arrived at EDR:** 08/22/2013
- **Date Made Active in Reports:** 11/11/2013
- **Number of Days to Update:** 164

- **Date Data Arrived at EDR:** 02/08/2013
- **Date Made Active in Reports:** 04/12/2013
- **Number of Days to Update:** 43

- **Source:** EPA Region 7

**Location of open dumps on Indian land.**

**INDIAN ODI: Report on the Status of Open Dumps on Indian Land**

- **Date Data Arrived at EDR:** 08/28/2012
- **Date Made Active in Reports:** 11/11/2013
- **Number of Days to Update:** 246

- **Date Data Arrived at EDR:** 08/22/2013
- **Date Made Active in Reports:** 11/11/2013
- **Number of Days to Update:** 164

- **Source:** EPA Region 8

**An Indian administered lands of the United States that have any area equal to or greater than 640 acres.**

**GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING**

**INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land**

- **Date Data Arrived at EDR:** 08/03/2012
- **Date Made Active in Reports:** 11/11/2013
- **Number of Days to Update:** 94

- **Date Data Arrived at EDR:** 02/05/2013
- **Date Made Active in Reports:** 04/12/2013
- **Number of Days to Update:** 63

- **Source:** EPA Region 1

**LUSTs on Indian land in Alaska, Idaho, Oregon, and Washington.**

**INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land**

- **Date Data Arrived at EDR:** 02/05/2013
- **Date Made Active in Reports:** 04/12/2013
- **Number of Days to Update:** 63
## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### INDIAN UST R6: Underground Storage Tanks on Indian Land
- The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).
- **Date of Government Version:** 05/10/2011
- **Date Data Arrived at EDR:** 06/14/2011
- **Number of Days to Update:** 34

### INDIAN UST R7: Underground Storage Tanks on Indian Land
- The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).
- **Date of Government Version:** 02/21/2013
- **Date Data Arrived at EDR:** 02/26/2013
- **Number of Days to Update:** 45

### INDIAN UST R8: Underground Storage Tanks on Indian Land
- The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).
- **Date of Government Version:** 05/10/2011
- **Date Data Arrived at EDR:** 05/11/2011
- **Number of Days to Update:** 27

### INDIAN UST R9: Underground Storage Tanks on Indian Land
- The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Oregon, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).
- **Date of Government Version:** 05/10/2011
- **Date Data Arrived at EDR:** 05/12/2011
- **Number of Days to Update:** 27

### INDIAN UST R10: Underground Storage Tanks on Indian Land
- **Date of Government Version:** 05/10/2011
- **Date Data Arrived at EDR:** 05/12/2011
- **Number of Days to Update:** 27

### INDIAN UST R11: Underground Storage Tanks on Indian Land
- The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 11 (Washington, Oregon, and Tribal Nations).
- **Date of Government Version:** 05/10/2011
- **Date Data Arrived at EDR:** 05/12/2011
- **Number of Days to Update:** 27

## EDR PROPRIETARY RECORDS

### EDR MGP: EDR Proprietary Manufactured Gas Plants
- EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites and operations that typically create environmental concerns, but may not show up in current government records searches.
- **Telephone:** 214-665-7591
- **Data Release Frequency:** Semi-Annually
- **Source:** EDR, Inc.

### EDR US Hist Cleaners: EDR Exclusive Historic Dry Cleaners
- EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites and operations that typically create environmental concerns, but may not show up in current government records searches.
- **Telephone:** 415-972-3368
- **Data Release Frequency:** Quarterly
- **Source:** EDR, Inc.

### EDR US Hist Auto Stat: EDR Exclusive Historic Gas Stations
- EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites and operations that typically create environmental concerns, but may not show up in current government records searches.
- **Telephone:** 303-312-6137
- **Data Release Frequency:** Quarterly
- **Source:** EDR, Inc.

## GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

### EDR US Hist Cleaners: EDR Exclusive Historic Dry Cleaners
- EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR’s review was limited to those categories of sources that might, in EDR’s opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, launderers, cleaning services, etc. This database falls within a category of information EDR classifies as “High Risk Historical Records,” or HRHR. EDR’s HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.
- **Date of Government Version:** N/A
- **Date Data Arrived at EDR:** N/A
- **Number of Days to Update:** N/A
- **Data Release Frequency:** Varies
- **Source:** EPA Region 10

### EDR US Hist Auto Stat: EDR Exclusive Historic Gas Stations
- EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR’s review was limited to those categories of sources that might, in EDR’s opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, launderers, cleaning services, etc. This database falls within a category of information EDR classifies as “High Risk Historical Records,” or HRHR. EDR’s HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.
- **Date of Government Version:** N/A
- **Date Data Arrived at EDR:** N/A
- **Number of Days to Update:** N/A
- **Data Release Frequency:** Varies
- **Source:** EPA Region 9

### EDR PROPRIETARY RECORDS
Memorandum

Sent via Electronic Mail

Subject: INFORMATION: Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents

Date: December 6, 2012

From: April Marchese

In Reply Refer To: Director, Office of Natural Environment

To: Division Administrators

Federal Lands Highway Division Engineers

Purpose

The purpose of this memorandum is to update the September 2009 interim guidance that advised Federal Highway (FHWA) Division offices on when and how to analyze Mobile Source Air Toxics (MSAT) under the National Environmental Policy Act (NEPA) review process for highway projects.

This update reflects recent changes in methodology for conducting emissions analysis and updates of research in the MSAT arena. The U.S. Environmental Protection Agency (EPA) released the latest emission model, the Motor Vehicle Emissions Simulator (MOVES) in 2010, and started a 2-year grace period to phase in the requirement of using MOVES for transportation conformity analysis. On February 8, 2011, EPA issued guidance on Using the MOVES and Emission FACtors (EMFAC) Models in NEPA Evaluation that recommended the same grace period be applied to project-level emissions analysis for NEPA purposes. At the end of this grace period, i.e. beginning December 20, 2012, project sponsors should use MOVES to conduct emissions analysis for NEPA purposes. To prepare for this transition, FHWA is updating the September 2009 Interim Guidance to incorporate the analysis conducted using MOVES. Based on FHWA’s analysis using MOVES2010b, the latest version of MOVES, diesel particulate matter (diesel PM) has become the dominant MSAT of concern. We have also provided an update on the status of scientific research on air toxics. The update supersedes the September 2009 Interim Guidance and should be referenced as a whole in NEPA documentation.

Background

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments (CAAA) of 1990, whereby Congress mandated that the U.S. Environmental Protection Agency (EPA) regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list in their latest rule on the Control of Hazardous Air...
Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007), and identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System (IRIS) (http://cfcpub.epa.gov/ncea/iris/index.cfm). In addition, EPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from their 1999 National Air Toxics Assessment (NATA) (http://www.epa.gov/ttn/atw/nata1999). These are acrolein, benzene, 1,3-butadiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter. While FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules.

Motor Vehicle Emissions Simulator (MOVES)

According to EPA, MOVES improves upon the previous MOBILE model in several key aspects: MOVES is based on a vast amount of in-use vehicle data collected and analyzed since the latest release of MOBILE, including millions of emissions measurements from light-duty vehicles. Analysis of this data enhanced EPA’s understanding of how mobile sources contribute to emissions inventories and the relative effectiveness of various control strategies. In addition, MOVES accounts for the significant effects that vehicle speed and temperature have on PM emissions estimates, whereas MOBILE did not. MOVES2010b includes all air toxic pollutants in NATA that are emitted by mobile sources. EPA has incorporated more recent data into MOVES2010b to update and enhance the quality of MSAT emission estimates. These data reflect advanced emission control technology and modern fuels, plus additional data for older technology vehicles.

Based on an FHWA analysis using EPA’s MOVES2010b model, as shown in Figure 1, even if vehicle-miles travelled (VMT) increases by 102 percent as assumed from 2010 to 2050, a combined reduction of 83 percent in the total annual emissions for the priority MSAT is projected for the same time period.

Note: Trends for specific locations may be different, depending on locally derived information representing vehicle-miles travelled, vehicle speeds, vehicle mix, fuels, emission control programs, meteorology, and other factors.
The implications of MOVES on MSAT emissions estimates compared to MOBILE are: lower estimates of total MSAT emissions; significantly lower benzene emissions; significantly higher diesel PM emissions, especially for lower speeds. Consequently, diesel PM is projected to be the dominant component of the emissions total.

MSAT Research

Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede the ability to evaluate how potential public health risks posed by MSAT exposure should be factored into project-level decision-making within the context of NEPA.

Nonetheless, air toxics concerns continue to be raised on highway projects during the NEPA process. Even as the science emerges, we are duly expected by the public and other agencies to address MSAT impacts in our environmental documents. The FHWA, EPA, the Health Effects Institute, and others have funded and conducted research studies to try to more clearly define potential risks from MSAT emissions associated with highway projects. The FHWA will continue to monitor the developing research in this field.

NEPA CONTEXT

The NEPA requires, to the fullest extent possible, that the policies, regulations, and laws of the Federal Government be interpreted and administered in accordance with its environmental protection goals. The NEPA also requires Federal agencies to use an interdisciplinary approach in planning and decision-making for any action that adversely impacts the environment. The NEPA requires and FHWA is committed to the examination and avoidance of potential impacts to the natural and human environment when considering approval of proposed transportation projects. In addition to evaluating the potential environmental effects, we must also take into account the need for safe and efficient transportation in reaching a decision that is in the best overall public interest. The FHWA policies and procedures for implementing NEPA are contained in regulation at 23 CFR Part 771.

CONSIDERATION OF MSAT IN NEPA DOCUMENTS

The FHWA developed a tiered approach with three categories for analyzing MSAT in NEPA documents, depending on specific project circumstances:

1. No analysis for projects with no potential for meaningful MSAT effects;
2. Qualitative analysis for projects with low potential MSAT effects; or
3. Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects.

For projects warranting MSAT analysis, the seven priority MSAT should be analyzed.

1. Projects with No Meaningful Potential MSAT Effects, or Exempt Projects.

The types of projects included in this category are:

- Projects qualifying as a categorical exclusion under 23 CFR 771.117(c) (subject to consideration whether unusual circumstances exist under 23 CFR 771.117(b));
- Projects exempt under the Clean Air Act conformity rule under 40 CFR 93.126; or
- Other projects with no meaningful impacts on traffic volumes or vehicle mix.

For projects that are categorically excluded under 23 CFR 771.117(c), or are exempt from conformity requirements under the Clean Air Act pursuant to 40 CFR 93.126, no analysis or discussion of MSAT is necessary. Documentation sufficient to demonstrate that the project qualifies as a categorical exclusion and/or exempt project will suffice. For other projects with no or negligible traffic impacts, regardless of the class of NEPA environmental document, no MSAT analysis is recommended. However, the project record should document the basis for the determination of "no meaningful potential impacts" with a brief description of the factors considered. Example language, which must be modified to correspond with local and project-specific circumstances, is provided in Appendix A.

2. Projects with Low Potential MSAT Effects

The types of projects included in this category are those that serve to improve operations of highway, transit, or freight without adding substantial new capacity or without creating a facility that is likely to meaningfully increase MSAT emissions. This category covers a broad range of projects.

We anticipate that most highway projects that need an MSAT assessment will fall into this category. Any projects not meeting the criteria in category (1) or category (3) below should be included in this category. Examples of these types of projects are minor widening projects; new interchanges, replacing a signalized intersection on a surface street; or projects where design year traffic is projected to be less than 140,000 to 150,000 annual average daily traffic (AADT).

For these projects, a qualitative assessment of emissions projections should be conducted. This qualitative assessment would compare, in narrative form, the expected effect of the project on traffic volumes, vehicle mix, or routing of traffic and the associated changes in MSAT for the project alternatives, including no-build, based on VMT, vehicle mix, and speed. It would also

1. The types of projects categorically excluded under 23 CFR 771.117(d) or exempt from certain conformity requirements under 40 CFR 93.127 do not warrant an automatic exemption from an MSAT analysis, but they usually will have no meaningful impact.
discuss national trend data projecting substantial overall reductions in emissions due to stricter engine and fuel regulations issued by EPA. Because the emission effects of these projects typically are low, we expect there would be no appreciable difference in overall MSAT emissions among the various alternatives.

Appendix B includes example language for a qualitative assessment, with specific examples for four types of projects: (1) a minor widening project; (2) a new interchange connecting an existing roadway with a new roadway; (3) a new interchange connecting new roadways; and (4) minor improvements or expansions to intermodal centers or other projects that affect truck traffic. The information provided in Appendix B must be modified to reflect the local and project-specific situation.

In addition to the qualitative assessment, a NEPA document for this category of projects must include a discussion of information that is incomplete or unavailable for a project specific assessment of MSAT impacts, in compliance with the Council on Environmental Quality (CEQ) regulations (40 CFR 1502.22(b)). This discussion should explain how current scientific techniques, tools, and data are not sufficient to accurately estimate human health impacts that could result from a transportation project in a way that would be useful to decision-makers. Also in compliance with 40 CFR 150.22(b), it should contain information regarding the health impacts of MSAT. See Appendix C.

(3) Projects with Higher Potential MSAT Effects

This category includes projects that have the potential for meaningful differences in MSAT emissions among project alternatives. We expect a limited number of projects to meet this two-pronged test. To fall into this category, a project should:

- Create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of diesel particulate matter in a single location, involving a significant number of diesel vehicles for expansion projects; or
- Create new capacity or add significant capacity to urban highways such as interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the AADT is projected to be in the range of 140,000 to 150,00007 or greater by the design year;

And also

- Proposed to be located in proximity to populated areas.

Projects falling within this category should be more rigorously assessed for impacts. If a project falls within this category, you should contact the Office of Natural Environment (HEPN) and the Office of Project Development and Environmental Review (HEPE) in FHWA Headquarters for assistance in developing a specific approach for assessing impacts. This approach would include a quantitative analysis to forecast local-specific emission trends of the priority MSAT for each alternative, to use as a basis of comparison. This analysis also may address the potential for cumulative impacts, where appropriate, based on local conditions. How and when cumulative impacts should be considered would be addressed as part of the assistance outlined above. The NEPA document for this project should also include relevant language on unavailable information described in Appendix C.

If the analysis for a project in this category indicates meaningful differences in levels of MSAT emissions among alternatives, mitigation options should be identified and considered. See Appendix E for information on mitigation strategies.

You should also consult with HEPN and HEPE if you have a project that does not fall within any of the types of projects listed above, but you think has the potential to substantially increase future MSAT emissions.

CONCLUSION

What we know about mobile source air toxics is still evolving. As the science progresses FHWA will continue to revise and update this guidance. FHWA is working with Stakeholders, EPA and others to better understand the strengths and weaknesses of developing analysis tools and the applicability on the project level decision documentation process. FHWA wanted to make project sponsors aware of the implications of the transition to the MOVES model and that we will be issuing updates to this interim guidance when necessary. Additional background information on MSAT-related research is provided in Appendix D.

The FHWA Headquarters and Resource Center staff Victoria Martinez (787) 766-5600 X231, Bruce Bender (202) 366-2851, and Michael Claggett (505) 820-2047, are available to provide information and technical assistance, support any necessary analysis, and limit project delays. All MSAT analysis beginning on or after December 20, 2012, should use the MOVES model. Any MSAT analysis initiated prior to that date may continue to operate under the previous guidance and utilize MOBILE6.2. We are available to answer questions from project sponsors as we transition to MOVES.

APPENDICES

Appendix A – Prototype Language for Exempt Projects
Appendix B – Prototype Language for Qualitative Project Level MSAT Analysis
Appendix C – The Council on Environmental Quality (CEQ) Provisions Covering Incomplete or Unavailable Information (40 CFR 1502.22) including a discussion of unavailable information for project-specific MSAT Health Impacts Analysis
Appendix D – FHWA Sponsored Mobile Source Air Toxics Research Efforts
Appendix E – MSAT Mitigation Strategies

2 Using EPA’s MOVES2010b emissions model, FHWA staff determined that this range of AADT would result in emissions significantly lower than the Clean Air Act definition of a major hazardous air pollutant (HAP) source, i.e., 25 tons/yr. for all HAPs or 10 tons/yr. for any single HAP. Variations in conditions such as congestion or vehicle mix could warrant a different range for AADT; if this range does not seem appropriate for your project, please consult with the contacts from HEPN and HEPE identified in this memorandum.
APPENDIX A – Prototype Language for Exempt Projects

The purpose of this project is to (insert major deficiency that the project is meant to address) by constructing (insert major elements of the project). This project has been determined to generate minimal air quality impacts for CAAA criteria pollutants and has not been linked with any special MSAT concerns. As such, this project will not result in changes in traffic volumes, vehicle mix, basic project location, or any other factor that would cause an increase in MSAT impacts of the project from that of the no-build alternative.

Moreover, EPA regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with EPA’s MOVES model forecasts a combined reduction of over 80 percent in the total annual emission rate for the priority MSAT from 2010 to 2050 while vehicle-miles of travel are projected to increase by over 100 percent. This will both reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this project.

APPENDIX B – Examples of Prototype Language for Qualitative Project-Level MSAT Analysis

The information in this Appendix is for projects with low potential MSAT effects – any non-exempt project that does not meet the threshold criteria for higher potential effects, as described in the interim guidance, should be considered for treatment provided here. The types of projects that fall into this category are those that improve operations of highways, or freight facilities without adding substantial new capacity. Examples include minor widening projects or new interchanges replacing signalized intersection on surface streets.

The following are some examples of qualitative MSAT analyses for different types of projects. Each project is different, and some projects may contain elements covered in more than one of the examples below. Analysts can use the example language as a starting point, but should tailor it to reflect the unique circumstances of the project being considered. The following factors should be considered when crafting a qualitative analysis:

- For projects on an existing alignment, MSAT are expected to decline due to the effect of new EPA engine and fuel standards.
- Projects that result in increased travel speeds will reduce MSAT emissions per VMT basis, although previously, the effect of speed changes on diesel particulate matter was not accounted for in the MOBILE6.2 model, however, MOVES does provide this estimation and should be accounted for accordingly. This speed benefit may be offset somewhat by increased VMT if the more efficient facility attracts additional vehicle trips.
- Projects that facilitate new development may generate additional MSAT emissions from new trips, truck deliveries, and parked vehicles (due to evaporative emissions). However, these may also be activities that are attracted from elsewhere in the metro region; thus, on a regional scale there may be no net change in emissions.
- Projects that create new travel lanes, relocate lanes, or relocate economic activity closer to homes, schools, businesses, and other populated areas may increase concentrations of MSAT at those locations relative to No Action.

Other elements related to a qualitative analysis are a discussion of information that is incomplete or unavailable for a project specific assessment of MSAT impacts and a discussion of any MSAT mitigation measures that may be associated with the project.
INTRODUCTORY LANGUAGE FOR QUALITATIVE ANALYSIS FOR ALL PROJECTS

A qualitative analysis provides a basis for identifying and comparing the potential differences among MSAT emissions, if any, from the various alternatives. The qualitative assessment presented below is derived in part from a study conducted by the FHWA entitled A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives, found at:
www.fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm

(1) Minor Widening Project
(For purposes of this scenario, minor highway widening projects are those in which the design year traffic is predicted to be less than 140,000 – 150,000 AADT. Widening projects that surpass these criteria are subject to a quantitative analysis.)

For each alternative in this EIS/EIS, the amount of MSAT emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. The VMT estimated for each of the Build Alternatives is slightly higher than that for the No Build Alternative, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. Refer to Table ___ (specify). This increase in VMT would lead to higher MSAT emissions for the preferred action alternative along the highway corridor, along with a corresponding decrease in MSAT emissions along the parallel routes. The emissions increase is offset somewhat by lower MSAT emission rates due to increased speeds; according to EPA's MOVES2010b model, emissions of all of the priority MSAT decrease as speed increases. Because the estimated VMT under each of the Alternatives are nearly the same, varying by less than ___ (specify) percent, it is expected there would be no appreciable difference in overall MSAT emissions among the various alternatives. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by over 80 percent between 2010 and 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

(The following paragraph may apply if the project includes plans to construct travel lanes closer to populated areas.)

The additional travel lanes contemplated as part of the project alternatives will have the effect of moving some traffic closer to nearby homes, schools, and businesses; therefore, under each alternative there may be localized areas where ambient concentrations of MSAT could be higher under certain Build Alternatives than the No Build Alternative. The localized increases in MSAT concentrations would likely be most pronounced along the expanded roadway sections that would be built at ___ (specify location), under Alternatives ___ (specify), and along ___ (specify route) under Alternatives ___ (specify). However, the magnitude and the duration of these potential increases compared to the No-Build alternative cannot be reliably quantified due to incomplete or unavailable information in forecasting project-specific MSAT health impacts. In sum, when a highway is widened, the localized level of MSAT emissions for the Build Alternative could be higher relative to the No Build Alternative, but this could be offset due to decreases in speeds and reductions in congestion (which are associated with lower MSAT emissions). Also, MSAT will be lower in other locations when traffic shifts away from them. However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than today.

(2) New Interchange Connecting an Existing Roadway with a New Roadway
(This scenario is oriented toward projects where a new roadway segment connects to an existing limited access highway. The purpose of the roadway is primarily to meet regional travel needs, e.g., by providing a more direct route between locations.)

For each alternative in this EIS/EIS, the amount of MSAT emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. Because the VMT estimated for the No Build Alternative is higher than for any of the Build Alternatives, higher levels of MSAT are not expected from any of the Build Alternatives compared to the No Build. Refer to Table ___ (specify). In addition, because the estimated VMT under each of the Build Alternatives are nearly the same, varying by less than ___ (specify) percent, it is expected there would be no appreciable difference in overall MSAT emissions among the various alternatives. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by over 80 percent from 2010 to 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in virtually all locations.

Under each alternative there may be localized areas where VMT would increase, and other areas where VMT would decrease. Therefore, it is possible that localized increases and decreases in MSAT emissions may occur. The localized increases in MSAT emissions would likely be most pronounced along the new roadway sections that would be built at ___ (specify location), under Alternatives ___ (specify), and along ___ (specify route) under Alternatives ___ (specify). However, even if these increases do occur, they too will be substantially reduced in the future due to implementation of EPA's vehicle and fuel regulations.

In sum, under all Build Alternatives in the design year it is expected there would be reduced MSAT emissions in the immediate area of the project, relative to the No Build
(3) New Interchange Connecting New Roadways

(This scenario is oriented toward interchange projects developed in response to or in anticipation of economic development, e.g., a new interchange to serve a new shopping/residential development. Projects from the previous example may also have economic development associated with them, so some of this language may also apply.)

For each alternative in this EIS/EA (specify), the amount of MSAT emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. The VMT estimated for each of the Build Alternatives is slightly higher than that for the No Build Alternative, because the interchange facilitates new development that attracts trips that would not otherwise occur in the area. Refer to Table ___ (specify). This increase in VMT means MSAT under the Build Alternatives would probably be higher than the No Build Alternative in the study area. There could also be localized differences in MSAT from indirect effects of the project such as associated access traffic, emissions of evaporative MSAT (e.g., benzene) from parked cars, and emissions of diesel particulate matter from delivery trucks (modify depending on the type and extent of the associated development). Travel to other destinations would be reduced with subsequent decreases in emissions at those locations.

Because the estimated VMT under each of the Build Alternatives are nearly the same, varying by less than ___ (specify) percent, it is expected there would be no appreciable difference in overall MSAT emissions among the various Build Alternatives. For all Alternatives, emissions are virtually certain to be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by over 80 percent from 2010 to 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future than they are today.

(The following discussion would apply to new interchanges in areas already developed to some degree. For new construction in anticipation of economic development in rural or largely undeveloped areas, this discussion would be applicable only to populated areas, such as residences, schools, and businesses.)

The travel lanes contemplated as part of the project alternatives will have the effect of moving some traffic closer to nearby homes, schools and businesses; therefore, under each alternative there may be localized areas where ambient concentrations of MSAT would be higher under certain Alternatives than others. The localized differences in MSAT concentrations would likely be pronounced along the new/expanded roadway sections that would be built at ___ (specify location), under Alternatives ___ (specify), and along ___ (specify route) under Alternatives ___ (specify).

However, the magnitude and the duration of these potential increases cannot be reliably quantified due to incomplete or unavailable information in forecasting project-specific MSAT health impacts. Further, under all Alternatives, overall future MSAT are expected to be substantially lower than today due to implementation of EPA's vehicle and fuel regulations.

In sum, under all Build Alternatives in the design year it is expected there would be slightly higher MSAT emissions in the study area relative to the No Build Alternative due to increased VMT. There also could be increases in MSAT levels in a few localized areas where VMT increases. However, EPA's vehicle and fuel regulations will bring about significantly lower MSAT levels for the area in the future than today.

(4) Minor Improvements or Expansions to Intermodal Centers or Other Projects that Affect Truck Traffic

(The description for these types of projects depends on the nature of the project. The key factor from an MSAT standpoint is the change in truck and rail activity and the resulting change in MSAT emissions patterns.)

For each alternative in this EIS/EA (specify), the amount of MSAT emitted would be proportional to the amount of truck vehicle miles traveled (VMT) and rail activity, assuming that other variables (such as travel not associated with the intermodal center) are the same for each alternative. The truck VMT and rail activity estimated for each of the Build Alternatives are higher than that for the No Build Alternative, because of the additional activity associated with the expanded intermodal center. Refer to Table ___ (specify). This increase in truck VMT and rail activity associated with the Build Alternatives would lead to higher MSAT emissions (particularly diesel particulate matter) in the vicinity of the intermodal center. The higher emissions could be offset somewhat by two factors: 1) the decrease in regional truck traffic due to increased use of rail for inbound and outbound freight; and 2) increased speeds on area highways due to the decrease in truck traffic. The extent to which these emissions decreases will offset intermodal center-related emissions increases is not known.

Because the estimated truck VMT and rail activity under each of the Build Alternatives are nearly the same, varying by less than ___ (specify) percent, it is expected there would be no appreciable difference in overall MSAT emissions among the various alternatives. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by over 80 percent from 2010 to 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the EPA-projected reductions are so significant (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future as well.

(The following discussion may apply if the intermodal center is close to other development.)
The additional freight activity contemplated as part of the project alternatives will have the effect of increasing diesel emissions in the vicinity of nearby homes, schools, and businesses; therefore, under each alternative there may be localized areas where ambient concentrations of MSAT would be higher than under the No Build alternative. The localized differences in MSAT concentrations would likely be most pronounced under Alternatives (specify). However, as discussed above, the magnitude and the duration of these potential differences cannot be reliably quantified due to incomplete or unavailable information in forecasting project-specific health impacts. Even though there may be differences among the Alternatives, on a region-wide basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will cause substantial reductions over time that in almost all cases the MSAT levels in the future will be significantly lower than today.

(Insert a description of any emissions-reduction activities that are associated with the project, such as truck and train idling limitations or technologies, such as auxiliary power units; alternative fuels or engine retrofits for container-handling equipment, etc.)

In sum, all Build Alternatives in the design year are expected to be associated with higher levels of MSAT emissions in the study area, relative to the No Build Alternative, along with some benefit from improvements in speeds and reductions in region-wide truck traffic. There also could be slightly higher differences in MSAT levels among Alternatives in a few localized areas where freight activity occurs closer to homes, schools, and businesses. Under all alternatives, MSAT levels are likely to decrease over time due to nationally mandated cleaner vehicles and fuels.

MSAT MITIGATION STRATEGIES

Although there is no obligation to identify and consider MSAT mitigation strategies as part of a qualitative analysis, such strategies may be part of a project’s design. Refer to the examples provided in (4) Minor Improvements or Expansions to Intermodal Centers or Other Projects that Affect Truck Traffic, or Appendix E. For these and similar circumstances, MSAT mitigation strategies should be discussed as part of a qualitative analysis.

CEQ PROVISIONS COVERING INCOMPLETE OR UNAVAILABLE INFORMATION (40 CFR 1502.22)

The introductory language for qualitative analysis should be followed by a 40 CFR 1502 assessment of incomplete or unavailable information. Refer to Appendix C for details.

APPENDIX C - CEQ Provisions Covering Incomplete or Unavailable Information

Sec. 1502.22 INCOMPLETE OR UNAVAILABLE INFORMATION

When an agency is evaluating reasonably foreseeable significant adverse effects on the human environment in an environmental impact statement and there is incomplete or unavailable information, the agency shall always make clear that such information is lacking.

(a) If the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement.

(b) If the information relevant to reasonably foreseeable significant adverse impacts cannot be obtained because the overall costs of obtaining it are exorbitant or the means to obtain it are not known, the agency shall include within the environmental impact statement:

1. a statement that such information is incomplete or unavailable;
2. a statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment;
3. a summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment; and
4. the agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community. For the purposes of this section, "reasonably foreseeable" includes impacts that have catastrophic consequences, even if their probability of occurrence is low, provided that the analysis of the impacts is supported by credible scientific evidence, is not based on pure conjecture, and is within the rule of reason.

The amended regulation will be applicable to all environmental impact statements for which a Notice to Intent (40 CFR 1508.22) is published in the Federal Register on or after May 27, 1986. For environmental impact statements in progress, agencies may choose to comply with the requirements of either the original or amended regulation.

INCOMPLETE OR UNAVAILABLE INFORMATION FOR PROJECT-SPECIFIC MSAT HEALTH IMPACTS ANALYSIS

In FHWA’s view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not,
would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The U.S. Environmental Protection Agency (EPA) is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the Clean Air Act and its amendments and have specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain the Integrated Risk Information System (IRIS), which is “a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects” (EPA, https://www.epa.gov/iris/). Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Two HEI studies are summarized in Appendix D of FHWA’s Interim Guidance Update on Mobile source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are: cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI, http://pubs.healtheffects.org/view.php?id=282) or in the future as vehicle emissions substantially decrease (HEI, http://pubs.healtheffects.org/view.php?id=306).

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts – each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70 year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (http://pubs.healtheffects.org/view.php?id=282). As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA (http://www.epa.gov/risk/basicinformation.htm) and the HEI (http://pubs.healtheffects.org/getfile.php?id=392) have not established a basis for quantitative risk assessment of diesel PM in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the Clean Air Act to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an “acceptable” level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA’s approach to addressing risk in its two step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

Due to the limitations cited, a discussion such as the example provided in this Appendix (reflecting any local and project-specific circumstances), should be included regarding incomplete or unavailable information in accordance with Council on Environmental Quality (CEQ) regulations [40 CFR 1502.22(b)]. The FHWA Headquarters and Resource Center staff Victoria Martinez (787) 766-5600 X231, Bruce Bender (202) 366-2851, and Michael Caggazz (505) 820-2047, are available to provide guidance and technical assistance and support.
The information provided here is an update to research work discussed in the 2009 release of this interim guidance. The current title of each research activity is followed by the title used to describe the activity previously.

Available at http://www.fhwa.dot.gov/environment/airtoxic/workplan/index.htm

APPENDIX D – FHWA Sponsored Mobile Source Air Toxics Research Efforts

Human epidemiology and animal toxicology experiments indicate that many chemicals or mixtures termed air toxics have the potential to impact human health. As toxicology, epidemiology and air contaminant measurement techniques have improved over the decades, scientists and regulators have increased their focus on the levels of each chemical or material in the air in an effort to link potential exposures with potential health effects. The EPA’s list of 21 mobile source toxics represents their prioritization of these chemicals or materials for further study and evaluation. The EPA’s strategy for evaluating air toxic compounds effects is focused on both national trends and local impacts. The FHWA has embarked on an air toxics research program with the intent of understanding the mobile source contribution and its impact on local and national air quality. Several of studies either initiated or supported by FHWA are described below.

Air toxics emissions from mobile sources have the potential to impact human health and often represent a regulatory agency concern. The FHWA has responded to this concern by developing an integrated research program to answer the most important transportation community questions related to air toxics, human health, and the NEPA process. To this end, FHWA has performed, funded or is currently managing several research projects. Many of these projects are based on an Air Toxics Research Workplan that provides a roadmap for agency research efforts. These efforts include:

THE NATIONAL NEAR ROADWAY MSAT STUDY

The FHWA, in conjunction with the EPA and a consortium of State departments of transportation, studied the concentration and physical behavior of MSAT and mobile source PM 2.5 in Las Vegas, Nevada and Detroit, Michigan. The study criteria dictated that the study site be open to traffic and have 150,000 Annual Average Daily Traffic or more. These studies were intended to provide knowledge about the dispersion of MSAT emissions with the ultimate goal of enabling more informed transportation and environmental decisions at the project-level. These studies are unique in that the monitored data was collected for the entire year. The Las Vegas, NV report revealed there are a large number of influences in this urban setting and researchers must look beyond the roadway to find all the sources in the near road environment. Additionally, in Las Vegas, meteorology played a large role in the concentrations measured in the near road study area. More information is available at http://www.fhwa.dot.gov/environment/airtoxic/msat/index.htm.

Mobile Source Air Toxic Hot Spot

Given concerns about the possibility of MSAT exposure in the near road environment, The Health Effects Institute (HEI) dedicated a number of research efforts at trying to find a MSAT “hotspot.” In 2011 three studies were published that tested this hypothesis. In general the authors confirm that while highways are a source of air toxics, they were unable to find that highways were the only source of these pollutants and determined that near road exposures were often no different or no higher than background or ambient levels of exposure, and hence no true hot spots were identified. These links provide additional information http://pubs.healtheffects.org/getfile.php?u=659 page 137, and http://pubs.healtheffects.org/getfile.php?u=655 page 143, and http://pubs.healtheffects.org/getfile.php?u=613 page 87, where monitored on-road emissions were higher than emission levels monitored near road residences, but the issue of hot spot was not ultimately discussed.

TRAFFIC-RELATED AIR POLLUTION

Going One Step Beyond: A Neighborhood Scale Air Toxics Assessment in North Denver (The Good Neighbor Project)

In 2007, the Denver Department of Environmental Health (DDEH) issued a technical report entitled Going One Step Beyond: A Neighborhood Scale Air Toxics Assessment in North Denver (The Good Neighbor Project). This research project was funded by FHWA. In this study, DDEH conducted a neighborhood-scale air toxics assessment in North Denver, which includes a portion of the proposed I-70 East project area. Residents in this area have been very concerned about both existing health effects in their neighborhoods (from industrial activities, hazardous waste sites, and traffic) and potential health impacts from changes to I-70.

The study was designed to compare modeled levels of the six priority MSATs identified in FHWA’s 2006 guidance with measurements at existing MSAT monitoring sites in the study area. MOBILE6.2 emissions factors and the ISC3ST dispersion model were used (some limited testing of the CALPUFF model was also performed). Key findings include: 1) modeled mean annual concentrations from highways were well below estimated Integrated Risk Information System (IRIS) cancer and non-cancer risk values for all six MSAT; 2) modeled concentrations dropped off sharply within 50 meters of roadways; 3) modeled MSAT concentrations tended to be higher along highways near the Denver Central Business District (CBD) than along the I-70 East corridor (in some cases, they were higher within the CBD itself, as were the monitored values); and 4) dispersion model results were generally lower than monitored concentrations but within a factor of two at all locations.
Traffic-Related Air Pollution: A Critical Review of the Literature on Emissions, Exposure, and Health Effects

In January 2010, HEI released Special Report #17, investigating the health effects of traffic related air pollution. The goal of the research was to synthesize available information on the effects of traffic on health. Researchers looked at linkages between: (1) traffic emissions (at the tailpipe) with ambient air pollution in general, (2) concentrations of ambient pollutants with human exposure to pollutants from traffic, (3) exposure to pollutants from traffic with human-health effects and toxicologic data, and (4) toxicologic data with epidemiological associations. Challenges in making exposure assessments, such as quality and quantity of emissions data and models, were investigated, as was the appropriateness of the use of proximity as an exposure-assessment model. Overall, researchers felt that there was “sufficient” evidence for causality for the exacerbation of asthma. Evidence was “suggestive but not sufficient” for other health outcomes such as cardiovascular mortality and others. Study authors also note that past epidemiologic studies may not provide an appropriate assessment of future health associations as vehicle emissions are decreasing overtime. The report is available from HEI’s website at http://www.healtheffects.org/.

The FHWA provides financial support to HEI’s research work.

HEI SPECIAL REPORT #16

In November 2007, the HEI published Special Report #16: Mobile-Source Air Toxics: A Critical Review of the Literature on Exposure and Health Effects. The purpose of this Report was to accomplish the following tasks:

- Use information from the peer-reviewed literature to summarize the health effects of exposure to the 21 MSATs defined by the EPA in 2001;
- Critically analyze the literature for a subset of priority MSAT; and
- Identify and summarize key gaps in existing research and unresolved questions about the priority MSAT.

The HEI chose to review literature for acetaldehyde, acrolein, benzene, 1,3-butadiene, formaldehyde, naphthalene, and polycyclic organic matter (POM). Diesel exhaust was included, but not reviewed in this study since it had been reviewed by HEI and EPA recently. In general, the Report concluded that the cancer health effects due to mobile sources are difficult to discern since the majority of quantitative assessments are derived from occupational cohorts with high concentration exposures and some cancer potency estimates are derived from animal models. The Report suggested that substantial improvements in analytical sensitivity and specificity of biomarkers would provide better linkages between exposure and health effects. Noncancer endpoints were not a central focus of most research, and therefore require further investigation. Subpopulation susceptibility also requires additional evaluation. The study is available from HEI’s website at http://www.healtheffects.org/.

KANSAS CITY PM CHARACTERIZATION STUDY (KANSAS CITY STUDY)

This study was initiated by EPA to conduct exhaust emissions testing on 480 light-duty, gasoline vehicles in the Kansas City Metropolitan Area (KCMA). Major goals of the study included characterizing PM emissions distributions of a sample of gasoline vehicles in Kansas City; characterizing gaseous and PM toxics exhaust emissions; and characterizing the fraction of high emitters in the fleet. In the process, sampling methodologies were evaluated. Overall, results from the study were used to populate databases for the MOVES emissions model. The FHWA was one of the research sponsors. This study is available on EPA’s website at: http://www.epa.gov/otaq/emission-factors-research/420r08009.pdf

ESTIMATING THE TRANSPORTATION CONTRIBUTION TO PARTICULATE MATTER POLLUTION (AIR TOXICS SUPERSITE STUDY)

The purpose of this study was to improve understanding of the role of highway transportation sources in particulate matter (PM) pollution. In particular, it was important to examine uncertainties, such as the effects of the spatial and temporal distribution of travel patterns, consequences of vehicle fleet mix and fuel type, the contribution of vehicle speed and operating characteristics, and influences of geography and weather. The fundamental methodology of the study was to combine EPA research-grade air quality monitoring data in a representative sample of metropolitan areas with traffic data collected by State departments of transportation (DOTs) and local governments.

Phase I of the study, the planning and data evaluation stage, assessed the characteristics of EPA’s ambient PM monitoring initiatives and recruited State DOTs and local government to participate in the research. After evaluating and selecting potential metropolitan areas based on the quality of PM and traffic monitoring data, nine cities were selected to participate in Phase II. The goal of Phase II was to determine whether correlations could be observed between traffic on highway facilities and ambient PM concentrations. The Phase I report was published in September 2002. Phase II included the collection of traffic and air quality data and data analysis. Ultimately, six cities participated: New York City (Queens), Baltimore, Pittsburgh, Atlanta, Detroit and Los Angeles.

In Phase II, air quality and traffic data were collected. The air quality data was obtained from EPA AIRS AQs system, Supersite personnel, and NARSTO data archive site. Traffic data included ITS (roadway surveillance), Coverage Counts (routine traffic monitoring) and Supplemental Counts (specifically for research project). Analyses resulted in the conclusion that only a weak correlation existed between PM2.5 concentrations and traffic activity for several of the sites. The existence of general trends indicates a relationship, which however is primarily unquantifiable. Limitations of the study include the assumption that traffic sources are close enough to ambient monitors to provide sufficiently strong source strength, that vehicle activity is an appropriate surrogate for mobile emissions, and lack of knowledge of other factors such as non-traffic sources.
APPENDIX E – MSAT Mitigation Strategies

Lessening the effects of mobile source air toxics should be considered for projects with substantial construction-related MSAT emissions that are likely to occur over an extended building period, and for post-construction scenarios where the NEPA analysis indicates potentially meaningful MSAT levels. Such mitigation efforts should be evaluated based on the circumstances associated with individual projects, and they may not be appropriate in all cases. However, there are a number of available mitigation strategies and solutions for countering the effects of MSAT emissions.

Mitigating for Construction MSAT Emissions

Construction activity may generate a temporary increase in MSAT emissions. Project-level assessments that render a decision to pursue construction emission mitigation will benefit from a number of technologies and operational practices that should help lower short-term MSAT. In addition, the Federal Highway Administration has supported a host of diesel retrofit technologies in the Congestion Mitigation and Air Quality Improvement (CMAQ) Program provisions – technologies that are designed to lessen a number of MSATs.

Construction mitigation includes strategies that reduce engine activity or reduce emissions per unit of operating time, such as reducing the numbers of trips and extended idling. Operational agreements that reduce or redirect work or shift times to avoid community exposures can have positive benefits when sites are near populated areas. For example, agreements that stress work activity outside normal hours of an adjacent school campus would be operations-oriented mitigation. Verified emissions control technology retrofits or fleet modernization of engines for construction equipment could be appropriate mitigation strategies. Technology retrofits could include particulate matter traps, oxidation catalysts, and other devices that provide an after-treatment of exhaust emissions. Implementing maintenance programs per manufacturers’ specifications to ensure engines perform at EPA certification levels, as applicable, and to ensure retrofit technologies perform at verified standards, as applicable, could also be deemed appropriate. The use of clean fuels, such as ultra-low sulfur diesel, biodiesel, or natural gas also can be a very cost-beneficial strategy.

The EPA has listed a number of approved diesel retrofit technologies; many of these can be deployed as emissions mitigation measures for equipment used in construction. This listing can be found at: www.epa.gov/otaq/retrofit/index.htm.

Post-Construction Mitigation for Projects with Potentially Significant MSAT Levels

Travel demand management strategies and techniques that reduce overall vehicle-mile of travel; reduce a particular type of travel, such as long-haul freight or commuter travel; or improve the transportation system’s efficiency will mitigate MSAT emissions. Examples of such strategies include congestion pricing, commuter incentive programs, and increases in truck weight or length limits. Operational strategies that focus on speed limit
enforcement or traffic management policies may help reduce MSAT emissions even beyond the benefits of fleet turnover. Well-traveled highways with high proportions of heavy-duty diesel truck activity may benefit from active Intelligent Transportation System programs, such as traffic management centers or incident management systems. Similarly, anti-idling strategies, such as truck-stop electrification can complement projects that focus on new or increased freight activity.

Planners also may want to consider the benefits of establishing buffer zones between new or expanded highway alignments and populated areas. Modifications of local zoning or the development of guidelines that are more protective also may be useful in separating emissions and receptors.

The initial decision to pursue MSAT emissions mitigation should be the result of interagency consultation at the earliest juncture. Options available to project sponsors should be identified through careful information gathering and the required level of deliberation to assure an effective course of action. Such options may include local programs, whether voluntary or with incentives, to replace or rebuild older diesel engines with updated emissions controls. Information on EPA diesel collaborative around the country can be found at [http://www.epa.gov/otaq/diesel/wherelyoulive.htm](http://www.epa.gov/otaq/diesel/wherelyoulive.htm).

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