DRAFT SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT FOR THE NUSTAR DOS LAREDOS PIPELINE PRESIDENTIAL PERMIT APPLICATION REVIEW LAREDO, WEBB COUNTY, TEXAS

United States Department of State
Office of Environmental Quality and Transboundary Issues
Bureau of Oceans and International
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DRAFT
FINDING OF NO SIGNIFICANT IMPACT

FOR THE NUSTAR DOS LAREDOS PIPELINE PRESIDENTIAL PERMIT APPLICATION REVIEW
LAREDO, WEBB COUNTY, TEXAS

DATE: March 2016

AGENCY: United States Department of State, Office of Environmental Quality and Transboundary Issues, Bureau of Oceans and International Environmental and Scientific Affairs

ACTION: Finding of No Significant Impact (FONSI)

NAME OF PROPOSED ACTION: NuStar Dos Laredos Pipeline Presidential Permit Application Review, Laredo, Webb County, Texas

INTRODUCTION

The United States Department of State (Department) evaluates Presidential Permit applications under Executive Order (E.O.) 13337 and E.O. 11423. E.O. 13337 delegates to the Secretary of State the President's authority to receive applications for permits for the construction, connection, operation or maintenance of facilities for the exportation or importation of petroleum, petroleum products, coal, or other fuels (except for natural gas) at the borders of the United States and to issue or deny such Presidential Permits upon a national interest determination. Consistent with the National Environmental Policy Act of 1969, as amended (NEPA) (42 United States Code [U.S.C.] Section 4321, et seq.), the regulations of the Council on Environmental Quality (CEQ) (40 Code of Federal Regulations [CFR] 1500-1508), and the Department's implementing regulations (22 CFR Part 161), the Department analyzes the potential environmental impacts associated with issuing or denying a Presidential Permit as part of its review of an application.

On December 4, 2013, NuStar Logistics, L.P., (NuStar) submitted an application for a new Presidential Permit for NuStar's existing Dos Laredos Pipeline that would (1) reflect NuStar's name change from Valero Logistics Operations L.P., to NuStar, as the owner and operator of the Dos Laredos Pipeline crossing the international boundary; and (2) permit NuStar to transport a

broader range of refined petroleum products across the international border in addition to the liquefied petroleum gas (LPG) authorized by the existing 2003 Presidential Permit, including regular and premium gasoline, kerosene, and diesel. The requested new permit, like the 2003 permit, would authorize transport in either direction. The Department determined that the proper level of environmental review for the 2013 permit application is a Supplemental Environmental Assessment (SEA) to evaluate potential environmental impacts from the proposed project and to supplement the analysis contained in the 2003 Final Environmental Assessment for the Dos Laredos Pipeline Project and associated Finding of No Significant Impact (FONSI) (December 30, 2003). This FONSI is based on and incorporates the SEA.

DESCRIPTION OF THE PROPOSED ACTION

The Dos Laredos Pipeline is an 8 5/8-inch outer-diameter pipeline that connects the NuStar terminal in Laredo, Texas, with a terminal in Nuevo Laredo, Tamaulipas, Mexico. The United States portion of the Dos Laredos Pipeline consists of approximately 10.6 miles of pipeline from the NuStar terminal in Laredo, Texas, to a location on the Rio Grande known as "La Bota," approximately 6 miles northwest of downtown Laredo. The Mexican portion consists of approximately 0.93 mile of pipeline from the Rio Grande crossing to the Nuevo Laredo terminal. The border segment is from Rio Grande to the first mainline shut-off valve within the United States located approximately 0.9 mile from the Rio Grande. The pipeline is currently authorized to carry only LPG, but NuStar is seeking authorization for the pipeline to transport a range of refined petroleum products, including LPG, regular and premium gasoline, kerosene, and diesel.

PURPOSE OF AND NEED FOR THE PROPOSED ACTION

The purpose of and need for the Department's action is to determine whether or not to grant the permit requested in NuStar's December 4, 2013 application. NuStar's stated purpose for the proposed project is to use the Dos Laredos Pipeline to transport a broader range of refined petroleum products, rather than exclusively LPG as authorized in the 2003 Permit. NuStar's stated need for the proposed project is to allow NuStar more flexibility in the operation of its facilities to more effectively and efficiently respond to market conditions.

ALTERNATIVES CONSIDERED BUT DISMISSED FROM FURTHER CONSIDERATION

The SEA did not consider construction of a new pipeline at an alternative location because a new route would result in much greater disturbance to the region's human and natural environments than the proposed action. Further, the SEA did not examine the construction or expansion of other transportation infrastructure (e.g., expanded ports of entry or new rail lines), as such alternatives would not be economically reasonable and would not address NuStar's purpose and need. However, the SEA did examine different means of product transport, such as truck, rail, or ship, rather than via pipeline, in the discussion of the No Action Alternative.

ALTERNATIVE 1: PROPOSED ACTION ALTERNATIVE

The Proposed Action Alternative represents the scenario in which the Department grants the requested Presidential Permit. In that scenario, NuStar would transport a broader range of refined petroleum products via the border segment of the existing Dos Laredos Pipeline, including LPG, regular and premium gasoline, kerosene, and diesel. The Dos Laredos Pipeline was designed and constructed for a maximum operating pressure of 1,480 pounds per square inch gauge (psig) and transports up to 32,400 barrels per day of LPG. Due to the differences in the viscosity and flow characteristics, NuStar is proposing to set a throughput of up to 24,000 barrels per day of refined product for the pipeline and at pressures less than 1,480 psig. NuStar would continue to follow all health and safety procedures outlined in its Health, Safety and Environmental Handbook, which identifies the actions, resources, and procedures for responding to potential emergencies.

ALTERNATIVE 2: NO ACTION ALTERNATIVE

The No Action Alternative represents the scenario in which the Department instead denies the requested Presidential Permit. Under the No Action Alternative, a new Presidential Permit would not be issued and NuStar would continue to be authorized under its 2003 Presidential Permit to transport only LPG via the Dos Laredos Pipeline. Gasoline, kerosene, and diesel would continue to be loaded onto trucks in the Laredo area and then transported across the

border to Nuevo Laredo. No modifications would be required at the NuStar Laredo or Nuevo Laredo terminals since no additional refined product would be transported by the pipeline.

ENVIRONMENTAL EFFECTS OF THE PROPOSED ACTION ALTERNATIVE

The Department analyzed the potential effects of transporting a broader range of petroleum products through the existing Dos Laredos pipeline border facilities. The analysis indicated that implementing the Proposed Project would have no significant direct, indirect, or cumulative effects on the quality of the natural or human environments. Indeed, to the extent that the pipeline still carries LPG under the Proposed Action Alternative, the potential environmental impacts of the Proposed Action Alternative and the No Action Alternative would be the same.

As there is no new construction to be considered as part of the Proposed Action Alternative, the principal environmental impacts of the Proposed Action Alternative would be any impacts associated with the operations of the pipeline as it transports non-LPG refined petroleum products. As compared to the No Action Alternative, such operations:

- Do not increase adverse effects on the region's air quality;
- Do not increase noise associated with operation of the pipeline and terminals;
- Do not increase soil disturbance beyond normal maintenance and operation;
- Do not increase effects on water resources beyond normal maintenance and operation;
- Do not significantly affect wildlife or threatened and endangered species;
- Do not impact historic or archaeological preservation; and
- Do not impact floodplains.

There is some potential for environmental impacts from the Proposed Action Alternative should an accidental or otherwise unexpected release from the pipeline occur. However, these potential impacts are not significant because 1) releases are rare occurrences; 2) prompt implementation of NuStar's emergency response plan should mitigate effects; and 3) the effects of a potential release are not significantly different between the Proposed Action Alternative and the No Action Alternative. In addition to the fact that LPG may be transported under either Alternative

(resulting in identical impacts should a release of LPG occur), the release of a non-LPG refined petroleum product under the Proposed Action Alternative may in some cases be better for certain resources than a release of LPG under the No Action Alternative (see below).

POTENTIAL EFFECTS OF THE PROPOSED ACTION ALTERNATIVE DUE TO ACCIDENTAL RELEASES

NuStar's current standard operating procedures include processes, procedures, and systems designed to prevent, detect, and mitigate potential releases of refined petroleum products. However, an accidental or otherwise unexpected release of refined petroleum products, including LPG, regular and premium gasoline, kerosene, and diesel, though unlikely, could occur. NuStar's Laredo facility has an established emergency response plan. The plan identifies the actions, resources, and procedures for responding to potential emergencies, including releases. NuStar states that it would adhere to all standards, policies, and procedures, including the safety standards established by the Department of Transportation, the Pipeline and Hazardous Materials Safety Administration, and those outlined in NuStar's Laredo facility emergency response plan in the event of a release. Below is a summary of potential effects that might occur in the unlikely event of a release. The Dos Laredos Pipeline had no reportable accidental releases during its operation.

Air Quality

During the days following a release of non-LPG refined petroleum products, there would be a continued loss of product to the atmosphere from volatilization. Air concentrations of hazardous constituents such as benzene would be highest immediately following the release, and would diminish over time, creating short-term effects. A release of non-LPG petroleum refined products would affect air quality less than an LPG release. Since LPG volatilizes more quickly, a release of LPG would likely result in localized, short-term air quality effects until the vapor cloud dissipates. In the event of a release, there is also potential for a flammable or toxic vapor cloud to form.

Water Resources

A release of LPG would not present a risk to either surface water or groundwater, as LPG rapidly vaporizes and dissipates. A release of non-LPG refined petroleum products could affect local water resources, including the contamination of the water column and stream and river sediments. Depending on its location, a release could cause potential harm to water resources including the Rio Grande, Sombrerito Creek, tributaries of Sombrerito Creek, and the municipal water supplies of Laredo and Nuevo Laredo. Non-LPG refined petroleum products could be retained within groundwater and surface waters, and this would create a potential hazard to water resources that is not present under the No Action Alternative. However, the threat to groundwater resources would be minimal, as refined petroleum products would either be recovered during emergency response and cleanup procedures, or flow downstream as described in the SEA.

Biological Resources

A release of any refined petroleum product that results in a fire would cause damage to vegetation and could potentially affect wildlife species that may use habitat in the immediate vicinity of the pipeline. However, the local types and distribution of vegetation would make widespread fires improbable. Regarding releases in water, LPG rapidly vaporizes and dissipates in water, so a release would not affect aquatic species. A large release of non-LPG refined petroleum products into the Rio Grande would have the greatest effects in the few miles immediately downstream of the release, and would diminish as the contamination plume traveled downstream due to both dilution from other freshwater streams and volatilization of hazardous constituents. Such a release would be further mitigated by the implementation of NuStar's emergency response measures, which would include containment and cleanup operations. (See additional details in Water Resources, above.)

Human Health and Safety

NuStar states that immediately following a release of any product along any portion of the pipeline, local residents would be temporarily removed from the area in order to minimize health and safety risks resulting from exposure or potential fires. A release from a pipeline rupture could flash to vapor, forming a flammable vapor cloud, which might be transported by wind

toward populated areas. However, less than 20 percent of the pipeline route is in areas where such a cloud could arrive at populated areas in high enough concentration to be above the air flammability limit. Depending on its location, a release could cause potential harm to the municipal water supplies of Laredo and Nuevo Laredo. The magnitude of these effects would depend on the amount and type of products released, proximity to residences, time of day and weather conditions at the time of the release, and emergency response time. However, given the required compliance with various Federal regulations regarding operations and maintenance of pipelines, the risk of an accidental release is highly unlikely. Further, proper emergency response would mitigate or eliminate potential longer-term health or nuisance effects.

Assuming that fewer trucks would be required to transport products across the border under the Proposed Action Alternative than under the No Action Alternative, public safety could be enhanced by the Proposed Action Alternative because trucks are more accident-prone than pipelines, and because the pipeline crosses open, unpopulated portions of Webb County, rather than using the local road network.

Cultural Resources

In the event of a release of non-LPG refined petroleum products, remediation of the spill could uncover buried artifacts. NuStar will develop an Unanticipated Discoveries Plan to address these types of issues specific to the Dos Laredos Pipeline project area.

PUBLIC INVOLVEMENT AND INTERAGENCY COORDINATION

Consultation and coordination with Federal, state, and local agencies and federally recognized tribes began when the Department published a notice in the *Federal Register* on June 24, 2014, informing agencies and the public of its intent to prepare an SEA and inviting input on the scope of the review. The scoping period closed on August 4, 2014, and no comments were received. On April 16, 2015, the Department sent letters to 27 Indian tribes with a current or historic presence in Texas to notify them of the Dos Laredos application and to offer consultations with the Department at any point in the review process. The Department also consulted with the Texas Historical Commission to ensure that cultural resource issues are appropriately addressed.

The United States Fish and Wildlife Service Alamo Ecological Service Sub-Office was consulted and agreed that the project would not create substantively different impacts than have been incurred through the currently authorized transportation of LPG.

The Department has distributed the SEA to other Federal, state, and local government agencies that may have expertise relevant to this environmental review. The SEA is made available at the Laredo Public Library, 1120 East Calton Road, Laredo, Texas, and on the following website: http://www.state.gov/e/enr/applicant/applicants/c61192.htm.

FINDING

In reliance on NuStar's assertions that it will manage operations, maintenance, and emergency response for its Dos Laredos Pipeline in accordance with current and future laws, regulations, and best management practices, its emergency response plan, and the environmental design measures and other policies and procedures identified by NuStar or included in the SEA and supporting documents; and on the basis of the findings of the SEA:

I find that NuStar's proposed change of products for transport in the existing Dos Laredos pipeline would have no significant impact on the quality of the human or natural environments, either individually or cumulatively, and therefore that there is no need to prepare an Environmental Impact Statement.

Copies of the draft and final SEA and the draft and final FONSI will be available on the Department website at: http://www.state.gov/e/enr/applicant/applicants/c61192.htm.

Deborah Klepp Date
Office Director, Environmental Quality and Transboundary Issues
Bureau of Oceans and International Environmental and Scientific Affairs

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SECTION 1.0
PURPOSE OF AND NEED FOR THE PROPOSED ACTION

1.0 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

1.1 INTRODUCTION

The United States Department of State (the Department) has prepared this draft Supplemental Environmental Assessment (SEA) as part of its review of the application for a Presidential Permit submitted on December 4, 2013, by NuStar Logistics, L.P. (NuStar). NuStar's application requests that the Department authorize NuStar's existing Dos Laredos Pipeline to transport a range of refined petroleum products, including liquefied petroleum gas (LPG), regular and premium gasoline, kerosene, and diesel, across the international border in either direction between the Laredo, Texas terminal and Nuevo Laredo, Mexico terminal. The existing 2003 Presidential Permit for the pipeline only allows transportation of LPG. The application has also requested that any new Presidential Permit that the Department might issue in response to its request reflect the company's recent name change from Valero Logistics Operations, L.P., to NuStar. This draft SEA will evaluate the potential effects of the issuance of the requested Presidential Permit.

NuStar is a subsidiary of NuStar Energy, L.P., a publicly traded, limited partnership based in San Antonio, Texas, that owns and operates 8,573 miles of pipeline, as well as 87 terminal and storage facilities, that store and distribute crude oil, refined products, and specialty liquids.

1.2 BACKGROUND

Executive Order (EO) 13337 authorizes the Secretary of State to receive applications for Presidential Permits for the construction, connection, operation, or maintenance of facilities for the exportation or importation of petroleum, petroleum products, coal, or other fuels (except natural gas) at the borders of the United States and to issue or deny such permits upon a national interest determination. In 2003, Valero Logistics Operations, L.P., applied to the Department for a Presidential Permit to construct the Dos Laredos Pipeline, which would cross the United States-Mexico border under the Rio Grande near Laredo, Webb County, Texas (Figure 1-1).

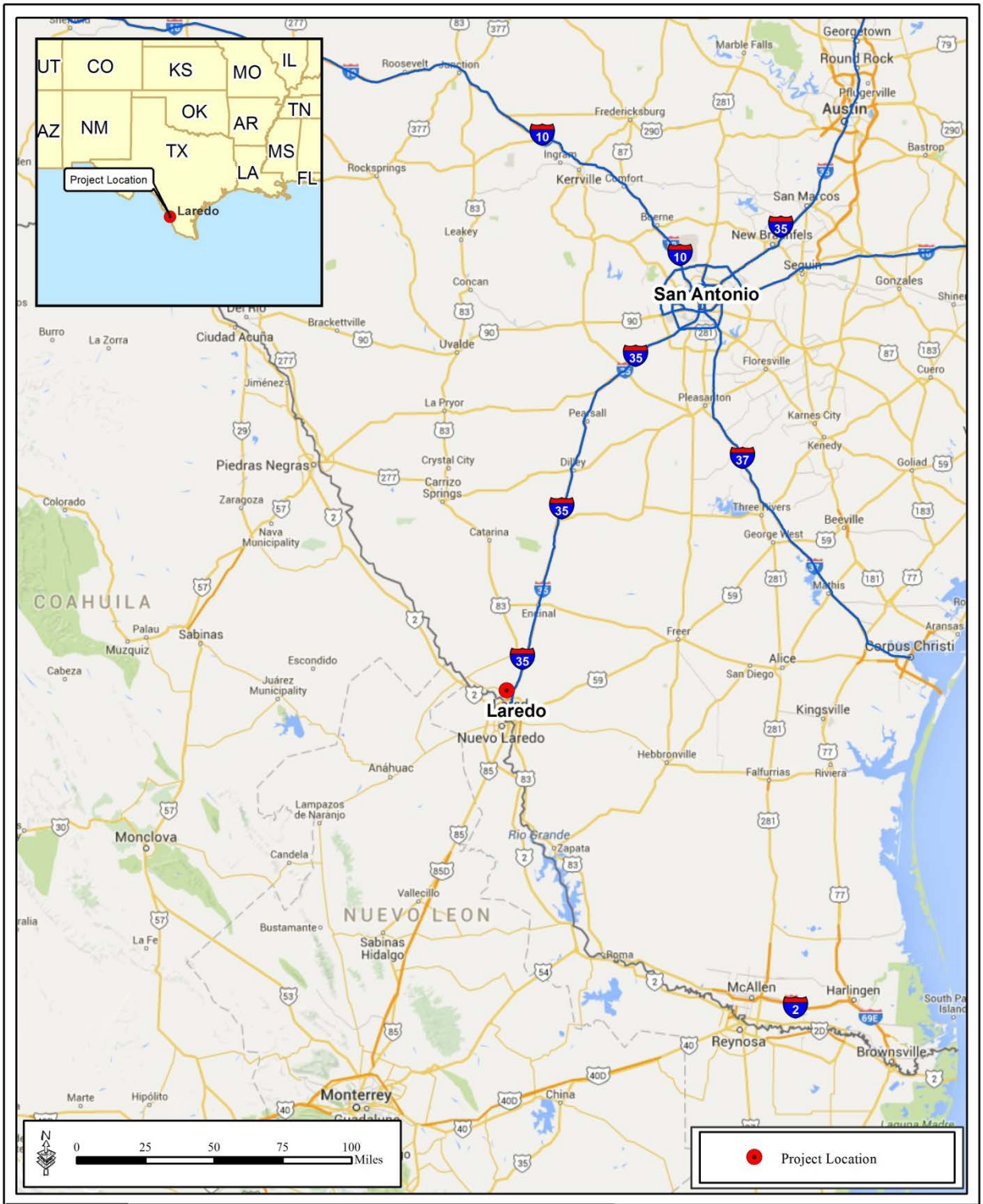

Figure 1-1. Vicinity Map

As part of the application review process, the Department released a final Environmental Assessment (EA) entitled Final Environmental Assessment for the Dos Laredos Pipeline Project, as well as the Finding of No Significant Impact (FONSI), for the construction, connection, operation, and maintenance of the pipeline. Hereinafter that EA and FONSI are referred to as the 2003 EA (Department 2003). This draft SEA supplements the analysis in the 2003 EA and addresses proposed changes to the operation of the Dos Laredos Pipeline.

In accordance with the 2003 Presidential Permit, the Dos Laredos Pipeline was constructed and placed into operation in 2004. The Dos Laredos Pipeline is an 8 5/8-inch outer-diameter pipeline that connects the NuStar terminal in Laredo, Texas, with a terminal in Nuevo Laredo, Tamaulipas, Mexico (Figure 1-2). The United States portion of the Dos Laredos Pipeline consists of approximately 10.6 miles of pipeline from the NuStar terminal in Laredo, Texas, to a location on the Rio Grande known as "La Bota," approximately 6 miles northwest of downtown Laredo. The portion in Mexico consists of approximately 0.93 mile of pipeline from the Rio Grande crossing to the Nuevo Laredo terminal.

The Dos Laredos Pipeline has been out of service since 2011, when it was temporarily idled due to economic and market conditions. NuStar is in the process of returning the pipeline to operation such that products can be transported again. NuStar expects that returning the pipeline to operation would be worthwhile even if a new permit is not issued, due to current favorable economics market conditions, and demand for LPG by NuStar's customers in the Nuevo Laredo area. However, in order to return the pipeline to operation, NuStar has separately informed the Department that it plans to replace the section of the Dos Laredos Pipeline crossing under the Rio Grande in order to return the pipeline to operation. This action constitutes "maintenance" authorized under the terms of the existing 2003 Presidential Permit. In order to conduct this replacement process, NuStar's contractor will excavate a pit on each side of the Rio Grande at the location of the previous horizontal directional drilling (HDD) operation. New horizontal directional drilling will then take place within the previously disturbed areas adjacent to the existing pipeline right-of-way.

HDD is a steerable, trenchless method of installing underground pipes, pipelines, conduits, and cables in a shallow arc along a prescribed bore path by using a surface-launched drilling rig.

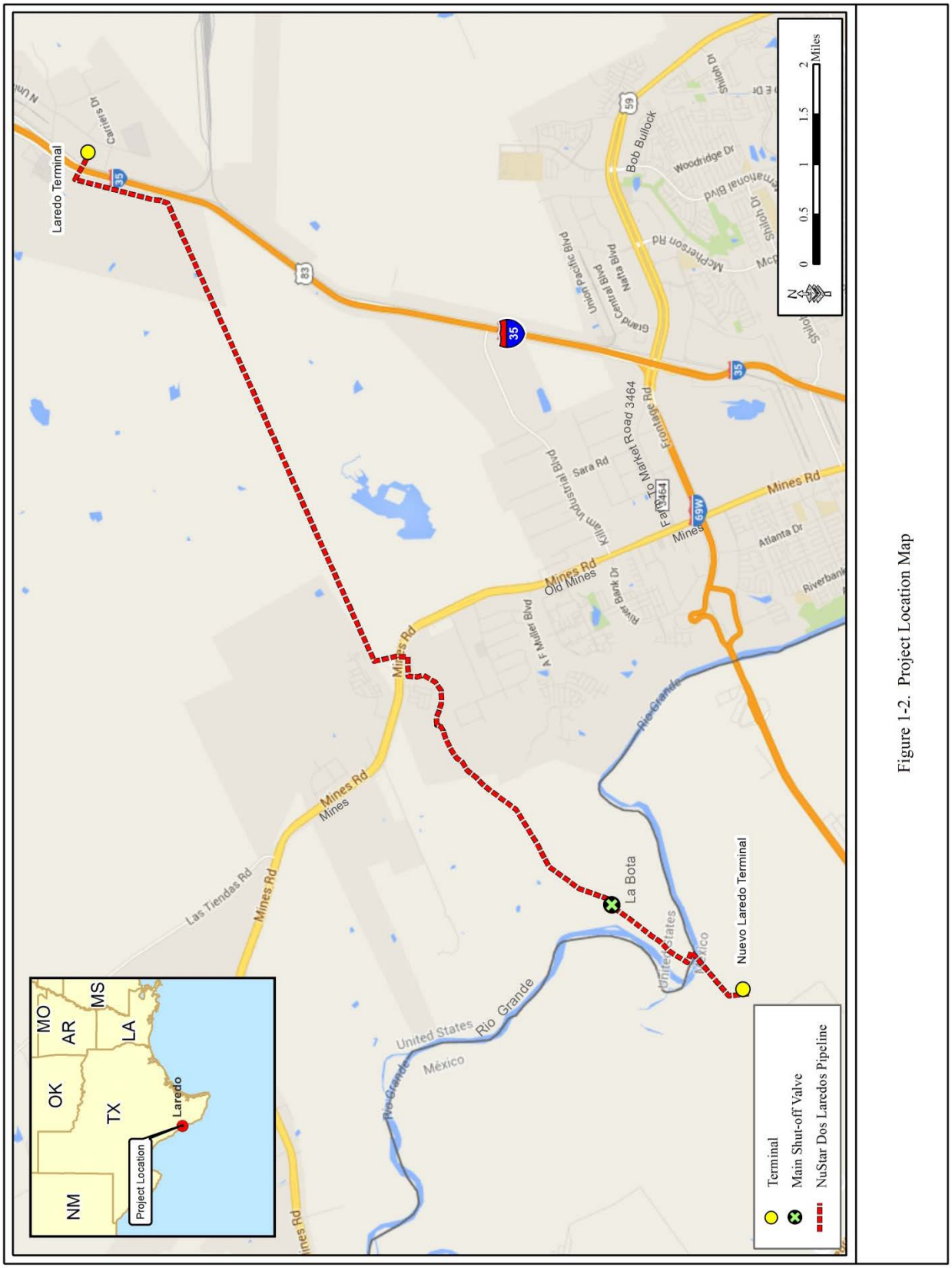

Figure 1-2. Project Location Map

The replacement segment will be offset from the existing segment by approximately 5 feet, following an identical profile to that of the adjacent pipeline under the Rio Grande. The existing segment would be cleaned and abandoned in place per regulations of the Texas Administrative Code Title 16, Part 1, Chapter 3, Rule §3.73. This replacement process will also be reported to the United States Section, International Boundary and Water Commission (USIBWC).

Article 1 of the 2003 Presidential Permit requires the Department to approve a substantial change in the operation of the Dos Laredos Pipeline authorized by the Permit. NuStar is proposing to transport various refined petroleum products, rather than just LPG as previously authorized, via the Dos Laredos Pipeline. The Department determined that this change would require a new Presidential Permit, and NuStar has applied for that Permit.

As part of its application review process, the Department determined that the change in the types of product transported warrants a supplemental analysis consistent with the National Environmental Policy Act (NEPA) of 1969. The Department has prepared this draft SEA in a manner consistent with NEPA and the Council on Environmental Quality (CEQ) regulations for implementing NEPA (40 Code of Federal Regulations [CFR] 1500–1508).

If issued, a new Presidential Permit would cover the "border segment" of the Dos Laredos Pipeline between the United States-Mexico border and the first mainline shut-off valve within the United States located approximately 0.9 mile from the Rio Grande. However, this draft SEA evaluates potential effects within the United States from the Proposed Action Alternative along the length of the pipeline.

1.3 DESCRIPTION OF THE PROPOSED ACTION

A decision to issue the Presidential Permit granting these requests is referred to in this draft SEA as the "Proposed Action Alternative"

1.3.1 Application for a New Presidential Permit

NuStar requests a new Presidential Permit that would (1) reflect NuStar's name change from Valero Logistics Operations, L.P., to NuStar Logistics, L.P., as the owner and operator of the Dos Laredos Pipeline crossing the international boundary and (2) permit the transportation of a broader range of refined petroleum products, in either direction, across the international border.

For purposes of this application, the term "refined petroleum product" means any petroleum product that by American Society for Testing Materials test methods substantially distills below 700 degrees Fahrenheit (°F), has a Reid vapor pressure not exceeding 28 pounds at 100 °F, and has a color not darker than No. 3. Refined petroleum products could generally include individual volatile aromatic compounds that make up the constituents of gasoline such as benzene, toluene, ethylbenzene, and xylene (BTEX), as well as LPG, regular and premium gasoline, kerosene, and diesel. However, individual volatile aromatic compounds are not commercially sold in volumes that would require pipeline transport to a trunk terminal. Thus, LPG, regular and premium gasoline, kerosene, and diesel are the most likely products to be transported via pipeline and sold in the Mexican marketplace and thus are the products focused on in this draft SEA.

Refined petroleum products have the ability to vaporize, or change from liquid to vapor, when exposed to heat or air at temperatures above the boiling point of the fuel. The rate of vaporization is often referred to as volatility, and Reid vapor pressure is a measure of the pressure of a vapor and liquid mixture in a closed container at 100°F, without first removing the air.
Determination of the color of petroleum products is used mainly for manufacturing control purposes and is an important quality characteristic because color is readily observed by the user of the product.

Even though NuStar is seeking authorization for all refined products, NuStar has indicated that it intends to use the Dos Laredos Pipeline to primarily transport diesel and regular and premium gasoline. Further, an analysis of these products encompasses a general range of environmental impacts of the transport of the refined petroleum products that NuStar would be authorized to transport. Based on the assumption that, due to downtime for maintenance and other purposes, the Dos Laredos Pipeline would deliver about 90 percent of its maximum design capacity over the course of a year, the throughput of the Dos Laredos Pipeline for transporting these refined

petroleum products is estimated by NuStar to be up to 24,000 barrels per day (bpd), in contrast to the 32,400 bpd of LPG, because of differences in the viscosity and flow characteristics.

1.3.2 Actions in Mexico

In order to receive additional refined petroleum products via the Dos Laredos Pipeline, changes to the Nuevo Laredo Terminal in Mexico would be necessary. Currently the terminal is set up to handle only LPG. There are two LPG tanks at the Nuevo Laredo Terminal. A two-bay, diesel truck loading rack, a 50,000-barrel diesel storage tank, and associated spill containment systems would be constructed at the Nuevo Laredo Terminal to handle gasoline, kerosene, and diesel from the Dos Laredos Pipeline. These changes do not require authorization from the Department and, as they occur outside of the United States, are not analyzed in this draft SEA.

1.4 PURPOSE AND NEED

According to NuStar's December 4, 2013, Presidential Permit application, the purpose of the Proposed Action Alternative would be to permit NuStar to use the Dos Laredos Pipeline to transport various refined petroleum products, rather than just LPG as authorized in the 2003 Presidential Permit. NuStar needs the flexibility in the operation of its facilities to more effectively and efficiently respond to energy market conditions. The Proposed Action Alternative meets this need.

There is a strong market demand for diesel in Nuevo Laredo and surrounding areas. The majority of diesel is supplied to the area from the Cadereyta Refinery in Monterrey, Mexico; however, diesel production at the Cadereyta Refinery is not sufficient to meet current demand. Some of the diesel volume is currently loaded in the Laredo area and then transported via truck across the border to Nuevo Laredo. The rest of the diesel supplied to meet the current demand is purchased in Harlingen, Texas, and transported via trucks across the border to Nuevo Laredo, or is transported via barge or vessel from Texas' Gulf Coast ports such as Corpus Christi and Houston to Brownsville, Texas, and then transported via trucks across the border to Nuevo Laredo.

Based on its assessment of present market conditions, NuStar estimates that if permitted to transport additional petroleum products, the Dos Laredos Pipeline could meet market demands for LPG, regular and premium gasoline, kerosene, and diesel. NuStar also states that a Permit for the Proposed Action Alternative would serve the national interest for the same or similar reasons underlying the 2003 Permit.

EO 13337 specifically authorizes the issuance of Presidential Permits for the "construction, connection, operation, or maintenance, at the borders of the United States, of facilities for the exportation or importation of petroleum, petroleum products, coal, or other fuels to or from a foreign country." Therefore, the purpose for the Department's action, as addressed in this SEA, is to approve or deny the issuance of a Presidential Permit for NuStar to transport a broader range of refined petroleum products. The Department's need is to meet its responsibility under EO 13337. This SEA is to inform the public about NuStar's proposed project and help the Department's decision makers reach an informed decision based on an understanding of the potential environmental consequences of issuing the requested Presidential Permit.

1.5 AGENCY, TRIBAL, AND PUBLIC PARTICIPATION

The Department is soliciting input and comments on this draft SEA from Federal, state, and local government agencies; Indian tribes; and members of the public at appropriate points of the environmental review process. Below is a summary of the Department's engagement with those potential stakeholders.

Participation by Federal, State, and Local Agencies

Pursuant to EO 13337, the Department solicits input from at least eight specified Federal agencies during its review of Presidential Permit applications: the Departments of Defense, Justice, Interior, Commerce, Transportation, Energy, and Homeland Security, as well as the Environmental Protection Agency. The Department published a notice in the Federal Register on January 17, 2014, informing those agencies, as well as the public, that NuStar had submitted a Presidential Permit application regarding the Dos Laredos Pipeline and that the application was available on the Department's website.

The Department published a notice in the Federal Register on June 20, 2014, informing agencies and the public of its intent to prepare an SEA and inviting input on the scope of the review.

The Department is distributing this draft SEA to other Federal, state, and local government agencies that may have expertise relevant to this environmental review. These agencies are identified in Appendix B. The Department has consulted with the Texas Historical Commission to ensure that cultural resource issues are appropriately addressed in the course of the draft SEA.

1.5.1 Participation by Indian Tribes

The Department consults with federally recognized Indian tribes on a government-to-government basis. On April 16, 2015, the Department sent letters to 27 Indian tribes with a current or historic presence in Texas to notify them of the Dos Laredos application and to offer consultations with the Department at any point in the review process. The Department will provide copies of the draft SEA to all interested Indian tribes for review and comment.

1.5.2 Public and Landowner Participation

In the June 20, 2014 Federal Register notice, the Department solicited public comments on the scope and content of its analysis. The public scoping period ended on August 4, 2014. No public comments were received.

1.6 ENVIRONMENTAL REVIEW PROCESS

The Department has prepared this draft SEA consistent with NEPA. Other pertinent environmental statutes, regulations, and compliance requirements that guided the preparation of this SEA are summarized in Appendix A. This draft SEA supplements the analysis completed in the 2003 EA prepared as part of the 2003 Presidential Permitting process for the construction, connection, operation, and maintenance of the Dos Laredos Pipeline for transport of LPG across the border between Webb County, Texas, and the United States-Mexico border. Supplementing or updating previous documents is encouraged by NEPA (40 CFR 1502.9) and is appropriate in this case, as it allows the Department to incorporate by reference the general and relevant

discussions in the 2003 EA, thereby reducing bulk in this draft SEA without impeding agency and public review.

Impacts from exploration, extraction, production, and refining of petroleum products are beyond the scope of analysis for this draft SEA. Similarly, transportation of product to the NuStar Laredo Terminal via existing pipelines and the ultimate use of the LPG or refined petroleum products are beyond the scope of analysis for this draft SEA.

1.7 ADDITIONAL PERMITS AND REQUIRED COORDINATION

If the new Presidential Permit is issued, NuStar has indicated that it would obtain any additional permits or take part in additional coordination with other Federal and state of Texas regulatory agencies. Similarly, NuStar would ensure that all current Federal, state, and local permits and clearances are in place for the maintenance and operation of the Dos Laredos Pipeline, regardless of product transported.

SECTION 2.0
ALTERNATIVES

2.0 ALTERNATIVES

This chapter addresses alternatives to the Proposed Action Alternative including a No Action Alternative. The following considerations were taken into account in evaluating reasonable alternatives to the Proposed Action Alternative:

- Does the alternative meet the purpose of and need for the transport of additional refined petroleum products based on NuStar's assessment of market demands?
- Does the alternative provide flexibility in the type of refined petroleum product being transported?
- Does the alternative minimize environmental impacts?
- Does the alternative require expansion of other transportation modes, facilities, etc.?

The following screening criteria were also used in order to evaluate reasonable alternatives to the Proposed Action Alternative:

- Alternative should minimize environmental impacts
- Alternative should allow use of existing rights-of-way
- Alternative must be in compliance with U.S. Department of Transportation (USDOT) and Pipeline Hazardous Material Safety Administration (PHMSA) regulations and guidelines
- Alternative should at least partially satisfy the stated purpose and need

2.1 ALTERNATIVES CONSIDERED BUT DISMISSED FROM FURTHER CONSIDERATION

Construction of a new pipeline at an alternative location was not considered in this draft SEA because a new route would result in much greater disturbance to the region's human and natural environments. This draft SEA does consider different means of product transport, such as by truck, rail, or ship, rather than via pipeline, in its analysis of the No Action Alternative. However, this draft SEA does not examine the expansion of other transportation infrastructure (e.g., expanded ports of entry or new rail lines) because such an alternative would not be economically reasonable and would not address the purpose and need described in Section 1.4.

2.2 ALTERNATIVE 1: PROPOSED ACTION ALTERNATIVE

If the Proposed Action Alternative is approved, NuStar would transport a broader range of refined petroleum products via the Dos Laredos Pipeline, including LPG, regular and premium gasoline, kerosene, and diesel. The Dos Laredos Pipeline was designed and constructed for a throughput of up to 32,400 bpd of LPG and a maximum operating pressure of 1,480 pounds per square inch gauge (psig)1. NuStar is proposing to set a throughput of up to 24,000 bpd of refined product for the pipeline and limit pressures to less than 1,448 psig. These products would be transported to NuStar's Laredo Terminal via the existing pipeline system. This SEA assumes that, due to downtime for maintenance and other purposes, the pipeline would operate at 90 percent capacity cumulatively over the course of a year.

The entire length of the pipeline, from the NuStar Terminal in Laredo to the NuStar Terminal in Nuevo Laredo would be cleaned prior to operation and transport of additional refined petroleum products by pigging the lines. After pigging is complete, but before the pipeline is placed into operation, the pipeline would be filled with water and hydrostatically pressure-tested according to the USDOT 49 CFR and American Society of Mechanical Engineers (ASME) B31.4 standards to check for line integrity. After the test, the lines would be depressurized and then cleaned again, prior to introducing product.

Pigging in the context of pipelines refers to the practice of inserting devices known as "pigs" into pipelines to perform various maintenance operations on a pipeline.

[1]The theoretical maximum throughput calculation was generated using PIPELINESTUDIO VERSION 3.6.0.0, a simulation model to solve pipeline flow based on mass, momentum and energy balance equations. This is a volumetric calculation based on pipeline diameter and is independent of the product being transported. The maximum operating pressure is determined by the pipeline specification or 80% of the hydrostatic test, taking into consideration the internal design pressure formula and elevation profile of the piping system. The maximum operating pressure is established as the lowest of the following pressures: (1) internal design pressure of the pipe under Department of Transportation regulations (49 CFR 195.106), (2) design pressure of the components under API Specification 6D "Specification for Pipeline Valves" and ASME/ANSI B16.5 "Pipe Flanges and Flanged Fittings," and (3) 80% of the hydrostatic test pressure (corrected for elevation), as specified under Department of Transportation 49 CFR 195, SUBPART E.

Before transporting additional refined products, testing (proving) of all meters and samplers of the Dos Laredos Pipeline within the U.S. would be required by United States Customs Laboratories and Scientific Services and the Customs Port Director (Department 2003). NuStar would prove and calibrate all necessary meters and samplers at the Laredo Terminal. The same testing and proving of meters and samplers would also take place at the Nuevo Laredo Terminal. Once operational, the measurement of refined product in and refined product out would be monitored to stay within the pipeline limitations.

In order to receive additional refined petroleum products via the Dos Laredos Pipeline, changes would be made to NuStar's Nuevo Laredo Terminal. A two-bay, diesel truck loading rack, a 50,000-barrel diesel storage tank, and associated spill containment systems would be constructed to handle gasoline, kerosene, and diesel from the Dos Laredos Pipeline.

2.3 ALTERNATIVE 2: NO ACTION ALTERNATIVE

This draft SEA compares the Proposed Action Alternative to a No Action Alternative. Under the No Action Alternative, a new Presidential Permit would not be issued and NuStar would continue to be authorized under the 2003 Presidential Permit to transport only LPG via the Dos Laredos Pipeline. NuStar plans to return the Dos Laredos Pipeline to operation regardless of whether a new Presidential Permit is issued, and thus the analysis of potential environmental impacts of the No Action Alternative assumes an operational pipeline carrying LPG. Gasoline, kerosene, and diesel would presumably continue to be loaded in the Laredo area and then transported via truck across the border to Nuevo Laredo; would be purchased in Harlingen, Texas, and transported via trucks across the border to Nuevo Laredo; or would be transported via barge or vessel from Texas' Gulf Coast ports to Brownsville, Texas, and then transported via trucks across the border to Nuevo Laredo. No modifications would be required at the NuStar Laredo or Nuevo Laredo terminals since no additional refined product would be transported by the pipeline.

A summary of the aspects of each alternative is presented in Table 2-1 to highlight the common characteristics and differences between the two alternatives.

Table 2-1. Comparison of Alternatives

	Proposed Action Alternative	No Action Alternative
Transport of LPG	Yes	Yes
Transport of other refined petroleum products	Yes	No
HDD and pipeline replacement	Yes	Yes
Cathodic protection	Yes	Yes
Right-of-way markers	Yes	Yes
Compliance with USDOT pipeline maintenance regulations	Yes	Yes

2.4 CHARACTERISTICS SHARED BY BOTH ALTERNATIVES

NuStar plans to return the Dos Laredos Pipeline to operation regardless of whether a new Presidential Permit is issued. Maintenance of the pipeline and associated equipment will continue, including inspection, repair, and replacement of components as necessary.

In order to prevent inadvertent damage to the pipeline from excavation activities by non-NuStar employees or contractors, the Dos Laredos Pipeline has participated in the Texas "one-call" system since it became operational in 2004. Under either Alternative, the pipeline would remain as part of the "one-call" system. Periodic contact with the local emergency planning committee (LEPC), fire departments, and law enforcement would also continue as required by USDOT regulations. Marker posts (Photograph 2-1) were erected along the pipeline route so that they are visible in both directions at any point along the pipeline, and these marker posts would continue to be maintained under the No Action Alternative and Proposed Action Alternative.

Photograph 2-1. Marker posts along the Dos Laredos Pipeline route

There is currently one mainline shut-off valve (Photograph 2-2) between the NuStar Laredo Terminal and the Rio Grande (see Figure 1-2), which would be operated to shut down the flow of product in the case of an incident, limiting the volume of product released. The valve is located approximately 0.9 mile northeast of the Dos Laredos Pipeline's Rio Grande crossing. The estimated drain-down volume (which is based on the distance between features) between the NuStar Laredo Terminal and the first mainline shut-off valve in the event of an accidental spill on the U.S. side of the border is approximately 3,150 barrels of refined petroleum product, assuming a complete rupture that cannot be contained until the entire segment is drained. The total estimated drain-down volume for the segment of the pipeline from the first mainline shut-off valve to the Nuevo Laredo Terminal in Mexico is approximately 550 barrels, approximately 360 barrels between the first mainline shut-off valve and the United States-Mexico border, and 190 barrels between the United States-Mexico border and the shut-off valve at the Nuevo Laredo Terminal.

Photograph 2-2. Dos Laredos Pipeline mainline shut-off valve

These drain-down volumes represent the worst case scenario volume of refined petroleum product that could be released after pumps are stopped as the product in the pipeline at elevations above a leak drains out. No modifications would be made to the mainline shut-off valve under either alternative; however, NuStar asserts that it would continue to inspect the pipeline facilities in accordance with USDOT regulatory requirements set forth at 49 CFR Parts 194 and 195, including aerial, foot, and in-line mechanical inspections, as it has since 2003 (NuStar 2013).

Similarly, no modifications would be made to the Nuevo Laredo shut-off valve, but it would continue to be checked and maintained. The PHMSA has the authority and responsibility to inspect pipelines, like NuStar's Dos Laredos Pipeline, and ensure their compliance.

As part of its maintenance program, NuStar has informed the Department that it will replace the section of the Dos Laredos Pipeline crossing under the Rio Grande before returning the Dos Laredos Pipeline to operation. In order to install this replacement pipeline, NuStar's contractor will excavate a pit on each side of the Rio Grande at the location of the previous HDD operation. HDD maintenance activities will take place within the previously disturbed areas, with the

replacement segment offset from the existing segment by approximately 5 feet, following an identical profile beneath the Rio Grande.

HDD activities will involve a drill rig and backhoe or bulldozer to excavate the receiving hole and entrance pits. These pits will facilitate the angle of drilling and contain drilling fluids and mud, the proper disposal of which will be inspected by NuStar environmental compliance staff. Briefly, the first stage of the drilling activities is to drill a pilot hole along the designed pipeline path. A larger drill bit (known as the reamer) is then installed to increase the diameter of the hole. The third stage involves placing the casing pipe into the hole by pulling it through the hole behind the reamer (United States Fish and Wildlife Service [USFWS] 2013).

Once the new pipeline is installed, NuStar would conduct hydrostatic tests and other in-line inspections to ensure the pipeline was installed and would function properly. The existing pipeline would then be cleared and abandoned in place, in accordance with the Texas Administrative Code Title 16, Part 1, Chapter 3, Rule §3.73.

Cathodic protection equipment that was originally installed when the pipeline was first constructed would be applied to the new crossing pipeline and continue to be maintained, and the continuing effectiveness would be monitored. The current would be maintained at the level recommended by the National Association of Corrosion Engineers (NACE) standards.

Cathodic protection is a technique used to control the corrosion of a metal surface. The metal to be protected is connected to a more easily corroded "sacrificial metal." The sacrificial metal then corrodes instead of the protected metal. For structures such as pipelines, cathodic protection is used to prevent stress corrosion cracking.

These activities associated with the pipeline replacement are described in this draft SEA since there is a potential for disturbances to the environment not considered in the 2003 EA.

SECTION 3.0
AFFECTED ENVIRONMENT

3.0 AFFECTED ENVIRONMENT

This chapter contains a description of resources that could potentially be affected within the project area and region of influence (ROI). The ROI for this project comprises Webb County, Texas, including the city of Laredo. The resources described in this section are those recognized by laws, EOs, regulations, and other standards of Federal, state, or regional agencies and organizations; technical or scientific agencies, groups, or individuals; and the general public. Only those resources with the potential for significant effects under the Proposed Action Alternative or No Action Alternative are described, consistent with CEQ regulations (40 CFR 1501.7 [3]). They include air quality, greenhouse gases (GHGs), noise, soils, surface water, groundwater, floodplains, vegetation, wildlife, threatened and endangered species, human health and safety, transportation, and cultural resources.

3.1 RESOURCES ELIMINATED FROM FURTHER DISCUSSION

Some resource discussions are limited in scope due to the lack of direct effect expected from the Proposed Action Alternative on the resource, or because that particular resource is not located within the project site. Further, this draft SEA builds on the analysis included in the 2003 EA, and effects on resources evaluated in the 2003 EA are not evaluated in this draft SEA unless the potential effects have changed. Resources eliminated from further discussion include the following:

Meteorological Conditions

The Proposed Action Alternative would not have a significant effect on meteorological conditions.

Aesthetics and Visual Resources

The 2003 EA determined that the Dos Laredos Pipeline would have a negligible impact on aesthetic and visual resources. The Department anticipates that the proposed changes in operations of the Dos Laredos Pipeline would not visibly change the facilities.

Environmental Justice and Protection of Children

The 2003 EA determined that the Dos Laredos Pipeline would have a negligible impact on environmental justice and the proposed changes would have no effects on low-income or minority populations, or children.

Geologic Resources

The 2003 EA determined that the Dos Laredos Pipeline would have a negligible impact on geological resources. The proposed changes in operations of the Dos Laredos Pipeline will not affect geologic features. The construction activities associated with the pipeline replacement would have negligible and localized effects at the site of the HDD.

Land Use

No change from the current land use would occur as a result of the Proposed Action Alternative since all work would be conducted within existing rights-of-way or on NuStar property; therefore, no effects would be expected.

Recreation

The 2003 EA determined that the Dos Laredos Pipeline would have a negligible impact on recreation. Neither the proposed changes in operations of the Dos Laredos Pipeline nor the replacement and maintenance activities would affect recreation since such activities would occur within lands managed or owned by NuStar.

Mineral Resources

The 2003 EA determined that the Dos Laredos Pipeline would have a negligible impact on mineral resources. The proposed changes in operation of the Dos Laredos Pipeline, as well as the maintenance and replacement activities, would not affect the region's mineral resources since all such activities would be confined to lands managed or owned by NuStar.

Utilities and Infrastructure

The Proposed Action Alternative would not meaningfully increase or reduce demands on local utilities or infrastructure.

Wild and Scenic Rivers

The Proposed Action Alternative would not affect any stretch of river designated as Wild and Scenic.

3.2 AIR QUALITY

The Proposed Action Alternative has the potential to affect regional ambient air quality. The United States Environmental Protection Agency (USEPA) sets ambient and emission standards called National Ambient Air Quality Standards (NAAQS) and develops regulations to help ensure good air quality. In the State of Texas, Texas Commission on Environmental Quality (TCEQ) is responsible for monitoring compliance with ambient air quality standards and regulating air emissions. TCEQ samples countywide areas and compares the data with NAAQS. NAAQS represent the maximum levels of background pollution that are considered safe, with an adequate margin of safety, to protect the public health and welfare (Table 3-1). Areas that do not meet these NAAQS are called non-attainment areas; areas that meet both primary and secondary standards are known as attainment areas.

- ***Primary standards provide public health protection.***
- ***Secondary standards protect against visibility impairment and damage to crops, animals, and buildings.***

TCEQ operates five monitoring sites in and around Laredo. The monitoring sites nearest to the pipeline are located at the World Trade and Laredo Bridges (TCEQ 2015a). Together, these sites collect data on meteorological characteristics and air pollution, including carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), particulate matter less than 10 microns in diameter (PM-10), particulate matter less than 2.5 microns in diameter (PM-2.5), ozone (O_3), and sulfur dioxide (SO_2).

Table 3-1. National Ambient Air Quality Standards

Pollutant	Primary Standards Level	Primary Standards Averaging Time	Secondary Standards Level	Secondary Standards Averaging Times
Carbon monoxide (CO)	9 ppm (10 mg/m3)	8-hour [2]	None	None
	35 ppm (40 mg/m3)	1-hour [2]	None	None
Lead (Pb)	0.15 µg/m3 [3]	Rolling 3-Month Average	Same as Primary	Same as Primary
	1.5 µg/m3	Quarterly Average	Same as Primary	Same as Primary
Nitrogen dioxide (NO_2)	53 ppb [4]	Annual (Arithmetic Average)	Same as Primary	Same as Primary
Particulate matter less than 10 microns in diameter (PM-10)	100 ppb	1-hour [5]	None	None
Particulate matter less than 2.5 microns in diameter (PM-2.5)	150 µg/m3	24-hour [6]	Same as Primary	Same as Primary
	12.0 µg/m3	Annual [7](Arithmetic Average)	Same as Primary	Same as Primary
	35 µg/m3	24-hour [8]	Same as Primary	Same as Primary
Ozone (O_3)	0.075 ppm (2008 std)	8-hour [9]	Same as Primary	Same as Primary
	0.08 ppm (1997 std)	8-hour [10]	Same as Primary	Same as Primary
	0.12 ppm	1-hour [11]	Same as Primary	Same as Primary
Sulfur dioxide (SO_2)	0.03 ppm	Annual (Arithmetic Average)	0.5 ppm	3-hour [2]
	0.14 ppm	24-hour [2]	0.5 ppm	3-hour [2]
	75 ppb [12]	1-hour	None	None

Source: USEPA 2014 at http://www.epa.gov/air/criteria.html
Units of measure for the standards are parts per million (ppm) by volume, parts per billion (ppb - 1 part in 1,000,000,000) by volume, milligrams per cubic meter of air (mg/m3), and micrograms per cubic meter of air (µg/m3).

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2 Not to be exceeded more than once per year.
3 Final rule signed October 15, 2008.
4 The official level of the annual NO2 standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of clearer comparison to the 1-hour standard
5 To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 100 ppb (effective January 22, 2010).
6 Not to be exceeded more than once per year on average over 3 years.
7 To attain this standard, the 3-year average of the weighted annual mean PM2.5 concentrations from single or multiple community-oriented monitors must not exceed 12.0 µg/m3.
8 To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 µg/m3 (effective December 17, 2006).
9 To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm. (effective May 27, 2008)
10 (a) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.08 ppm.
(b) The 1997 standard—and the implementation rules for that standard—will remain in place for implementation purposes as USEPA undertakes rulemaking to address the transition from the 1997 ozone standard to the 2008 ozone standard.
(c) USEPA is in the process of reconsidering these standards (set in March 2008).
11 (a) USEPA revoked the 1-hour ozone standard in all areas, although some areas have continuing obligations under that standard ("anti-backsliding").
(b) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is < 1.
12 (a) Final rule signed June 2, 2010. To attain this standard, the 3-year average of the 99th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 75 ppb.

According to 40 CFR 51.853(b), Federal actions require a Conformity Determination for each pollutant where the total of direct and indirect emissions in a non-attainment or maintenance area caused by a Federal action would equal or exceed any of the rates in paragraphs 40 CFR 51.853(b)(1) or (2). However, because the TCEQ and USEPA have classified Webb County as in attainment for all NAAQS (USEPA 2015a), no Conformity Determination is warranted. Air quality conditions have not changed significantly since analysis was completed for the 2003 EA. For instance, the average annual daily O3 level measured 24 ppb in 2002 and 22 ppb in 2014 (TCEQ 2015b). Similarly, CO levels in Laredo remain relatively unchanged between 2002 and 2014, with average annual daily CO measured at 0.5 ppm and 0.3 ppm, respectively (TCEQ 2015b).

3.2.1 Greenhouse Gases and Climate Change

The effects of the Proposed Action Alternative on GHGs and global climate change are analyzed in this draft SEA in order to compare the GHG emissions associated with transportation of petroleum products via pipeline to those associated with transport via truck and from any product escape into the atmosphere. GHG emissions from normal operations of the pipeline are also analyzed because the Proposed Action Alternative has the potential to affect regional GHG emissions. As mentioned previously, impacts from extraction, refinement, or use of the product are beyond the scope of this draft SEA.

Global climate change refers to a change in the average weather on the earth. GHGs are gases that trap heat in the atmosphere. They include water vapor, carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), fluorinated gases including chlorofluorocarbons (CFC) and hydrochlorofluorocarbons (HFC), and halons, as well as ground-level O3 (California Energy Commission 2007). The major GHG-producing sectors in society include transportation, utilities (e.g., coal and gas power plants), industry/manufacturing, agriculture, and residential. According to the California Energy Commission, the main sources of increased concentrations of GHGs due to human activity include the combustion of fossil fuels and deforestation (CO2), livestock and rice farming, land use and wetland depletions, landfill emissions (CH4), refrigeration system and fire suppression system use and manufacturing (CFC), and agricultural activities, including the use of fertilizers (California Energy Commission 2007).

CEQ has drafted guidelines for GHG analysis, which state that if a Proposed Action Alternative would be reasonably anticipated to cause direct emissions of 25,000 metric tons (27,557 United States tons) or more of CO2-equivalent (CO2e) GHG emissions on an annual basis, agencies should provide some description of the Proposed Action Alternative's GHG emissions and potential impacts in the appropriate NEPA analysis. CO2e is a measuring methodology used to compare the heat-trapping impact from various GHGs relative to CO2. Note that this is not a threshold for determining whether effects are significant.

EO 13693, Planning for Federal Sustainability in the Next Decade, was signed by President Obama on March 19, 2015. The goal of EO 13693 is to maintain Federal leadership in sustainability and GHG emission reductions. The GHGs covered by the EO are CO2, CH4, N2O, HFC, perfluorocarbons, and sulfur hexafluoride. These GHGs have varying heat-trapping abilities and atmospheric lifetimes, which affect their global warming potential. Some gases have a greater global warming potential than others. Mono-nitrogen oxides (NOx), for instance, have a global warming potential that is 310 times greater than an equivalent amount of CO2, and CH4 is 21 times greater than an equivalent amount of CO2.

3.3 NOISE

In 1974, USEPA published Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (USEPA 1974). The document provides information for state and local agencies to use in developing their ambient noise standards. USEPA identified outdoor and indoor noise levels to protect public health and welfare.

Along the majority of the Dos Laredos Pipeline route there is little or no human-made background noise. Portions of the pipeline route (approximately 6,500 linear feet) are close to Interstate 35 (I-35) and subject to substantial traffic-related noise at all times of the day. In addition, approximately 6,000 linear feet of the pipeline are located along U.S. Highway 1472 and adjacent to an industrial park with heavy truck traffic; this segment of the pipeline also experiences traffic-related noise on a daily basis.

There are no residential homes, schools, parks, hospitals, or other sensitive noise receptors within 1 mile of the HDD staging area, where additional noise would be generated. Sensitive noise receptors in the vicinity of NuStar's Laredo Terminal or along the route of the pipeline are not included in this analysis because the Proposed Action Alternative would not generate additional noise at the terminal or along the pipeline.

3.4 GEOLOGY AND TOPOGRAPHY

3.4.1 Soils

Soil resources are discussed in this draft SEA because NuStar's separate maintenance project has the potential to disturb underlying soils. Soils are critical elements of the natural environment and support plant, wildlife, and human populations.

The primary soils along the pipeline include Verrick fine sandy loam, Tella sandy clay loam, Lagloria silt loam, and Rio Grande very fine sandy loam (Figure 3-1). According to the Natural Resources Conservation Service (NRCS), the soils within NuStar's HDD staging area consist of Lagloria silt loam and Rio Grande very fine sandy loam (NRCS 2015). Verrick fine sandy loam, Tella sandy clay loam, and Lagloria silt loam soils are well-drained, surface runoff is low, and permeability is moderate (NRCS 1985). For these soils, water erosion and blowing soil are moderate hazards if this soil is left bare of vegetation (NRCS 1985). Rio Grande very fine sandy loam soils are well-drained, surface runoff is low, and permeability is moderately rapid (NRCS 1985). Water erosion is a slight hazard with Rio Grande very fine sandy loam soils, and blowing soil is a moderate hazard if this soil is left bare of vegetation (NRCS 1985). None of the soils found within the HDD staging area are considered prime farmland soils (NRCS 2015).

3.5 WATER RESOURCES

3.5.1 Surface Water and Groundwater

Water resources are critical elements of many valuable aquatic habitats and an indicator of the health of various aquatic habitats. Further, many aquatic species are important commercial resources.

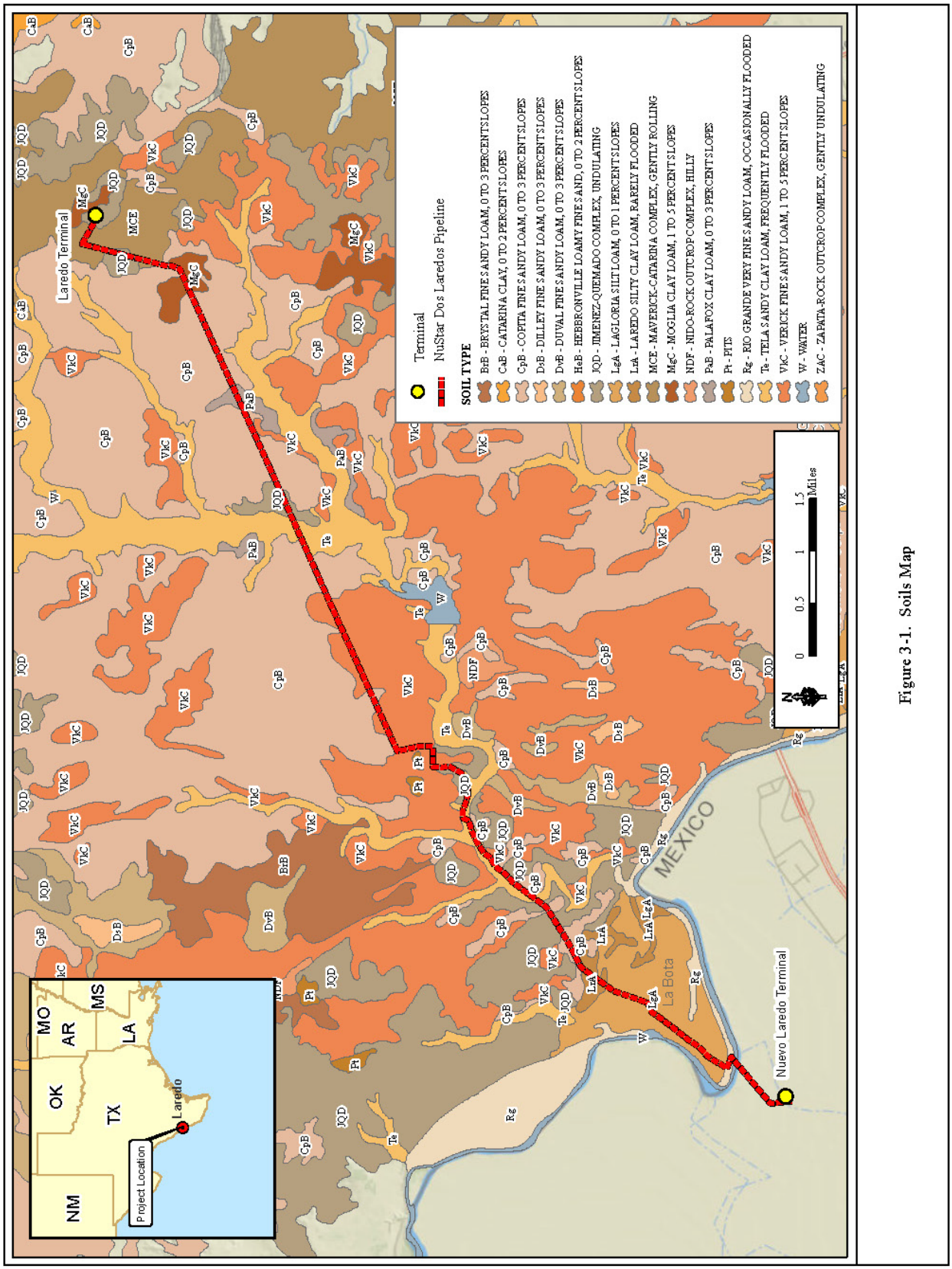

Figure 3-1. Soils Map

The Dos Laredos Pipeline lies entirely within an area drained by Sombrerito Creek, which flows into the Rio Grande. Sombrerito Creek lies within the southern portion of what is defined by the USEPA as the San Ambrosia-Santa Isabel watershed (USEPA 2015b). The San Ambrosia-Santa Isabel watershed drains the area along the north side of the Rio Grande from Laredo to just below Eagle Pass, Texas. The Rio Grande originates in the San Juan Mountains of southern Colorado. It flows to the south across New Mexico before entering Texas about 20 miles northwest of El Paso. After entering Texas, the remaining two-thirds of the river, approximately 1,248 miles, forms the international boundary between the United States and Mexico from El Paso to the Gulf of Mexico. The total length of the Rio Grande from the San Juan Mountains to the Gulf of Mexico is 1,896 miles. The river and its tributaries drain 335,500 square miles in three U.S. states and five Mexican states; however, only 182,215 square miles actually drain into surface waters that eventually flow to the Gulf of Mexico. The HDD staging area is located less than 0.5 mile northeast of the Rio Grande.

The United States and Mexico share the water of the Rio Grande under a series of agreements administered by the United States and Mexican Sections of the International Boundary and Water Commission (IBWC). There are a number of dams on the Rio Grande, including the Falcon Dam, which is located in Starr County, Texas, approximately 90 miles downstream from the Proposed Action Alternative. The Falcon Dam was built for water conservation, irrigation, hydroelectric power generation, flood control, and recreational purposes.

The primary sources of groundwater in Webb County are the Carrizo aquifer, Queen City-Bigford aquifer, Laredo aquifer, Yegua aquifer, Jackson aquifer, Gulf Coast aquifer, and alluvium deposits. The Laredo aquifer is a water-bearing unit near the City of Laredo and provides water for irrigation and livestock use. The majority of the Dos Laredos Pipeline is located above the shallow Laredo aquifer. The Gulf Coast, Laredo, and Carrizo aquifers provide the best quality of water in sufficient yields needed for public supply and other uses in Webb County.

3.5.2 Water Quality

Water quality is analyzed in this draft SEA because the Proposed Action Alternative has the potential to affect the watershed water quality in the region.

As required under Sections 303(d) and 304(a) of the Clean Water Act (CWA), TCEQ identifies the waterbodies in or bordering Texas for which effluent limitations are not stringent enough to implement water quality standards, and for which the associated pollutants are suitable for measurement by maximum daily load. If streams do not meet these water quality standards, TCEQ identifies them as "impaired." In addition, TCEQ also develops a schedule identifying Total Maximum Daily Loadings that will be initiated in the next 2 years for priority impaired waters. The reach of the Rio Grande fed by Sombrerito Creek (TCEQ Hydrologic Unit Code [HUC] 13080002) within the project area is not listed as impaired by TCEQ (2012).

The City of Laredo draws most of its drinking water supply from the Rio Grande. The city operates two water treatment plants, Jefferson and Columbia, which together have combined capacity of approximately 66 million gallons per day. Both these plants are located downstream of the Proposed Action Alternative. The Jefferson plant is the closest plant and is located approximately 9 miles downstream.

Wetlands and Waters of the United States

EO 11990 concerning Protection of Wetlands requires all Federal agencies to take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands. Review of National Wetland Inventory Maps showed no previously mapped wetland resources in the vicinity of the Dos Laredos Pipeline. As part of the 2003 Presidential Permit application, NuStar contracted with URS to conduct field surveys to verify the presence or absence of any jurisdictional wetlands along the pipeline right-of-way (Department 2003). Some slight depressional wetland areas were observed, and the pipeline was rerouted to avoid these features (Department 2003).

3.5.3 Floodplains

EO 11988, which concerns Floodplain Management, requires all Federal agencies to determine whether a Proposed Action Alternative would occur in a floodplain, and then evaluate potential effects accordingly. The project area is located within a floodplain. According to the Federal Emergency Management Agency (FEMA), portions of the Dos Laredos Pipeline cross areas classified as 100-year floodplains (FEMA 2008). A 100-year floodplain is the area that would be inundated during a storm event that has a 1 percent chance of occurring every year. In particular, the final 4,000 linear feet of the pipeline before its crossing of the Rio Grande, as well as the HDD staging area, are located within the 100-year floodplain (Figure 3-2). Coordination with the USIBWC has been initiated, and engineering designs will be submitted for their approval.

3.6 BIOLOGICAL RESOURCES

Biological resources, including vegetation, wildlife, threatened and endangered species, and special status species, provide important elements of many valuable aquatic and terrestrial habitats. Further, they are indicators of the health of those habitats, and can be important commercial resources.

3.6.1 Vegetation Resources

Vegetation cover along the pipeline is dominated by various grasses, primarily saltgrass (Distichlis spicata), and riparian species, including black willow (Salix nigra), Texas sugarberry (Celtis laevigata), granjeno (Celtis pallida), mesquite (Prosopis glandulosa), huisache (Acacis farnesiana), and the invasive carrizo cane (Arundo donax) (Photograph 3-1) near the Rio Grande.

3.6.2 Wildlife Resources

The most commonly observed mammalian species that may be present along the Dos Laredos Pipeline include nine-banded armadillo (Dasypus novemcinctus), eastern cottontail (Sylvilagus floridanus), Texas pocket gopher (Geomys personatus), southern plains woodrat (Neotoma micropus), striped skunk (Mephitis mephitis), and on rare occasions coyotes (Canis latrans).

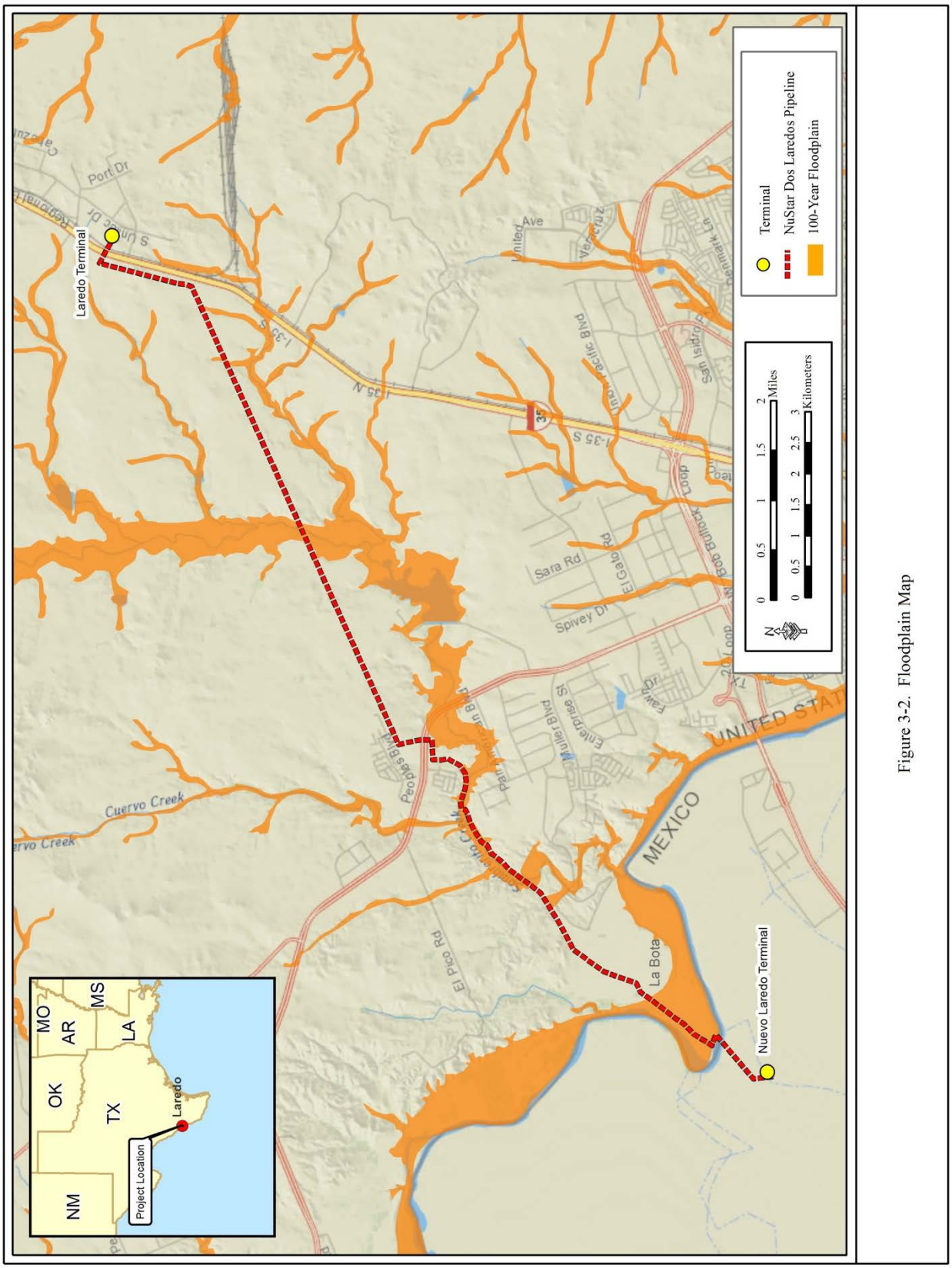

Figure 3-2. Floodplain Map

Photograph 3-1. Carrizo cane growing along the banks of the Rio Grande at the Dos Laredos Pipeline crossing

The most commonly observed bird species within the vicinity of the pipeline include white-winged dove (Zenaida asiaticia), mourning dove (Z. macroura), scissor-tailed flycatcher (Tyrannus forticatus), European starling (Sturnus vulgaris), brown-headed cowbird (Molothrus ater), and red-winged blackbird (Agelaius phoeniceus).

3.6.3 Threatened and Endangered Species

Federally Listed Species and Critical Habitat

USFWS currently lists six federally listed and one candidate species with potential to occur in Webb County, Texas (USFWS 2016; Appendix C). Of these six species, suitable habitat is located within or adjacent to the project area for four species: interior least tern (Sternula antillarum), Texas hornshell (Popenaias popei), Gulf Coast jaguarundi (Puma yagouaroundi cacomitli), and ocelot (Leopardus pardalis). No designated critical habitat is located within Webb County, Texas, and the entire project ROI is in Webb County.

Interior Least Tern

USFWS lists the interior least tern as endangered (USFWS 2016). Interior least terns are found in Webb County along the Rio Grande. According to the Texas Parks and Wildlife Department (TPWD), adult terns nest in colonies along sand and gravel bars within braided streams and

rivers in Texas (TPWD 2016). These colonies can change locations each year depending upon shifts in channel alignments or sand/gravel bars. The nests are usually located on the ground in shallow depressions, typically in areas with sparse or no vegetation. The species is also known to nest on man-made structures such as inland beaches, wastewater treatment plants, and gravel mines (TPWD 2016), all of which can be found in the general vicinity of the Dos Laredos Pipeline crossing at the Rio Grande. Interior least terns feed on small fish and crustaceans, and when breeding, adults usually forage within a few hundred feet of a colony (TPWD 2015).

Texas Hornshell

The Texas hornshell, a mollusk found in the Rio Grande Basin and in several rivers in Mexico, is a candidate for listing under the Endangered Species Act (ESA) in Webb County, Texas (USFWS 2016). Potential habitat for the Texas hornshell can be found in the general vicinity of the Dos Laredos Pipeline crossing at the Rio Grande. The species inhabits narrow, shallow runs over bedrock in areas where small-grained materials collect in crevices along river banks and at the base of boulders (TPWD 2016).

Gulf Coast Jaguarundi

USFWS lists the Gulf Coast jaguarundi as endangered in Webb County, Texas (USFWS 2016). According to the USFWS, in southern Texas, jaguarundis use dense thorny shrublands (USFWS 2013). Typical habitat consists of mixed thornscrub species, which include the following species: brasil (Condalia hookeri), desert yaupon (Schaefferia cuneifolia), wolfberry (Lycium berlandieri), lotebush (Ziziphus obtusifolia), amargosa (Castela erecta), white-brush (Aloysia gratissima), catclaw (Acacia greggii), blackbrush (Acacia rigidula), lantana (Lantana achyranthifolia), guayacan (Guajacum angustifolium), cenizo (Leucophyllum frutescens), elbowbush (Forestiera angustifolia), and Texas persimmon (Diospyros texana). Trees that may be interspersed within the thornscrub include mesquite (Prosopis sp.), live oak (Quercus sp.), ebony (Ebenopsis ebano), and hackberry (Celtis laevigata). Jaguarundi also sometimes use river and creek riparian habitat in southern Texas during migration (TPWD 2003). The jaguarundi is the only cat in northeastern Mexico and southern Texas that is primarily active during the day (USFWS 2013).

Portions of the route of the Dos Laredos Pipeline within the floodplain of the Rio Grande and Sombrerito Creek contain potential habitat for the Gulf Coast jaguarundi; however, TPWD records indicate no confirmed jaguarundi sightings locally (Department 2003). Unconfirmed sightings of jaguarundi were reported for Webb County, Texas, in the mid-1980s and in 1993 (USFWS 2008). The last confirmed sighting of this species within the United States was near Brownsville, Texas, in April 1986 (USFWS 2013).

Ocelot

The ocelot is listed as endangered in Webb County, Texas (USFWS 2016). Ocelots typically inhabit dense chaparral thickets and thick mesquite-thorn scrub and live oak mottes (TPWD 2016). Within Texas, the ocelot requires dense vegetation, greater than 75 percent canopy cover, with 95 percent cover of the shrub layer (USFWS 2010). Its prey consists primarily of rabbits, rodents, birds, and lizards. Like most other cat species in northeastern Mexico and southern Texas, the ocelot is primarily nocturnal (USFWS 2013). Potential habitat for the ocelot exists within the project area. According to the 2003 EA, an ocelot was observed by deer hunters along the lower portions of Sombrerito Creek several years prior (Department 2003).

State-Listed Species

TPWD maintains lists of state-protected wildlife and plant species in Texas. This list includes flora and fauna whose occurrence in Texas is or may be in jeopardy, or with known or perceived threats or population declines. These species are not necessarily the same as those protected by the Federal government under the ESA. TPWD currently lists 23 state-protected species with potential to occur in Webb County (TPWD 2016; Appendix C). The Dos Laredos Pipeline crosses areas likely to contain populations of a number of these species (Department 2003).

3.6.4 USFWS Consultation

The Department sought informal consultation with USFWS under Section 7 of the ESA on May 13, 2015, regarding the Proposed Action Alternative. The Department asked for USFWS concurrence that the Proposed Action Alternative would have no adverse effect on threatened or endangered species. On May 21, 2015, the USFWS concurred (Appendix B).

3.7 SOCIAL RESOURCES

3.7.1 Human Health and Safety

Human health and safety is analyzed in this draft SEA because the Proposed Action Alternative has the potential to affect the health and safety of the environment and human populations in the vicinity of the project area.

For this analysis, the environment as it relates to human health and safety is defined as all the physical, chemical, and biological factors external to a person and all related behaviors (e.g., behavior related to the availability of safe water and sanitation facilities) (World Health Organization 2006). Human health and safety concerns associated with the Proposed Action Alternative consist of preventing or controlling disease, injury, and disability. More specifically, the Proposed Action Alternative has the potential to influence the following, which may in turn have effects on human health and safety:

- Outdoor air quality
- Surface water and groundwater quality
- Toxic substance and hazardous waste release

Poor air quality is linked to premature death, diseases including cancer, and long-term damage to respiratory and cardiovascular systems. Decreasing air pollution is an important step in creating a healthy environment. Surface water and groundwater quality applies to both drinking water and recreational waters. Contamination by infectious agents or chemicals can cause mild to severe illness. Protecting water sources and minimizing exposure to contaminated water sources are important parts of ensuring human health. Reducing exposure to toxic substances and hazardous wastes is fundamental to human health.

The closest residential developments in the immediate vicinity of the Dos Laredos Pipeline are the Pan American Mobile Home Park and the Green Ranch community. Although residents in these communities would have the greatest potential to experience health and safety concerns from pipeline operations, the transportation of a greater range of products is unlikely to pose any

additional health and safety threats. Over the lifetime of the pipeline, NuStar may, as necessary, perform maintenance at any point of the pipeline route, which could have potential health and safety impacts. One such maintenance project is the currently planned replacement of the section of pipe passing under the Rio Grande. However, there are no residential homes, schools, parks, or hospitals within 1 mile of the staging area for that maintenance project.

3.7.2 Transportation

The Proposed Action Alternative has the potential to affect transportation systems in the Laredo area. Those systems have significant economic value and contribute to local, state, and national economies.

Truck traffic continues to be the dominant mode for trade between the United States and Mexico, and Laredo is the number one Port of Entry (POE) in the United States for truck crossings between Texas and Mexico (Texas Department of Transportation [TXDOT] 2015b). In 2014, a total of 1,947,846 northbound trucks entered the United States across the United States-Mexico border in Laredo (USDOT 2015a), and a total of 1,945,320 southbound trucks left the United States in Laredo and crossed the border into Mexico in 2014 (Texas A&M International University 2015).

There are four international bridges across the Rio Grande in Laredo: the Gateway to the Americas Bridge, the Lincoln-Juarez International Bridge, the Laredo-Colombia Solidarity International Bridge, and the World Trade Bridge. In the last decade, the total number of truck crossings at Laredo POEs has increased. The World Trade Bridge is the busiest POE in the United States for truck crossings between Texas and Mexico (TXDOT 2015a). In 2013, a total of 1,480,391 northbound trucks used the World Trade Bridge to cross into the United States from Mexico, which accounted for nearly 42 percent of all northbound trucks that entered the United States from Mexico (TXDOT 2015a; United States Customs and Border Protection [CBP] 2013). The average daily crossing time for northbound commercial vehicles crossing into the United States at the World Trade Bridge in August 2013 was approximately 58 minutes (Texas Transportation Institute 2013), whereas the average daily crossing time was approximately 50 minutes in August 2014 (TXDOT 2015b and TXDOT 2015c). Crossing time is defined as the

time it takes for a vehicle to exit the border crossing process after it joins the queue before the CBP primary inspection booth.

Second to truck transport, rail movement through Texas POEs plays an essential role in trade between the United States and Mexico. Since data collection began in 1996, Laredo has handled, on average, more northbound trains and intermodal rail containers annually than all other Texas POEs (USDOT 2015b). In 2014, a total of 254,849 northbound loaded rail containers crossed into the United States from Mexico in Laredo (USDOT 2015b).

The current rail crossing between Texas and Mexico in Laredo is the Texas-Mexican Railway International Bridge (TXDOT 2015a). International rail service in Laredo is provided by Union Pacific Railroad and Kansas City Southern Railroad (KCSR). KCSR owns the Laredo International Railroad Bridge and Kansas Southern de Mexico Railway, which has interchange service at Laredo and Brownsville, Texas.

3.7.2.1 Current Transportation of Petroleum Products

The majority of diesel supplied to the Nuevo Laredo area comes from the Cadereyta Refinery in Monterrey, Mexico. However, its diesel production is not sufficient to meet current demand, and additional diesel must be imported from the United States. Some of the diesel volume is currently loaded in the Laredo area and then transported via truck across the United States-Mexico border to Nuevo Laredo. The rest of the diesel supplied to meet the current demand is purchased in Harlingen, Texas, and transported via trucks across the border to Nuevo Laredo, or is transported via barge or vessel from Texas' Gulf Coast ports (Corpus Christi, Houston, etc.) to Brownsville, Texas, and then transported via trucks across the border to Nuevo Laredo.

3.7.3 Socioeconomics

The ROI for examining potential socioeconomics impacts for the Proposed Action Alternative is Webb County, Texas. The U.S. Census estimates the 2014 population of Webb County to be 266,673, an increase of 6.5 percent from 2010 (U.S. Census Bureau 2015). The growth rate in Webb County (6.5 percent) has been slightly lower than the growth rate for the State of Texas of 7.2 percent from 2010 to 2014; however, it was almost twice the growth rate of the U.S. of 3.3

percent for the 2010 to 2014 time period. The U.S. Census estimates show that Webb County is 96.3 percent minority, which is almost entirely (95.3 percent) Hispanic or Latino (U.S. Census Bureau 2015).

The U.S. Bureau of Labor Statistics, Labor Force Data by County (2014 annual average), shows that Webb County had a labor force of 111,815 and an unemployment rate of 5.1 percent. The unemployment rate for the State of Texas was also 5.1 percent, and both were below the U.S. average for 2014 of 6.2 percent (U.S. Bureau of Labor Statistics 2014a and 2014b).

Employment in Webb County is concentrated in the government (17.7 percent), transportation and warehousing (13.2 percent), healthcare and social assistance (12.4 percent), and retail trade (12.1 percent) sectors. Webb County has much higher levels of employment in the transportation and warehousing sector than the State of Texas, where the sector accounts for 3.7 percent of employment, and the U.S., where transportation and warehousing accounts for 3.3 percent of employment. Employment in government in Webb County (17.7 percent) is also higher than for Texas (12.7 percent) and the U.S. (13.2 percent). Most of the government employment in Webb County is employment by local government, which represents 12.9 percent of the 17.7 percent for Webb County (Bureau of Economic Analysis 2014a).

Incomes in Webb County are very low compared to Texas and the U.S. In 2013, per capita personal income in Webb County was $27,102, which is 60.5 percent of the U.S. per capita personal income of $44,765 and 61.8 percent of the State of Texas per capita personal income, which is $43,862 (Bureau of Economic Analysis 2014b).

3.8 CULTURAL RESOURCES

Cultural resources provide an association or linkage to past events and historically important persons. They can also have design or construction values, and yield important information about prehistory and history. Likewise, these resources are important to the maintenance of identity and culture for Indian tribes, preservation groups, and private individuals who support their protection, restoration, enhancement, or recovery.

A cultural resources survey along a 16-mile privately owned portion of the Dos Laredos Pipeline right-of-way was completed by Antiquities Planning and Consulting (AP&C) as part of the alternatives analysis for the 2003 EA. AP&C archaeologists inspected a total of 134.4 acres, of which 15.0 acres are in the Rio Grande floodplain and 119.4 acres are located in upland settings (Department 2003). AP&C conducted a multi-phase cultural resources survey to determine the presence of any significant archaeological sites and any new potential construction impacts on those sites. The multi-phase approach consisted of background research, the cultural resources survey, and technical reporting, and was conducted in accordance with Archaeological Survey Standards for Texas and the Secretary of Interior's Guidelines (Department 2003). Four prehistoric sites that contain buried deposits that had not been disturbed were found near minor, intermittent drainage features that feed the headwaters of Sombrerito Creek. NuStar states that during construction of the pipeline, effects on these sites were mitigated by avoidance or monitoring, as outlined in the 2003 EA.

3.8.1 Tribal Consultation

The Department has initiated consultation with Indian tribes who may have an interest in Webb County, Texas. On April 16, 2015, the Department sent letters to 27 federally recognized Indian tribes, listed in Appendix B, inviting their participation in the preparation of this draft SEA. The Department will provide copies of the draft SEA to all interested Indian tribes for review and comment. The Department is also consulting with the Indian tribes on a government-to-government basis and informing them of the progress of this draft SEA.

SECTION 4.0
ENVIRONMENTAL EFFECTS

4.0 ENVIRONMENTAL EFFECTS

This chapter presents the analysis of potential environmental effects associated with the Proposed Action Alternative and the No Action Alternative. Environmental effects can be either beneficial or adverse, and can be either directly related to the action or indirectly caused by the action. Direct effects are those effects that are caused by the action and occur at the same time and place (40 CFR 1508.8[a]). Indirect effects are those effects that are caused by the action and are later in time or further removed in distance, but are still reasonably foreseeable (40 CFR 1508.8[b]). As discussed in this section, the alternatives evaluated may create short-term effects (e.g., lasting the duration of a product change out) or long-term effects (e.g., could occur over the operational life of the No Action Alternative or the Proposed Action Alternative).

For each resource or topic area analyzed, the potential effects from the Proposed Action Alternative are compared with potential effects from the No Action Alternative. Effects on each resource can vary in degree or magnitude from a slightly noticeable change to a total change in the environment. For the purpose of this analysis, the intensity of effects will be classified as negligible, minor, moderate, or major. The intensity thresholds are defined as follows:

- Negligible: A resource would not be affected or the effects would be at or below the level of detection, and changes would not result in any measurable or perceptible consequences.
- Minor: Effects on a resource would be detectable, although the effects would be localized, small, and of little consequence to the sustainability of the resource.
- Moderate: Effects on a resource would be readily detectable, long-term, localized, and measurable.
- Major: Effects on a resource would be obvious and long-term, and would have substantial consequences on a regional scale.

Many of the potential environmental effects of operation and maintenance of the Dos Laredos Pipeline were described in the 2003 EA. The Department validated those results and supplemented them in this draft SEA. This draft SEA does not duplicate those analyses from the 2003 EA that are still valid. The potential environmental effects of the Proposed Action Alternative and the No Action Alternative discussed here are primarily those associated with air

quality, water quality, transportation, and human health and safety. In the event of an accidental spill, effects on aquatic species and cultural resources could also occur and are addressed in this draft SEA. The potential effects of normal pipeline operation are described in Section 4.1; potential effects of an accidental spill are described in Section 4.2. Further, there are several aspects common to both alternatives that would result in the same potential effects regardless of which alternative is implemented. These shared effects are also discussed in this chapter.

It should be noted that, although the Dos Laredos Pipeline has not been in operation since 2011, NuStar intends to return the pipeline to operation regardless of the Department's decision on the Presidential Permit application. As previously discussed, NuStar is planning to replace the pipeline section under the Rio Grande by HDD as part of its maintenance work returning the pipeline to operation, and potential effects of that work are discussed in this chapter as well. Those effects would occur under either the No Action Alternative or the Proposed Action Alternative.

Even though the Dos Laredos Pipeline is not currently operational, the analysis of the No Action Alternative assumes operation of the pipeline to transport LPG because of NuStar's stated intention to return it to service regardless of the Presidential Permitting decision.

4.1 POTENTIAL EFFECTS OF NORMAL OPERATION OF THE PIPELINE

4.1.1 Air Quality

Proposed Action Alternative

No significant impacts would occur under the Proposed Action Alternative. The Proposed Action Alternative would not be expected to increase adverse effects on the region's air quality. Presently, gasoline, kerosene, and diesel fuels, as well as LPG, are transported between the Laredo, Texas, and Nuevo Laredo, Mexico, terminal facilities via diesel-fueled tanker trucks. The exact quantities of each product transported via tanker trucks are not available. However, the Dos Laredos Pipeline can transport an average of 32,400 bpd of LPG. When transmitting refined petroleum products (such as gasoline, kerosene, and diesel), due to difference in viscosity and flow characteristics, NuStar plans to transmit up to 24,000 bpd. Under the Proposed Action

Alternative, NuStar could transport any of a range of refined petroleum products at any time. As such, it could still transport LPG at the same frequency and in the same quantities as under the No Action Alternative. To the extent that the Proposed Action Alternative leads to the transportation of other refined petroleum products instead of LPG in the Dos Laredos Pipeline, the Proposed Action Alternative may affect air quality in the following ways:

- Potential reduction of fuel tanker trucks currently transporting liquid refined petroleum products (gasoline, kerosene, and diesel fuel) between Laredo, Texas, and Nuevo Laredo, Mexico [13]
- Potential reduction of fugitive releases of Volatile Organic Compounds (VOCs) during normal operation of the pipeline
- Potential reduction of VOCs emitted in the event of an accidental release from the pipeline (see Section 4.2.1)

A summary of the operational changes as a result of the Proposed Action Alternative and how they affect air quality is provided in Table 4-1.

LPG has a much higher volatility than the other liquid refined petroleum products (e.g., gasoline, kerosene, or diesel) that could be transported under the Proposed Action Alternative. Consequently, transmission of LPG generates fugitive emissions of VOCs and CO2e at higher volumes than transmission of other liquid refined petroleum products. Therefore, it is unlikely that the transport of refined petroleum products (Proposed Action Alternative) would lead to a net increase of emissions compared to the transport of LPG only (No Action Alternative). However, under the Proposed Action Alternative, the pipeline could still transport LPG at maximum capacity and, under this scenario, fugitive air emissions would be similar to the No Action Alternative. Effects due to fugitive emissions of transporting the various products are

[13]It is difficult to reliably quantify the number of tanker truck trips that could be eliminated if the broader range of refined petroleum products were transported via the Dos Laredos pipeline. It would require approximately 39,400 tanker truck trips per year to carry the 24,000 bpd of these products that could be carried in the pipeline under the Proposed Action Alternative (Atkins 2013). However, it is unknown how many tanker truck trips would be required to transport the LPG that these products would displace in that scenario. Thus this analysis states that the Proposed Action Alternative would eliminate "up to" 39,400 tanker truck trips. The actual number would likely be less, but it is unknown by how much.

summarized in Table 4-2. Details of assumptions and calculations for those direct effects are presented in Appendix D.

Table 4-1. Operating Conditions of Dos Laredos Pipeline Relative to Air Quality Issues

Sources of Air Emissions from Operation of Dos Laredos Pipeline	Proposed Action Alternative Operating Conditions	No Action Alternative Operating Conditions
Fuel tanker trucks between Laredo and Nuevo Laredo terminals	LPG: Same as No Action Alternative; Gasoline/Diesel: Potential elimination of up to 39,400 tanker truck trips per year and associated air (exhaust) emissions2	Up to 39,400 tanker truck trips per year traveling 30 miles roundtrip, plus 30 minutes idling at border2
Fugitive losses from pipeline operation	LPG: Same as No Action Alternative; Gasoline/Diesel: Reduced VOC emissions when operating with gasoline/diesel because of lower VOC content of product	LPG: Pipeline in operation 90 percent of time during year

Atkins 2013

Table 4-2. Air Quality Effects Due to Fugitive Emissions of the No Action Alternative and Proposed Action Alternative

Pollutant	Air Emissions (tons/year)			
	de minimis Thresholds	Non-LPG Refined Products	LPG	Net Emissions Change
Carbon monoxide (CO)	100	0.00	2.57	(-2.57)
VOCs	100	0.61	1.49	(-0.88)
Nitrogen Oxides (NOx)	100	0.00	6.29	(-6.29)
Particulate matter less than 10 microns (PM-10)	100	0.00	0.41	(-0.41)
particulate matter less than 2.5 microns (PM-2.5)	100	0.00	0.38	(-0.38)
Sulfur Dioxide (SO_2)	100	0.00	0.01	(-0.01)
CO2 and CO2 equivalents	27,557	1.53	1,635.24	(-1,633.71)

Indirect emissions resulting from the Proposed Action Alternative are generally the emissions from the electric power generator needed to serve the pumps and other facilities. Here, the differences in viscosity of LPG and the other refined products that could be transported as part of the Proposed Action Alternative would result in the pumps pushing through less volume of the more viscous products; no additional pumping power is expected to be used for those products. As such, the indirect air quality effects of the Proposed Action Alternative would be the same as those for the No Action Alternative, as the operating facilities would require the same amount of power regardless of what type of refined petroleum product is pumped through the pipeline.

Air quality effects are considered significant if direct or indirect emissions would:

- increase ambient air pollution concentrations above the NAAQS,
- contribute to an existing violation of the NAAQS,
- interfere with or delay timely attainment of the NAAQS,
- impair visibility within federally mandated Prevention of Significant Deterioration Class I areas,
- result in the potential for any new stationary source to be considered a major source of emissions as defined in 40 CFR Part 52.21 (total emissions of any pollutant subject to regulation under the Clean Air Act [CAA] greater than 250 tons per year for attainment areas),
- for mobile source emissions, increase emissions to exceed 250 tons per year for any pollutant, or
- for GHG emissions, exceed 25,000 metric tons (27,557 United States tons) of direct CO2e emissions on an annual basis (CEQ 2010).

Webb County, Texas, is in attainment for NAAQS pollutants and therefore the General Conformity Rule does not apply (USEPA 2010). Since the total emissions from activities are demonstrated to be below General Conformity Rule de minimis thresholds (see Table 4-2), implementation of the Proposed Action Alternative is unlikely to lead to significant negative effects on air quality.

In fact, assuming that NuStar does choose to replace some or all of the LPG currently transported with other non-LPG refined petroleum products, the air quality in the region could see an

improvement as a result of the Proposed Action Alternative due to the potential reduction in tanker truck traffic. Approximately 39,400 tanker truck trips across the border at Laredo/Nuevo Laredo would be needed to equal the capacity of the Dos Laredos Pipeline to transport non-LPG refined petroleum products. However, since the LPG displaced by those products might be transported by truck instead, the exact amount of tanker trucks that would be eliminated cannot be quantified. The emissions resulting from tanker truck trips include VOCs, GHGs, CO, NOx, and SO2 generated by the truck engines; these emissions are particularly pertinent when engines are in an idle state, which is commonplace at border crossings.

No Action Alternative

Under the No Action Alternative, operation and maintenance of the NuStar Dos Laredos Pipeline would continue as described in the 2003 EA; the effects from transmission of 32,400 bpd of LPG would not change. In addition, continued transportation of diesel by tanker truck would continue to contribute to air emissions, under the No Action Alternative.

Effects Common to Both Alternatives

No significant impacts would occur under either alternative. Under either alternative, normal operation of the pipeline for transport of LPG would generate minor air emissions in the Webb County airshed in the form of fugitive air emissions. Using emission factors from USEPA's AP 42 model (USEPA 2012), and assuming the pipeline is in use 90 percent of the time, annual VOC emissions from pump seals and valves on the pipeline would be approximately 290 kilograms per year, or 640 pounds per year, which is far below the Federal de minimis threshold of 100 tons per year (Atkins 2013), and, in any event, thresholds do not apply since Webb County is in attainment for all NAAQS.

Temporary and minor increases in air emissions would occur from the use of equipment (combustion emissions) and the disturbance of soils (fugitive dust) during maintenance activities. Maintenance activities requiring ground disturbance would use similar equipment to that described in the 2003 EA for construction activities. The HDD maintenance activities, which are the most likely to lead to air emissions in the near future, would likely last less than 30 days. The emissions from such maintenance activities would not be expected to exceed Federal de

minimis thresholds, since these thresholds are 100 tons per year and the HDD activities would likely generate less than 5 tons. Since Webb County is in attainment for all NAAQS, no state implementation plans are in effect and de minimis emissions would not require a Conformity Determination. Maintenance activities are unlikely to violate air quality standards, and the adverse effects on air quality from maintenance activities would likely be minor.

Maintenance activities like the HDD replacement would also increase GHG emissions temporarily. However, these emissions would be below the threshold of 25,000 metric tons (equivalent to 27,557 tons) of CO2-equivalent GHG emissions per year suggested by the CEQ's Revised Draft Guidance on the Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in NEPA Reviews, which provides for further evaluation of effects on climate when GHG emissions exceed that threshold (CEQ 2010). Construction vehicle traffic would also likely have negligible contributions to GHG emissions.

4.1.2 Noise

Proposed Action Alternative

Under normal operations, there would be no change to the ambient noise levels caused by the Proposed Action Alternative. Any noise from a decrease in tanker truck traffic would be imperceptible.

No Action Alternative

Under normal operations, there would be no change to the ambient noise levels caused by the No Action Alternative.

Effects Common to Both Alternatives

There would likely be no change to the ambient noise levels under the Proposed Action Alternative or No Action Alternative. During pipeline operation, the only location along the pipeline that would routinely generate noise would be NuStar's Laredo terminal, at times when products are being pumped. The noise generated at the terminal would be within an industrialized area and would not adversely affect the general population or any sensitive noise receptors, and would not change based on product pumped.

With regard to NuStar's planned HDD maintenance activities, the noise produced would be similar to that from roadway construction and maintenance activities and would be short-term. HDD maintenance activities would require the use of excavators and a mechanized HDD drilling rig. HDD maintenance activities would likely occur primarily during daytime hours, when noise effects are less disturbing, and would only last approximately 8 hours per day for up to 30 days. Additionally, no sensitive noise receptors would be affected by the planned HDD maintenance activities.

4.1.3 Soils

Proposed Action Alternative

Under normal pipeline operations, the Proposed Action Alternative would likely result in negligible effects on soils. Effects associated with maintenance activities that could disturb soils may occur under the Proposed Action Alternative.

No Action Alternative

The No Action Alternative would likely result in negligible effects on soils. Like the Proposed Action Alternative, the No Action Alternative does not contemplate ground disturbance other than that associated with maintenance of the existing pipeline.

Effects Common to Both Alternatives

NuStar may disturb soil in the course of routine inspection of the pipeline right-of-way or during maintenance activities requiring visual inspection or replacement of pipe. During the HDD maintenance activities, less than 2 acres of Lagloria silt loam and Rio Grande very fine sandy loam soils would be disturbed; however, NuStar states it would backfill the area and stabilize the excavated trench to minimize the possibility of erosion. Therefore, the HDD maintenance activities would result in negligible soils effects.

4.1.4 Water Resources

Proposed Action Alternative

The Proposed Action Alternative would have no additional effects on water resources.

No Action Alternative

The No Action Alternative would likely result in negligible effects on water resources, including floodplains.

Effects Common to Both Alternatives

Normal operation of the pipeline is not anticipated to affect water resources. Maintenance that involves ground disturbance, such as the HDD maintenance activities, may have potential to affect water resources due to runoff from the maintenance site. Because the staging area is greater than 1 acre, NuStar has indicated that it will obtain a General Construction Permit from the TCEQ per requirements of Section 303(d) (National Environmental Pollution Discharge Elimination System) of the CWA. This permit requires implementation of a stormwater pollution prevention plan (SWPPP) that will contain stormwater at the construction site and prevent runoff.

The staging area for the HDD maintenance activities is located within the 100-year floodplain. However, the HDD maintenance activities would occur in a previously disturbed area and would not include construction of additional permanent aboveground infrastructure within the floodplain that may affect water resources or adjoining waterways. The pipe installed during the HDD maintenance activities would pass underneath the Rio Grande riverbed and is not anticipated to affect water resources during normal operation. However, because the pipe replacement could potentially affect the river bottom in the event the pipe is installed too shallow, NuStar plans to apply for a Section 10 Rivers and Harbors Act permit by completing a preconstruction notification and submitting it to the U.S. Army Corps of Engineers (USACE), Fort Worth District.

4.1.5 Biological Resources

Proposed Action Alternative

The Proposed Action Alternative is expected to have no effects on biological resources, including federally protected and state-protected species. The Department informally consulted with USFWS under Section 7 of the ESA, and on May 21, 2015, USFWS concurred with the Department's determinations that the Proposed Action Alternative "would not create

substantively different impacts than have been incurred [due] to the transportation of LPG." (Appendix B).

No Action Alternative

No effects on biological resources, including federally protected and state-protected species, are anticipated under the No Action Alternative. The No Action Alternative would not require the removal of any vegetation or wildlife habitat along the length of the existing pipeline or adjacent to the Rio Grande.

Effects Common to Both Alternatives

NuStar's separate maintenance activities would generate traffic and noise similar to that produced from roadway construction and maintenance activities. Additional vehicle traffic and noise could have minor effects on nearby wildlife. In particular, the staging area for the HDD maintenance activities is located near the Rio Grande riparian corridor, which contains suitable migration habitat for the federally listed jaguarundi and ocelot. However, the HDD staging area would encompass less than 2 acres and would be located in a previously disturbed site, and no additional native vegetation within the riparian corridor would be removed during HDD maintenance activities. While nighttime construction could occur, HDD maintenance activities would likely occur primarily during daytime hours and would only last approximately 8 hours per day for up to 30 days. Disturbance to wildlife would be temporary and likely minimal. No effects on jaguarundi or ocelot would be expected.

Although there is a potential for federally listed interior least tern and Texas hornshell to occur within the Rio Grande near the HDD staging area, the HDD activities would not likely affect the stream bottom or surface water. Best management practices (BMPs) implemented as part of the SWPPP for construction activities would protect surface waters from contaminants during stormwater flows. Consequently, it is unlikely that operation or maintenance of the pipeline would adversely affect these two species.

The Dos Laredos Pipeline crosses suitable habitat for 23 state-protected species (Appendix C). However, no terrestrial or aquatic habitat capable of supporting state-protected wildlife, fish, and

other aquatic fauna, or plants would likely be disturbed as part of normal operation of the pipeline.

4.1.6 Human Health and Safety

Proposed Action Alternative

The Proposed Action Alternative could lead to minor, beneficial human health and safety effects to the extent that it decreases transportation by tanker truck.

The human health and safety risk of transporting LPG and other refined petroleum products via truck or rail is greater than through a pipeline (USDOT 2010). The USDOT has compiled statistics showing that there is a greater risk of accident, including vehicle crashes, accidental releases, and fire, posed by the continuation of truck transport, as compared with pipeline transport, based on volume of refined petroleum product per mile (USDOT 2010).

No Action Alternative

Under the No Action Alternative, gasoline, kerosene, and diesel would continue to be loaded in the Laredo area and then transported via truck across the border to Nuevo Laredo. This draft SEA assumes that the Dos Laredos Pipeline is returned to operation, thereby transporting LPG via pipeline instead of by truck.

Effects Common to Both Alternatives

NuStar is required to follow all Occupational, Safety, and Health Administration (OSHA) standards and has committed to compliance with all standards, policies, and procedures outlined in NuStar's Health, Safety and Environmental Handbook (NuStar 2012). NuStar reports an average Total Recordable Incident Rate (TRIR) of 0.51 per year over the last 5 years, while the industry average is approximately 1.5 TRIR per year over the last 5 years (NuStar 2015a). Based on NuStar's workplace safety record, continued pipeline operation and maintenance activities would be expected to have negligible effects on the safety of NuStar employees tasked to the Dos Laredos Pipeline, regardless of the products being transported in the pipeline.

4.1.7 Transportation

Proposed Action Alternative

The Proposed Action Alternative could lead to minor, beneficial effects on transportation. NuStar is proposing to transport up to 24,000 bpd of non-LPG refined product using the pipeline. Based on the assumption that the pipeline would be operated at 90 percent capacity cumulatively over the course of a year, approximately 39,400 tanker truck trips would be required per year to carry 24,000 bpd of these products (Atkins 2013). However, it is unknown how many tanker truck trips would be required to transport the LPG that these products would displace in that scenario, and thus the actual number of tanker truck trips eliminated by the Proposed Action Alternative would likely be an unknown amount less than 39,400. Assuming some reduction in tanker truck trips, operation of the pipeline would result in a minor reduction in tanker traffic on local highways and, in particular, could contribute to a minor reduction of traffic congestion and crossing time at the United States-Mexico border. If there is a demand for truck drivers in the area, however, the availability of drivers displaced by the pipeline to work for other companies could partially negate the congestion benefits of the Proposed Action Alternative, although to the extent that these additional trucks are used for domestic commerce they would not affect the Proposed Action Alternative's potential decrease in wait times at the border.

No Action Alternative

The No Action Alternative would have negligible effects on transportation. The No Action Alternative assumes that the Dos Laredos Pipeline would return to operation and resume the transport of LPG (and thereby potentially reduce some tanker truck traffic), but refined petroleum products, including regular and premium gasoline, kerosene, and diesel, would continue to be loaded in the Laredo area and then transported via truck across the border to Nuevo Laredo; loaded in Harlingen, Texas, and transported via trucks across the border to Nuevo Laredo; or transported via barge or vessel from Texas' Gulf Coast ports to Brownsville, Texas, and then transported via trucks across the border to Nuevo Laredo in order to meet current demand.

Effects Common to Both Alternatives

Relative to transportation modes in the Laredo area, there are no characteristics or effects that are common to both alternatives.

4.1.8 Cultural Resources

Proposed Action Alternative

During normal pipeline operation, the Proposed Action Alternative is unlikely to adversely affect cultural resources since no new ground disturbance beyond the currently proposed maintenance is anticipated.

No Action Alternative

During normal pipeline operation, the No Action Alternative is unlikely to adversely affect cultural resources since no new ground disturbance beyond the currently proposed maintenance is anticipated.

Effects Common to Both Alternatives

The only anticipated ground disturbance, which would occur under both alternatives, is work that would occur at the HDD staging area. The likelihood of encountering undiscovered cultural resources within the HDD staging area is low. However, NuStar will develop an Unanticipated Discoveries Plan specific to the Dos Laredos Pipeline project. NuStar's Unanticipated Discoveries Plan will require that if unmarked human burials are discovered during construction, work will stop in the immediate vicinity, the remains will be protected, and the local cultural resources representative and the Texas State Historic Preservation Officer (SHPO) will be notified as soon as possible. The location of the unmarked human burial would be documented and the provisions of the Native American Graves Protection and Repatriation Act will be implemented, including consultation with Indian tribes. NuStar will also be bound by the Texas Health and Safety Code in the event of such a discovery. Therefore, the HDD maintenance activities are unlikely to have adverse effects on cultural resources.

4.2 POTENTIAL EFFECTS DUE TO ACCIDENTAL RELEASES FROM THE PIPELINE

NuStar's standard operating procedures include processes, procedures, and systems designed to prevent, detect, and mitigate potential releases of refined petroleum products. However, an accidental release of refined petroleum products, including LPG, regular and premium gasoline, kerosene, and diesel, though improbable, could occur. NuStar's Laredo facility has established an emergency response plan. The plan identifies the actions, resources, and procedures for responding to potential emergencies, including accidental releases (NuStar 2012). NuStar states that it would adhere to all standards, policies, and procedures outlined in the emergency response plan in the event of an accidental release (NuStar 2012).

NuStar asserts that its employees continually work on a wide range of emergency preparedness efforts, including accidental spill or release response, to ensure that they are prepared and equipped to respond to any emergency situation if it arises (NuStar 2015b). These efforts include ongoing training programs, exercises, and drills aimed not only at responding to emergency situations, but also preventing an emergency from happening (NuStar 2015b). NuStar states that its efforts are regularly conducted in partnership with governmental and regulatory officials and other regional emergency response officials (NuStar 2015b).

In general, several threats could lead to a potential release of pipeline contents. The most common causes of pipeline releases are equipment failure (e.g., valve failure resulting in leaks) and incorrect operations, including incorrect operation of tanks (PHMSA 2012). The primary release causes for the actual pipe, not including components, are outside forces (excavation), weld failures, and corrosion (PHMSA 2012). During the 7 years that the NuStar Dos Laredos Pipeline was in operation (i.e., 2004 through 2011), there were no reportable releases (i.e., 5 gallons or more) from the pipeline facilities.

A change from LPG to other refined petroleum products transported in the pipeline would have no effect on the accidental release rate, since all are liquid petroleum products with similar chemical properties with regard to their potential to damage pipe. However, an accidental release of non-LPG refined petroleum products, including regular and premium gasoline,

kerosene, and diesel, would have different effects from those associated with an LPG release. The amount and type of environmental resources that an accidental release of reportable quantities would affect could vary depending on the following (Department 2014):

- Cause of the release
- Volume or size of the release
- Type of product released
- Location of the release
- Season of occurrence
- Geomorphology (the changing terrain)
- Timing and degree of response actions

The size of an accidental release is also affected by the following (Department 2014):

- Size of the release outlet
- Pipeline pressure
- Time it takes to detect the leak
- Time it takes to shut down the pipeline and isolate the leak after detection
- Pipeline diameter (volume)
- Distance between isolation valves
- Pipeline elevation change between the isolation valves and the leak location
- Effectiveness of the isolation

Modern pipeline systems, such as the Dos Laredos Pipeline, are designed to automatically detect pressure changes in the line, and to interpret certain pressure drops as leaks in order to prevent accidental releases of products. Nevertheless, there remains the potential for accidental releases of refined petroleum products during operation of the Dos Laredos Pipeline, which could affect air quality, soils, water resources, biological resources, human health and safety, and cultural resources. Effects of an accidental release of LPG are described in the No Action Alternative sub-sections below, but could apply to the Proposed Action Alternative if LPG is transported.

4.2.1 Air Quality

Proposed Action Alternative

Under the Proposed Action Alternative, negligible effects on air quality are anticipated. Non-LPG refined products transported under the Proposed Action Alternative, including regular or premium gasoline, kerosene, or diesel, have lower volatility than LPG. Unlike a release of LPG, an accidental release of most non-LPG refined products (i.e., diesel and kerosene) would not

form a highly flammable vapor cloud and would have fewer effects on air quality than an LPG release of comparable size. Thus, a non-LPG release has a much lower risk of fire or explosion than an LPG release, though during the days following a release there would still be a continued loss of product to the atmosphere due to volatilization. Air concentrations of hazardous constituents such as benzene would be highest during and immediately following the release, and would diminish over time, creating short-term, minor air quality effects. Emergency response and cleanup would further mitigate the air quality effects.

No Action Alternative

Under the No Action Alternative, an accidental release of LPG would result in localized, short-term air quality effects (including toxic vapors and odors). These effects would be temporary until the vapor cloud dissipates and ambient air quality returns. However, it is also possible that a release could create a highly flammable vapor cloud. Fires or explosions caused by a sudden burst in the pipeline could affect air quality until the fire is extinguished. However, the potential for such events is negligible and was addressed in the 2003 EA.

4.2.2 Noise

Proposed Action Alternative

Under the Proposed Action Alternative, an accidental release of non-LPG refined products would likely have negligible noise effects, except in the event of a fire or explosion, which is even less likely with a release of non-LPG refined products than with a release of LPG. Some emergency response activities would create localized noise events, but the noise level would not be expected to be perceptible beyond 1,000 feet from the site of the release.

No Action Alternative

Under the No Action Alternative, an accidental release of LPG would likely have negligible noise effects, except in the unlikely event of a fire or explosion. Again, some emergency response activities would create localized noise events, but the noise level would not be expected to be perceptible beyond 1,000 feet from the site of the release.

4.2.3 Soils

Proposed Action Alternative

The likely long-term effects on soil resources from a spill under the Proposed Action Alternative would likely be minimal, as these products would be required to be recovered during emergency response and cleanup procedures in accordance with the Texas State Emergency Response Commission's guidance and regulations (TCEQ 2015c). Even so, non-LPG refined products, such as regular or premium gasoline, kerosene, or diesel, have a greater potential to be retained within soils and river sediments than LPG, creating a potential contamination hazard.

No Action Alternative

Negligible effects on soils are anticipated in the event of an accidental release under the No Action Alternative because LPG rapidly vaporizes and dissipates upon accidental release and is not considered a risk to soils.

4.2.4 Water Resources

Proposed Action Alternative

Under the Proposed Action Alternative, an accidental release of non-LPG refined products, including regular or premium gasoline, kerosene, or diesel, could affect local water resources, including contaminating the water column and stream and river sediments. As mentioned previously, one of Laredo's water treatment plants is located approximately 9 miles downstream of the Proposed Action Alternative. A major spill of non-LPG refined petroleum products could affect the water supplies of Laredo. The magnitude of this effect would depend on numerous variables including 1) quantity and type of product spilled; 2) time of day and season of spill; 3) response time to address the spill by NuStar and water treatment plant operators; 4) volume and flow of Rio Grande at time of spill; and 5) amount of water stored by City of Laredo.

Local human populations could be exposed to non-LPG refined products if they use or consume contaminated water. Although some of the chemicals that make up the non-LPG products readily mix with water, most of the chemicals in non-LPG refined products are usually removed by purification processes before the water enters the drinking water supplies (Agency for Toxic Substance and Disease Registry [ATSDR] 1995a). Even so, people who drink the contaminated

water, bathe or shower in it, or otherwise use it would be exposed (ATSDR 1995a). The exposures to non-LPG refined products and their constituents resulting from contamination of municipal water supplies following an accidental release are generally lower than exposure levels that are known to cause human health effects (Bureau of Toxic Substance Assessment 2006).

In addition, non-LPG refined products could be retained within shallow groundwater and surface waters, creating a potential hazard to water resources that is not associated with the No Action Alternative. The extent of migration of these refined petroleum products through soil is largely determined by viscosity and density combined with soil permeability and moisture content. If these products reached the shallow groundwater table, long-term contamination of groundwater is possible. However, the shallow groundwater in the Laredo area is not used as a potable source. The effect on deeper, potable groundwater resources would likely be minimal, as refined petroleum products would likely either be recovered during emergency response and cleanup procedures or, if released into water, would flow downstream. The probability of an accidental release migrating down to potable aquifers is low.

No Action Alternative

Negligible effects on water resources are anticipated in the event of an accidental release under the No Action Alternative because LPG rapidly vaporizes and dissipates after an accidental release through the soil and is not considered a risk to either surface water or groundwater.

4.2.5 Biological Resources

Proposed Action Alternative

An accidental release of a small amount of regular or premium gasoline, kerosene, or diesel that results in a fire would cause damage to vegetation used by wildlife species, including federally listed and state-protected species such as the Gulf Coast jaguarundi and ocelot, which may use habitat in the immediate vicinity of the pipeline. However, the local types and distribution of vegetation would make widespread fires improbable.

Unlike LPG, other refined petroleum products, if accidently spilled, could have adverse effects on aquatic species. According to Kumpanenko et al. (2015), oil and non-LPG petroleum products are currently considered the most dangerous environmental pollutants, when spilled. The effects of non-LPG refined petroleum products released into the aquatic environment are well documented (Dicks 1989; Green and Truett 1989; Moore and Ramamoorthy 1984; Wolf 1976). All parts of the hydrologic system are susceptible to petroleum contamination through the processes of biodegradation, hydrolysis, photochemical transformation, and evaporation. When refined petroleum products are spilled into the aquatic environment, the results are often deleterious to organisms living within the water, at the surface, and at the interface between land and water.

The harmful effects of refined petroleum product contamination on aquatic organisms are complex and can manifest themselves at every trophic level. The physical properties of floating oil can inhibit or preclude the normal functions (e.g., photosynthesis, respiration, feeding) of aquatic organisms. Through direct contact with refined petroleum products, birds and mammals lose properties that allow for insulation and buoyancy in fur and feathers. Attempts to self-clean fur and feathers often lead to ingestion, making these animals susceptible to toxicity. A pathology study conducted on ruddy ducks (Oxyura jamaicensis) contaminated with diesel found that the birds suffered from symptoms consistent with acute refined hydrocarbon toxicity (Langenberg and Dein 1982). Furthermore, refined petroleum products have proven detrimental to successful reproduction in birds when their eggs become contaminated. Parnell et al. (1984) studied the effects of diesel on the hatching success of brown pelican (Pelicanus occidentalis) eggs. The results showed the hatching success in eggs contaminated with diesel was significantly less than in non-contaminated eggs.

In the freshwater environment, the biodegradation of petroleum hydrocarbons can result in the depletion of oxygen due to increased microbial activity. Decreased oxygen levels and anoxic conditions may cause die-offs in fish populations, in addition to other aquatic organisms dependent on dissolved oxygen (Shales et al. 1989). Mason (1996) describes an example from Hayfork Creek, California, where 2,378 gallons of diesel spilled and caused extensive damage to the animal community, despite most of the diesel having been flushed from the area within a

time span of 3 weeks. As a counterpoint, Mason (1996) cites the effects of 1,310 barrels (72,050 gallons) of aviation kerosene leaked into a stream in Pennsylvania. Although the short-term effects of the incident were catastrophic on the wildlife in the area, the wildlife community recovered quickly due to timely and effective remediation activities coupled with a healthy watershed upstream, allowing invertebrates and fish to recolonize the affected area.

Although the climatic conditions of northern California and Pennsylvania are different than those of southern Texas, the anticipated consequences of kerosene or diesel accidentally released into the aquatic environment of the Rio Grande would be similar. Moreover, the Mason (1996) study cited above indicates that expediency in effective remediation and overall health and condition of an aquatic environment can influence the duration and overall recovery of the environment should a spill occur.

Although unlikely to occur, a large accidental release of non-LPG refined products that enters the Rio Grande would have the potential to affect aquatic species, including the federally listed Texas hornshell population downstream of the Dos Laredos Pipeline. The adverse effect would be greatest in the few miles immediately downstream of the release. The effect would diminish as the contamination plume traveled downstream due to both dilution from other freshwater streams and volatilization of hazardous constituents. The ATSDR (1995b) reported that oxygen depletion is the major biological effect that would occur from an accidental spill, as most constituents of refined petroleum products would volatilize and dissolve fairly rapidly. Any potential adverse effect would be mitigated by the implementation of NuStar's emergency response measures, which would include containment and cleanup operations in accordance with Texas' State Emergency Response Commission's guidance and regulations (TCEQ 2015c). Consequently, and given the location of the Texas hornshell population downstream, no adverse effects on Texas hornshells would be expected.

In addition, interior least terns, which are federally endangered, may nest on riverine sandbar habitat in the Rio Grande in the vicinity of the Dos Laredos crossing. A large accidental release that enters the Rio Grande could have adverse effects on any terns nesting in the area. The magnitude of these effects would depend on several abiotic and biotic variables, including time

of year, water surface elevation and flows, and water clarity (which influences foraging habitat for least terns). The tern is a migratory species and would use the river on a temporary basis (i.e., May through July) only if favorable conditions existed. As such, no adverse effects on the interior least tern would be expected.

No Action Alternative

Under the No Action Alternative, an accidental release of LPG would result in negligible effects on biological resources. An accidental LPG release resulting in a fire could cause damage to vegetation and could potentially affect wildlife species, including federally listed and state-protected species, like the Gulf Coast jaguarundi and ocelot, which may use habitat in the immediate vicinity of the pipeline. However, the sparse distribution of vegetation and lack of high fuel load vegetative species would make widespread fires improbable. Similarly, an accidental release would not likely affect aquatic species since LPG rapidly vaporizes and is not soluble in water. Some individuals of the more common unlisted species could be injured or killed if they occur within the immediate area of the release. However, the likelihood of these circumstances occurring are improbable; thus, no adverse effects on protected species would be expected.

4.2.6 Human Health and Safety

Proposed Action Alternative

Human health and safety risks are reduced in the case of an accidental release of the non-LPG refined products likely to be transported via the Dos Laredos Pipeline due to the lower volatility of these products. Unlike a release of LPG, no flammable vapor cloud would form that could potentially cause harm to people or commercial and residential properties.

Assuming that fewer trucks would be required to carry displaced LPG than to carry the non-LPG refined petroleum products, public safety would be enhanced by transporting the latter products within the pipeline instead of on tanker trucks traveling along local road networks, especially since the pipeline primarily crosses open, unpopulated portions of Webb County. A truck release incident in 20 years is a near certainty, compared to a pipeline incident, which is far less likely.

Immediately following an accidental release along any portion of the pipeline, local residents would be temporarily removed from the area in order to minimize health and safety risks resulting from potential fires and from exposure to petroleum products and vapors. Proper emergency response in accordance with TCEQ guidance and regulations, including removal of contaminated soils, would minimize potential long-term health or nuisance effects.

As with the No Action Alternative, emergency workers responding to an accidental release would be subjected to potential risks; however, strict compliance with TCEQ and OSHA regulations, as well as NuStar's emergency plan, would minimize these risks, as addressed in the 2003 EA.

No Action Alternative

An accidental release of LPG from a pipeline rupture could flash to vapor, forming a flammable vapor cloud, which could be transported by wind toward populated areas. However, as can be seen on aerial photography (Google Earth 2015), less than 20 percent of the pipeline route is in areas where such a cloud would arrive at populated areas in high enough concentration to be above the air flammability limit (Google Earth 2015). Air flammability limits are the upper and lower bounds (1.9 percent to 9 percent) of an LPG/air mixture capable of producing a flash or fire in the presence of an ignition source. Given the generally remote area, the effects on public health and safety would likely be negligible.

NuStar has stated that, in the event of an accidental release, it would adhere to all standards, policies, and procedures outlined in the emergency response plan (NuStar 2015a and 2015b). Evacuation of civilians to a safe distance is the first action laid out in NuStar's response plan in the event of a refined petroleum product spill, in order to avoid fires, skin contact, and ingestion.

Emergency workers responding to an accidental release would be subjected to potential risks; however, strict compliance with TCEQ and OSHA regulations, as well as NuStar's emergency procedures, would minimize these risks, as addressed in the 2003 EA.

4.2.7 Transportation

Proposed Action Alternative

In the event of an accidental release, the Proposed Action Alternative would have negligible effects on transportation in the vicinity of the Dos Laredos Pipeline since the pipeline route is generally located in remote areas. Transportation could be affected if an accidental release occurred at major road crossings (e.g., I-35 and U.S. Highway 1472). Furthermore, depending on the degree and duration of spill, as well as the amount of time the pipeline is out of operation, product demand may have to be met using tanker trucks. Truck transport of refined petroleum products could result in minor increases in traffic within Laredo, Nuevo Laredo, and surrounding cities.

In the event that an accidental release occurs in the vicinity of a railroad crossing or a major thoroughfare, local transportation could be adversely affected. The magnitude of these effects would depend on the timing, extent, and location of the release and would be mitigated depending on NuStar's response and shutdown.

No Action Alternative

The No Action Alternative would have effects on transportation similar to those described in the Proposed Action Alternative.

4.2.8 Cultural Resources

Proposed Action Alternative

Under the Proposed Action Alternative, an accidental release of regular or premium gasoline, kerosene, or diesel could result in minor effects on undiscovered cultural resources during ground-disturbing emergency remediation activities.

No Action Alternative

Under the No Action Alternative, an accidental release would likely have negligible effects on cultural resources since typically no ground disturbance or remediation activities would be necessary because LPG generally rapidly vaporizes and dissipates upon release.

4.3 COMPARATIVE SUMMARY OF ALTERNATIVES' EFFECTS ON RESOURCES

Potential environmental effects of the Proposed Action Alternative and the No Action Alternative would be those primarily associated with water quality, air quality, transportation, and public safety. In the event of an accidental spill, effects on protected aquatic species and cultural resources could also occur and are addressed in this draft SEA. Table 4-3 presents a summary of the effects expected to occur under each alternative, as well as those that are similar to both alternatives.

Cumulative effects resulting from the direct and indirect effects of implementing the Proposed Action Alternative, in addition to past, present, and foreseeable future actions by the Department, NuStar, or other entities in the area, are discussed in Section 5 of this draft SEA.

Table 4-3. Summary of Potential Effects

Resource	Proposed Action Alternative (Focused on Non-LPG Refined Products)	No Action Alternative (LPG)	Shared Characteristics
Air quality	An accidental release of non-LPG petroleum refined products would not substantially affect air quality since a flammable or toxic vapor cloud would not form. However, during the days following a release there would be a continued loss of product to the atmosphere due to volatilization. Air concentrations of hazardous constituents such as benzene would be highest immediately following the release, and would diminish over time, creating short-term effects.	An accidental release of LPG would result in localized, short-term air quality effects until the vapor cloud dissipates. There is also potential for a flammable or toxic vapor cloud to form.	Minor, temporary increases in emissions during HDD maintenance activities. No effect on air quality under normal operations.
Noise	No additional effects would be expected.	No additional effects would be expected.	Minor, temporary increases in noise levels within the immediate area of the HDD. No long-term increase to ambient noise levels.
Soils	No additional effects would be expected.	No additional effects would be expected.	HDD maintenance activities would disturb about 2 acres, which have been previously disturbed. BMPs would be implemented to ensure no additional erosion and sedimentation would occur. No prime farmlands would be impacted.
Water resources	An accidental release of non-LPG refined petroleum products could affect local water resources, including the contamination of the water column and stream and river sediments. Depending on its location, an accidental release could cause potential harm to water resources including the Rio Grande, Sombrerito Creek, tributaries of Sombrerito Creek, and the municipal water supplies of Laredo and Nuevo Laredo. Non-LPG refined petroleum products could be retained within groundwater and surface waters, and this would create a potential hazard to water resources that is not present under the No Action Alternative. However, the threat to groundwater resources would be minimal, as refined petroleum products would either be recovered during emergency response and cleanup procedures, or flow downstream.	Accidental release of LPG would not present a risk to either surface water or groundwater, as it rapidly vaporizes and dissipates.	Stormwater runoff during HDD maintenance would be retained onsite with the implementation of BMPs. Under normal operations, there would be no impacts on water resources.
Biological resources	An accidental release of a small amount of regular or premium gasoline, kerosene, or diesel that resulted in a fire would cause damage to vegetation used by wildlife species that may use habitat in the immediate vicinity of the pipeline. However, the local types and distribution of vegetation would make widespread fires improbable. A large accidental release that enters the Rio Grande would be likely to contaminate the water source but would diminish as the contamination plume traveled downstream due to both dilution from other freshwater streams and to volatilization of hazardous constituents. The effect would be further mitigated by the implementation of NuStar's emergency response measures, which would include containment and cleanup operations.	An accidental release that resulted in a fire could cause damage to vegetation used by wildlife species that may use habitat in the immediate vicinity of the pipeline. However, the local types and distribution of vegetation would make widespread fires improbable. LPG rapidly vaporizes and dissipates in water, so an accidental release would not affect aquatic species.	No or negligible effect on biological resources would be expected due to the HDD activities or normal pipeline operations.

Resource	Proposed Action Alternative (Focused on Non-LPG Refined Products)	No Action Alternative (LPG)	Shared Characteristics
Human health and safety	Human health and safety risks are reduced in the case of an accidental release of non-LPG refined petroleum products due to their lower volatility; a highly flammable vapor cloud would not form that would threaten properties in the vicinity of the location of the release. Public safety would be enhanced by transport of non-LPG petroleum products within the pipeline instead of by truck, assuming that fewer trucks are required to carry the displaced LPG than would be required to carry gasoline, kerosene, diesel, and other non-LPG refined products. This is because of a reduction in accident frequency, as well as the reduction in immediate risk from transport in a pipeline which largely crosses open, unpopulated portions of Webb County, rather than along the local road network. Immediately following an accidental release along any portion of the pipeline, local residents would be temporarily removed from the area in order to minimize health and safety risks resulting from potential fires, further reducing any potential adverse health effects from exposure to petroleum vapors. Depending on its location, an accidental release could cause potential harm to the municipal water supplies of Laredo and Nuevo Laredo. Proper emergency response would mitigate or eliminate potential longer-term health or nuisance effects.	An accidental release of LPG from a pipeline rupture could flash to vapor, forming a flammable vapor cloud, which might be transported by wind toward populated areas. Immediately following an accidental release along any portion of the pipeline, local residents would be temporarily removed from the area in order to minimize health and safety risks resulting from potential fires, further reducing any potential adverse health effects from exposure to LPG vapors. However, less than 20 percent of the pipeline route is in areas where such a cloud could arrive at populated areas in high enough concentration to be above the air flammability limit. There is a greater risk of accident posed by the continuation of truck transport of gasoline, kerosene, and diesel, assuming that more trucks would be on local road networks if gasoline, kerosene, and diesel cannot be transported in the pipeline.	No or negligible effect on health and safety would be expected due to the HDD activities or normal pipeline operations.
Transportation	Operation of the pipeline to transport a broader range of refined petroleum products, including regular and premium gasoline, kerosene, and diesel, would result in a small reduction in tanker traffic on local highways, as well as reduced congestion at the United States-Mexico border, assuming that fewer trucks are required to carry the displaced LPG than would be required to carry the non-LPG refined petroleum products.	Gasoline, kerosene, and diesel would continue to be loaded in the Laredo area or other areas and then transported via truck across the border to Nuevo Laredo.	No shared characteristics.
Cultural resources	In the event of an accidental release of non-LPG refined petroleum products, remediation of the spill could uncover buried artifacts. NuStar will develop an Unanticipated Discoveries Plan to address these types of issues.	LPG generally rapidly vaporizes and dissipates, so an accidental release would not likely require ground-disturbing remediation affecting cultural resources.	NuStar will develop an Unanticipated Discoveries Plan that would cover the HDD maintenance activities. No additional impacts on cultural resources would be expected due to normal pipeline operations.

SECTION 5.0
CUMULATIVE EFFECTS

5.0 CUMULATIVE EFFECTS

This section of the draft SEA defines cumulative effects; identifies past, present, and foreseeable future projects relevant to cumulative effects; and analyzes the potential cumulative effects associated with the implementation of the Proposed Action Alternative and other projects and programs planned or constructed within Webb County, Texas, which is the Proposed Action Alternative's ROI.

5.1 BACKGROUND

CEQ defines cumulative effects as "the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (40 CFR § 1508.7). Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time. The scope of the other actions to be considered in a cumulative effects analysis must take into account geographic and temporal overlaps with the Proposed Action Alternative (CEQ 1997). Past, present, and foreseeable future actions (e.g., next 20 years) for consideration include those by the Department, NuStar, or other entities in the area. The Department considered NuStar documents, news and press releases, and published media reports, and consulted with planning and engineering departments of Federal, state, and local agencies (personal communication with staff from the TXDOT, Webb County, and the City of Laredo) to identify past, present, and foreseeable future actions.

5.2 PAST EFFECTS WITHIN THE REGION OF INFLUENCE

The ecosystems within the ROI have been significantly affected by historical and ongoing activities such as ranching, livestock grazing, mining, agricultural development, and urban and suburban development. All of these actions have, to a greater or lesser extent, contributed to several ongoing threats to the ecosystem, including loss and degradation of habitat for both common and rare wildlife and plants.

Congress, the Department, and other Federal agencies have responsibility for international border crossings involving roads and bridges, railroads, and transmission lines. There are numerous crossings within the ROI, including, but not limited to, the World Trade Bridge, Gateway to the Americas Bridge, and Juarez-Lincoln International Bridge.

Although not within the ROI for the Proposed Action Alternative, pipeline systems similar to the Dos Laredos Pipeline have been built in the last 20 years between the sister cities of El Paso and Ciudad Juarez, between Eagle Pass and Piedras Negras, and between Brownsville and Matamoros. Such interconnections have more closely linked energy markets of the United States and Mexico and provide commercially significant means for the transport of various energy products. During the past two decades, additional pipelines carrying refined petroleum products, LPG, and natural gas have been constructed across the United States-Mexico border.

5.3 CURRENT AND REASONABLY FORESEEABLE PROJECTS WITHIN AND NEAR THE REGION OF INFLUENCE

There are currently no applications before the Department for Presidential Permits related to additional crossings in the ROI. Similarly, NuStar currently has no further expansions or projects planned for the ROI. NuStar does, however, plan to construct new pipelines and change products being transported in other existing lines in the Edinburg, Texas, area. Its proposed Burgos Pipeline Project is located approximately 150 miles downstream of the Dos Laredos Pipeline project in Hidalgo County, Texas, and thus is outside of the Dos Laredos ROI. The Burgos Pipeline Project is being evaluated separately by the Department.

The Federal Energy Regulatory Commission (FERC) is currently reviewing an application for construction and operation of a new natural gas pipeline system approximately 20 miles north of Laredo. The pipeline system would consist of 12-inch diameter and 36-inch diameter pipelines that would be installed via HDD under the Rio Grande, parallel to each other. Those pipelines would be connected to an existing pipeline system operated by Howard Midstream Energy Partners, LLC and its subsidiaries. The proposed pipelines would transport natural gas to Mexico that is produced from the Eagle Ford Shale. Up to 3.8 billion cubic feet per day would be expected to be transported (Natural Gas Intelligence [NGI] 2015).

Numerous other projects are being planned by Federal, state, and local agencies within the ROI. The United States Border Patrol (USBP) maintains a presence along the Rio Grande and plans future development of various tactical infrastructure and support facilities, such as station and sector facilities, detention facilities, roads, communication towers, and fences to facilitate identification, interdiction, and deterrence of illegal cross-border activity. These developments and the associated enforcement actions have already affected thousands of acres, with indirect and cumulative effects on soil, wildlife habitats, water quality, and noise. Beneficial effects, too, have resulted from the construction and use of these roads and fences, including but not limited to increased employment and income for border regions and the surrounding communities, protection and enhancement of sensitive resources north of the border, reduction in crime within urban areas near the border, and increased land value in areas where border security has increased (Department of Homeland Security [DHS] 2015).

The Laredo region has been experiencing growth in the past decade and is projected to grow more than 50 percent in both population and employment by the year 2040 (City of Laredo 2015). The location and distribution of this growth would impact future transportation demand, while future transportation improvements will impact where and how growth occurs. The TXDOT, Webb County, and the City of Laredo are planning numerous development projects in the vicinity of the Proposed Action Alternative. Some of the larger or more pertinent projects are shown in Table 5-1. Several other projects, such as renovations, individual housing units, and parking lots, are being constructed or planned but typically do not significantly contribute to cumulative effects.

In addition to these projects, the City of Laredo recently released the Laredo Metropolitan Transportation Plan 2015-2040, which describes numerous transportation projects, including rail, highway, and recreational pathways, that are being considered for development over the next 25 years (City of Laredo 2015). While construction of these projects would be expected to contribute to the cumulative effects on various resources within the ROI, the projects are not considered as occurring in the reasonably foreseeable future since they are not designed or funded as yet.

Table 5-1. Projects in Webb County

Agency	Project	Location	Approximate Size (Acre)
TXDOT	Widen 2.3-mile section of State Highway Loop 20	From Mangana-Hein Road to Cielito Lindo	22
Webb County	Jail & Law Enforcement Complex	I-35	100
	Colorado Acres Reverse Osmosis System Upgrade	Colorado Acres	0; water supply upgrade
	Rio Bravo Regional Wastewater Treatment Plant Replacement	Rio Bravo	0; effluent treatment upgrade
	Training Center	Bruni	2
City of Laredo	Chacon Creek Pedestrian Trail	Haynes Center to State Highway 359	4

A summary of the anticipated cumulative effects relative to the Proposed Action Alternative is presented below. The discussion is presented for each of the resources described previously.

5.4 ANALYSIS OF CUMULATIVE EFFECTS

Resources potentially affected by the No Action Alternative and Proposed Action Alternative were evaluated in the context of other actions and projects within the ROI and how the resource would be affected cumulatively. Effects can vary in degree or magnitude from a slightly noticeable change to a total change in the environment. For purposes of this analysis, the intensity of effects is classified as negligible, minor, moderate, or major. These intensity thresholds were previously defined in Section 4.0. A summary of the anticipated cumulative effects on each resource is presented below.

5.4.1 Air Quality

The Proposed Action Alternative, when combined with other past, ongoing, and Proposed Action Alternatives in the region, would not result in major adverse cumulative air quality effects and could provide beneficial effects on the region's airshed in the immediate future to the extent that there is a reduction in tanker truck traffic. These emissions include VOCs, GHGs, CO, NO2, and SO2 generated by the truck engines; these emissions are particularly pertinent when engines

are in an idle state, which is commonplace at border crossings. Webb County is in attainment for all NAAQS and would be expected to retain this status, even the truck drivers that are displaced as a result of petroleum products being moved by pipeline find other jobs and continue to drive in the region. Under the Proposed Action Alternative, no additional emissions due to operation of the pipeline are expected.

Future air quality in the Laredo region will depend on a variety of factors. In the near future, the state of the region's air quality is likely to be associated with the pollutant emission changes caused by increased urban growth in the area (Dentener et al. 2005), as well as a combination of the growth of in situ local emissions and changes in distant emissions (Parrish et al. 1993). In the future, in 2050 for example, climate change may affect meteorological variables such as temperature and water vapor, which impact air quality.

No long-term direct effects on air quality would occur due to construction activities associated with the HDD, which would occur under both the No Action Alternative and the Proposed Action Alternative. Emissions from the HDD replacement, including from associated construction equipment and vehicle use, would not exceed Federal de minimis thresholds and would be temporary.

5.4.2 Noise

The Proposed Action Alternative could reduce the amount of tanker truck traffic at the Laredo/Nuevo Laredo border crossings; however, the reduction in noise from truck traffic would be imperceptible. Other noise sources in the region include commercial and private traffic (particularly at the ports-of-entry), construction, air traffic, and farming.

Actions would be considered to cause major effects if they permanently increase ambient sound levels over 65 decibels (A-weighted scale). Under either alternative, noise would be generated only during the HDD activities to replace the existing pipeline. These activities would be temporary and would not contribute to cumulative effects on ambient noise levels.

5.4.3 Soils

The change in the products to be transported under the Proposed Action Alternative would not contribute to cumulative effects on the region's soils.

A major impact on soils would occur if actions exacerbate or promote long-term erosion, if the soils are inappropriate for proposed construction and would create a risk to life or property, or if there would be a substantial reduction in agricultural production or loss of prime farmland soils. Temporary disturbance of less than 2 acres of soils would occur at the HDD site under both alternatives. BMPs should be implemented to reduce or avoid long-term erosion of soils, none of which are considered to be prime farmland soils. The restoration projects currently being implemented or planned in the Laredo Riverbend area would also temporarily disturb soils; however, once the revegetation activities are complete, soils would be stabilized and no further erosion would be expected.

Other commercial and road developments, as well as agricultural developments, would increase disturbances to the region's soils. Pre- and post-construction SWPPP measures should be implemented to control soil erosion for all construction activities greater than 1 acre. The temporary impact from the HDD activities on 2 acres of undeveloped but previously disturbed land, when combined with past actions in the region, would not be considered a major cumulative adverse effect.

5.4.4 Water Resources

The operations under the Proposed Action Alternative would not contribute to the cumulative effects on the region's water resources. Indirect effects on water resources could occur due to erosion and sedimentation from the HDD site, but the site is very small (2 acres) relative to the ROI, and with implementation of SWPPP measures, these effects would be negligible and only temporary. As such, the HDD activities would not be expected to contribute to the cumulative adverse effects on groundwater, surface water, floodplains, or wetlands.

Other activities in the region would be expected to have cumulative effects on surface water and groundwater supplies, particularly expansion of agricultural operations and urban developments.

Residential developments and transportation projects would be expected to avoid floodplains and waters of the United States, including wetlands, or provide compensatory mitigation to offset adverse effects.

5.4.5 Biological Resources

The Proposed Action Alternative would not contribute to the cumulative effects on the region's biological resources. As mentioned previously, the region has been substantially disturbed by past agricultural, urban, and industrial development. As populations increase within Webb County, these disturbances are expected to continue and increase the strain on fish and wildlife habitat and their populations. The HDD activities would temporarily disturb about 2 acres of vegetation near the Rio Grande; however, this area has been previously disturbed. Consequently, the HDD activities would not contribute to the adverse cumulative effects on biological resources.

5.4.6 Human Health and Safety

There would be no adverse cumulative effects on human health and safety associated with the Proposed Action Alternative. The Proposed Action Alternative could provide some cumulative beneficial effects if tanker truck trips on local roads and highways are reduced (Atkins 2013), as transportation of refined product via pipeline is statistically safer than rail or truck (USDOT 2010). NuStar will also be required to follow all applicable OSHA standards and its OSHA plan during normal pipeline operation.

The actions proposed under the No Action Alternative would not contribute to any positive or negative cumulative effects on human health and safety. The expansion and improvements to roads and highways constructed or planned within the region would be expected to improve traffic conditions and, in turn, the region's human health and safety. Similarly, the USBP enforcement actions would also be expected to improve the safety of residents in the actions by deterring illegal cross-border activities (DHS 2015).

5.4.7 Transportation

The Dos Laredos pipeline has been out of operation since 2011, so any products transported in the pipeline would be expected to remove tanker traffic from local highways. The Proposed Action Alternative could result in a further minor reduction in the amount of truck traffic on the area's roads and highways, which would provide a minor beneficial cumulative effect. Furthermore, employment of heavy and tractor-trailer truck drivers throughout the United States is projected to grow 11 percent from 2012 to 2022, about as fast as the average of all occupations (U.S. Bureau of Labor Statistics 2015). As the economy grows, the demand for goods will increase, and more truck drivers will be needed to keep supply chains moving. The availability of truck drivers in the Laredo area to work for other companies could partially negate the congestion benefits of the Proposed Action Alternative, although to the extent that these additional trucks are used for domestic commerce they would not affect the Proposed Action Alternative's potential decrease in wait times at the border.

Furthermore, according to official estimates, the number of jobs and people in the Laredo region is expected to grow by more than 50 percent by 2040, and most of this growth is expected to occur in currently undeveloped areas (City of Laredo 2015). As development continues along the fringes of the city, the existing road network and planned investments should absorb increased demand, and roads in the vicinity of the Dos Laredos Pipeline could maintain their current level of service of A (excellent), B (good), and C (average) (City of Laredo 2015).

Laredo is one of seven rail ports of entry on the United States-Mexico border and is currently the largest rail freight gateway in the United States (City of Laredo 2015). By the year 2020, rail traffic volumes are projected to increase by at least 30 percent in the Laredo region (City of Laredo 2015). While this is a marked increase from current levels, the Proposed Action Alternative would not cumulatively contribute to increased railway use in the Laredo region or at border crossings.

When combined with past, ongoing, or reasonably foreseeable actions in the region, no major cumulative adverse effects on roadways and traffic would occur as a result of the No Action Alternative. Under the No Action Alternative, traffic would not change from the status quo. The

roads in the vicinity of the Dos Laredos Pipeline HDD site are lightly traveled, HDD activities would be limited in duration, and maintenance trips along the pipeline corridor would remain at present levels and would not increase traffic. The road and highway projects identified above would be expected to increase the level of service and capacity on Laredo area roads.

5.4.8 Cultural Resources

Under both the Proposed Action Alternative and the No Action Alternative, operation of the Dos Laredos Pipeline would be unlikely to contribute to cumulative adverse or beneficial effects on the region's cultural resources. The current and future actions proposed by other private and governmental entities could have cumulative adverse effects on cultural resources; however, these activities would likely be subjected to review and approval through Section 106 of the National Historic Preservation Act. Consequently, any potential adverse effects on cultural resources are expected to be mitigated or avoided.

SECTION 6.0
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6.0 REFERENCES

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SECTION 7.0
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7.0 LIST OF PREPARERS

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SECTION 8.0
LIST OF AGENCIES AND INDIAN TRIBES CONSULTED

8.0 LIST OF AGENCIES AND INDIAN TRIBES CONSULTED

1. Texas Historical Commission
2. Shawnee Tribe of Oklahoma
3. Alabama-Coushatta Tribe of Texas
4. Alabama-Quassarte Tribal Town
5. Apache Tribe of Oklahoma
6. Caddo Nation
7. Cherokee Nation of Oklahoma
8. Choctaw Nation of Oklahoma
9. Comanche Nation of Oklahoma
10. Coushatta Tribe of Louisiana
11. The Delaware Nation
12. Jicarilla Apache Nation
13. Kialegee Tribal Town
14. Kickapoo Traditional Tribe of Texas
15. Kickapoo Tribe of Oklahoma
16. Kiowa Tribe of Oklahoma
17. Mescalero Apache Tribe
18. Muscogee Creek Nation
19. Osage Nation
20. Poarch Band of Creek Indians
21. Quapaw Tribe of Oklahoma
22. Seminole Nation of Oklahoma
23. Thlopthlocco Tribal Town
24. Tonkawa Tribe of Oklahoma
25. Tunica-Biloxi Tribe of Louisiana
26. United Keetoowah Band of Cherokee Indians in Oklahoma
27. Wichita and Affiliated Tribes
28. Ysleta Del Sur Pueblo of Texas
29. U.S Fish and Wildlife Service, Southwest Region Ecological Service

SECTION 9.0
ACRONYMS AND ABBREVIATIONS

9.0 ACRONYMS AND ABBREVIATIONS

°F	degrees Fahrenheit
AP&C	Antiquities Planning and Consulting
ASME	American Society of Mechanical Engineers
Atkins	Atkins North America, Inc.
ATSDR	Agency for Toxic Substances and Disease Registry
BMP	best management practice
bpd	barrels per day
BTEX	benzene, toluene, ethylbenzene, and xylene
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFC	chlorofluorocarbons
CFR	Code of Federal Regulations
CH4	methane
CO	carbon monoxide
CO2	carbon dioxide
CO2e	CO2 equivalency
CWA	Clean Water Act
DHS	United States Department of Homeland Security
Department	United States Department of State
EA	Environmental Assessment
EO	Executive Order
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FONSI	Finding of No Significant Impact
GHG	greenhouse gas
HDD	horizontal directional drilling
HFC	hydrochlorofluorocarbons
I-35	Interstate 35
IBWC	International Boundary and Water Commission
KCSR	Kansas City Southern Railroad
LEPC	local emergency planning committee
LPG	liquefied petroleum gas

mg/m3	milligrams per cubic meter
µg/m3	microgram per cubic meter
N2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NACE	National Association of Corrosion Engineers
NEPA	National Environmental Policy Act
NGI	Natural Gas Intelligence
NO2	nitrogen dioxide
NOx	mono-nitrogen oxides
NRCS	Natural Resources Conservation Service
NuStar	NuStar Logistics, L.P.
O3	ozone
OSHA	Occupational, Safety, and Health Administration
Pb	lead
PHMSA	Pipeline Hazardous Material Safety Administration
PM-2.5	particulate matter less than 2.5 microns in diameter
PM-10	particulate matter less than 10 microns in diameter
POE	Port of Entry
ppb	parts per billion
ppm	parts per million
psig	pounds per square inch gauge
ROI	region of influence
SEA	Supplemental Environmental Assessment
SHPO	State Historic Preservation Officer
SO2	sulfur dioxide
SWPPP	stormwater pollution prevention plan
TCEQ	Texas Commission on Environmental Quality
TPWD	Texas Parks and Wildlife Department
TRIR	Total Recordable Incident Rate
TXDOT	Texas Department of Transportation
USACE	United States Army Corps of Engineers
USBP	United States Border Patrol
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USIBWC	United States Section, International Boundary and Water Commission
VOC	volatile organic compounds

APPENDIX A
APPLICABLE LAWS AND REGULATIONS

Policy Document	Administrative Authority	Invoking Action	Requirements for Compliance
Archaeological Resources Protection Act of 1979 16 United States Code (USC) § 470 et seq.	Department of Interior	Excavation, removal, damage, or other alteration or defacing; or attempt to excavate, remove, damage, or otherwise alter or deface any archaeological resource located on public lands 43 Code Federal Regulations (CFR) 7.4	Because activities are exclusively for purposes other than the excavation and/or removal of archaeological resources, even though those activities might incidentally result in the disturbance of archaeological resources, no permit shall be required
Clean Air Act of 1963 16 USC § 470 et seq.	Environmental Protection Agency (USEPA)	Any Federal action where the total of direct and indirect emissions in a non-attainment area would equal or exceed the provided rates 40 CFR 51	Project emission levels were determined to be less than *de minimis* thresholds; therefore, a determination of conformity with applicable implementation plan is not required
Comprehensive Environmental Response, Compensation and Liability Act of 1980 42 USC § 9601 et seq.	USEPA	Release or threatened release of a hazardous substance 40 CFR 302	Development of emergency response plans, notification, and cleanup
Endangered Species Act (ESA) of 1973 16 USC § 1531 et seq.	United States Fish and Wildlife Service (USFWS)	All Federal actions in which there is discretionary involvement or control potentially impacting species listed under the ESA 50 CFR 402.03	Determination of no jeopardy to listed species and no destruction or adverse modification of critical habitat through consultation with the USFWS
Farmland Protection Policy Act of 1981 7 USC § 9601 et seq.	Natural Resources Conservation Service	Any Federal action that impacts prime or unique farmland soils 7 CFR 658	Identify and take into account the adverse effects on the protection of farmland
Federal Water Pollution Control Act of 1977 (also known as Clean Water Act or CWA) 33 USC § 1251 et seq.	USEPA	Storage, use, or consumption of oil and oil products, which could discharge oil in quantities that could affect water quality standards, into or upon the navigable waters of the U.S. 40 CFR 112	Preparation of a Spill Prevention, Control, and Countermeasures Plan
Federal Water Pollution Control Act of 1977 (also known as Clean Water Act or CWA) 33 USC § 1251 et seq.	USEPA	Discharge of pollutants that could impact surface water or groundwater 40 CFR 122	Obtain a general National Pollutant Discharge Elimination System (NPDES)Permit

Policy Document	Administrative Authority	Invoking Action	Requirements for Compliance
Federal Water Pollution Control Act of 1977 (also known as Clean Water Act or CWA) 33 USC § 1251 et seq.	USEPA, US Army Corps of Engineers (USACE)	Excavation, fill or discharge of materials into wetlands 40 CFR 230 § 404	Identification of wetlands and application for permit, if necessary
Migratory Bird Treaty Act of 1918 16 USC § 703	USFWS	Any USAF action resulting in the take of any migratory bird, or the parts, nests, or eggs of such bird 50 CFR 21.11	Avoidance of take or application for permit
National Historic Preservation Act of 1966 16 USC § 470 et seq.	Advisory Council on Historic Preservation	Any Federal undertaking that could impact cultural resources 36 CFR 800.3	Assessment of effects through consultation with the Advisory Council on Historic Preservation
Occupational Health and Safety Act of 1970 29 USC § 651 et seq.	Occupational Safety and Health Administration, Department of Labor	Employees performing in a workplace 29 CFR 1910.5 (a)	Adherence to occupational health and safety standards
Resource Conservation and Recovery Act (RCRA) of 1976 42 USC § 6901 et seq.	USEPA	Collection of residential, commercial, and institutional solid wastes and street wastes 40 CFR 243	Adherence to guidelines for waste storage and safety and collection equipment, frequency, and management
Resource Conservation and Recovery Act (RCRA) of 1976 42 USC § 6901 et seq.	USEPA	Procurement of more than $10,000 annually of products containing recovered materials 40 CFR 247	Procure designated items composed of the highest percentage of recovered materials practicable
Resource Conservation and Recovery Act (RCRA) of 1976 42 USC § 6901 et seq.	USEPA	Recovery of resources from solid waste through source separation 40 CFR 246	Recovery of high-grade paper, residential materials, and corrugated containers
RCRA of 1976 42 USC § 6901 et seq.	USEPA	Treatment, storage, or disposal of hazardous waste on-site 40 CFR 262.10(c)	Determination of hazardous or non-hazardous nature of solid waste, obtain an EPA identification number if necessary, properly accumulate hazardous waste, and maintain a record
Executive Order (EO) 11988: Floodplain Management 42 Federal Register (FR) 26,951 (May 24, 1977)	Water Resources Council, Federal Emergency Management Agency	Acquisition and management of Federal lands; Federally undertaken, financed, or assisted construction; conducting Federal activities affecting land use in a floodplain	Determine whether the proposed action will occur in a floodplain, then evaluate potential effects of any action in a floodplain

Policy Document	Administrative Authority	Invoking Action	Requirements for Compliance
EO 11990: Protection of Wetlands 42 FR 26,691 (May 24, 1977)	USACE, USEPA	Acquisition and management of Federal lands; Federally undertaken, financed, or assisted construction; conducting Federal activities affecting wetlands	Take action to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands
EO 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations 59 FR 7629 (February 11, 1994)	USEPA	All programs or activities receiving Federal financial assistance that affect human health or the environment	Analyze the environmental effects, including human health, economic, and social effects of USAF actions, including effects on minority communities and low-income communities
EO 13045: Protection of Children from Environmental Health Risks and Safety Risks 62 FR 19883 (April 23, 1997)	USEPA	Any Federal action potentially affecting health and safety of children	Identify and assess environmental health risks and safety risks that may disproportionately affect children
EO 13423: Federal Environmental, Energy, and Transportation Management 72 FR 3919 (January 26, 2007)	USEPA, Department of Energy (DOE)	Acquisition planning, development of procurement programs, operation of a Federal facility	Incorporate waste prevention and recycling in the agency's daily operations and work to increase and expand markets for recovered materials through greater Federal Government preference and demand for such products
EO 13514: Federal Leadership in Environmental, Energy, and Economic Performance 74 FR 52117 (October 8, 2009)	CEQ	Construction, operation, and maintenance of a Federal facility; aircraft operations and worker commutes	Increase energy efficiency; measure, report, and reduce greenhouse gas emissions from direct and indirect activities; conserve and protect water resources through efficiency, reuse, and stormwater management; eliminate waste, recycle, and prevent pollution; design, construct, maintain, and operate high performance sustainable buildings in sustainable locations

APPENDIX B
COORDINATION AND CONSULTATON

Table B-1. List of Indian Tribes the Department sent Tribal Coordination Letters to on April 16, 2015 for the NuStar Dos Laredos Pipeline Presidential Permit Application Review

Indian Tribe
Shawnee Tribe of Oklahoma
Alabama-Coushatta Tribe of Texas
Alabama-Quassarte Tribal Town
Apache Tribe of Oklahoma
Caddo Nation
Cherokee Nation of Oklahoma
Choctaw Nation of Oklahoma
Comanche Nation of Oklahoma
Coushatta Tribe of Louisiana
The Delaware Nation
Jicarilla Apache Nation
Kialegee Tribal Town
Kickapoo Traditional Tribe of Texas
Kickapoo Tribe of Oklahoma
Kiowa Tribe of Oklahoma
Mescalero Apache Tribe
Muscogee Creek Nation
Osage Nation
Poarch Band of Creek Indians
Quapaw Tribe of Oklahoma
Seminole Nation of Oklahoma
Thlopthlocco Tribal Town
Tonkawa Tribe of Oklahoma
Tunica-Biloxi Tribe of Louisiana
United Keetoowah Band of Cherokee Indians in Oklahoma
Wichita and Affiliated Tribes
Ysleta Del Sur Pueblo of Texas

Copy of Tribal Coordination Letter Sent to Indian Tribes Listed in Table B-1 on April 16, 2015

United States Department of State

Bureau of Oceans and International Environmental and Scientific Affairs

Washington, D.C. 20520

April 16, 2015

Ms. Edwina Butler-Wolfe
Governor
Absentee Shawnee Tribe of Oklahoma
2025 S. Gordon Cooper Dr.
Shawnee, OK 74801

Dear Governor Butler-Wolfe:

In respect for our government-to-government relationship, I am writing to personally invite your tribe to participate in the Department of State's (the Department) preparation of a Supplemental Environmental Assessment (SEA) regarding a proposed change in operations at the Dos Laredos pipeline facilities near Laredo, Webb County, Texas. The Dos Laredos pipeline is owned and operated by NuStar Logistics, L.P. (NuStar).

NuStar requests that the Department issue a new Presidential Permit that would (1) reflect NuStar's name change from Valero Logistics Operations, L.P. to NuStar Logistics, L.P., as the owner and operator of the Dos Laredos Pipeline crossing the international boundary; and (2) permit the transportation of a broader range of refined petroleum products, including liquefied petroleum gas (LPG) and diesel. The 2003 Presidential Permit only allows transportation of LPG. See the enclosed Fact Sheet for more detailed information.

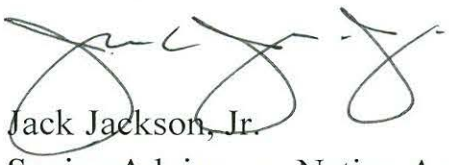
In response to NuStar's application, the Department published in the Federal Register a Notice of Intent to Prepare an SEA on June 20, 2014 (No. 2014-14499). In that Notice, the Department invited all interested parties, including tribal governments, to assist the Department in identifying environmental and other relevant issues, any measures that might be adopted to reduce the proposed Project's environmental impacts, and other information relevant to determining the scope of the SEA. Although no comments were received during the public scoping

period, comments from Indian tribes are welcomed at any point during the Presidential Permit review process.

When the Department has completed its Draft SEA, it will publish that document online and solicit comments from federal and state agencies, Indian tribes, and members of the public. I would like to establish a direct point of contact with you so that I can send a notification when that document is available, and, more generally, so that I can help to ensure that your tribe's issues of concern are addressed in the current process.

Please feel free to contact me at your convenience at (202) 647-8309 or JacksonJ3@state.gov. I look forward to working with you.

Sincerely,



Jack Jackson, Jr.
Senior Advisor on Native American Affairs
to the Assistant Secretary

Response from Ysleta Del Sur Pueblo on April 23, 2016 to the April 16, 2016 Tribal Coordination Letter

Ysleta del Sur Pueblo

Tribal Council – Javier Loera (War Captain/Tribal Historic and Preservation Officer) E-mail jloera@ydsp-nsn.gov

117 South Old Pueblo Road * P.O. Box 17579 * El Paso, Texas 79917 * (915) 859-8053 * Cell (915) 497-3876

April 23, 2015, 2014

Jack Jackson , Jr
Senior Advisor on Native American Affairs

United States Department of the State
Bureau of Oceans and International
Environmental and Scientific Affairs
Washington, D.C 20520

Dear Mr. Jackson

This letter is in response to (SEA) regarding a proposed change in operations at the Dos Laredos pipeline facilities near Laredo, Webb County, Texas correspondence.in which you provide Ysleta Del Sur Pueblo the opportunity to comment on the Supplemental Environmental Assesment.

The Ysleta Del Sur Pueblo does not have any comments nor does it request consultation on this project due to its location being outside of our Pueblos NAGPRA area of interest and/or relevance.

Thank you for allowing us the opportunity to comment on this project.

Sincerely,

Javier Loera
War Captain/Tribal Historic and Preservation officer
Ysleta Del Sur Pueblo
Phone:(915)859-8053

Response from the United Keetoowah Band of Cherokee Indians in Oklahoma on May 6, 2015 to the April 16, 2015 Tribal Coordination Letter

From: Lisa LaRue-Baker - UKB THPO [mailto:ukbthpo-larue@yahoo.com]
Sent: Wednesday, May 06, 2015 5:17 PM
To: Jackson, Jack (OES)
Cc: Holly Noe
Subject: Dos Laredos pipeline facilities, Laredo, Webb County, TX

The United Keetoowah Band of Cherokee Indians in Oklahoma has reviewed your letter dated April 16, 2015, and defers to other federally recognized tribes who have a historic interest in this area.
Thank you,

Lisa C. Baker
Acting THPO
United Keetoowah Band of Cherokee Indians in Oklahoma
PO Box 746
Tahlequah, OK 74465

c 918.822.1952
ukbthpo-larue@yahoo.com

Please FOLLOW our historic preservation page and LIKE us on FACEBOOK

United States Department of State
Bureau of Oceans and International Environmental and Scientific Affairs
Office of Environmental Quality/ Transboundary Issues (OES/EQT)
2201 C Street, N.W. Room 2726
Washington, D.C. 20520

May 13, 2015

Mr. Ernesto Reyes
U.S. Fish and Wildlife Service
Santa Anna NWR
3325 Green Jay Road
Alamo, TX 78516

RE: Proposed Changes to the Dos Laredos Pipeline, Laredo, Texas

Dear Mr. Reyes:

The Department of State (the Department) is currently reviewing an application from NuStar Logistics, L.P. (NuStar), formerly known as Valero Logistics Operations, L.P., to replace a Presidential Permit for its Dos Laredos Pipeline to change the name on the Permit and allow for a greater range of products to be transported. In the course of that application review process, NuStar provided the Department with a November 14, 2013 email from you to NuStar's contractor (Attachment A) concluding Section 7 consultation. Since that email is now almost 18 months old, we would like your confirmation that the 2013 concurrence is still valid and that the project "would not create substantively different impacts than have been incurred through to the transportation of LPG."

The Dos Laredos Pipeline is an 8 5/8 inch outer-diameter pipeline, constructed in 2004, that connects the NuStar terminal in Laredo, Texas, with a terminal in Nuevo Laredo, Tamaulipas, Mexico. The U.S. portion of the Dos Laredos Pipeline consists of approximately 10.6 miles of pipeline from the NuStar terminal in Laredo, Texas, to a location on the Rio Grande known as "La Bota," approximately 6 miles northwest of downtown Laredo. The Mexican portion consists of approximately 0.93 miles of pipeline from the Rio Grande crossing to the Nuevo Laredo terminal.

In its 2013 Presidential Permit application, NuStar requested that the Department issue a new Permit that would permit the transportation of a range of refined petroleum products, including liquefied petroleum gas (LPG), regular and premium gasoline, and diesel. The current Presidential Permit, issued in 2003, only allows transportation of LPG. No construction or other physical changes to the pipeline or NuStar's facilities in Laredo would be required to switch operations from LPG to the broader range of petroleum products.

The Department has determined that it will prepare a Supplemental Environmental Assessment (SEA), consistent with the National Environmental Policy Act (NEPA) of 1969, to assess the

potential environmental effects of the Proposed Project, as well as associated cumulative effects. It will supplement the Environmental Assessment prepared by the Department as part of its consideration of the 2003 Dos Laredos Presidential Permit application. We will send a copy of the draft SEA to you during the public review process. In the meantime, additional information about the pipeline, NuStar's Presidential Permit application, and our environmental review is available in the attached fact sheet (Attachment B) or our project website (http://www.state.gov/e/enr/applicant/applicants/c61192.htm).

If you have any questions, require additional information, or would like to discuss this matter further, please contact me at (202) 647-4284 or by e-mail at GroutTA@state.gov. Thank you in advance for your help.

Sincerely,

Travis A Grout

Travis Grout
Project Manager
Office of Environmental Quality and Transboundary Issues

USFWS Concurrence Response May 21, 2015 to the May 12, 2015 USFWS Coordination Letter

From: Reyes, Ernesto [mailto:ernesto_reyes@fws.gov]
Sent: Thursday, May 21, 2015 4:53 PM
To: Grout, Travis A
Cc: Reilly, Jill E
Subject: Re: Proposed Changes to the Dos Laredos Pipeline, Laredo, Texas

Travis,

The November 14, 2013 email concurrence is still valid as the construction impacts remain the same; the only change are the products been delivered.

Ernesto Reyes

On Wed, May 13, 2015 at 5:11 PM, Grout, Travis A <GroutTA@state.gov> wrote:

Mr. Reyes -

My office at the Department of State is reviewing a Presidential Permit application for proposed changes to the existing Dos Laredos pipeline. In the course of that application review process, the pipeline operator provided us with a November 14, 2013 email from you to their contractor concluding Section 7 consultation. Since that email is now almost 18 months old, we would appreciate your confirmation that the 2013 concurrence is still valid and that the project "would not create substantively different impacts than have been incurred through to the transportation of LPG." Both the project and our review process are described more fully in the attached letter. I have also attached your 2013 email and a fact sheet on the current review.

If you have any questions or require additional information, I would be happy to talk at your convenience. Thank you in advance for your help.

Regards -

Travis Grout

Office of Environmental Quality

and Transboundary Issues

202.647.4284

APPENDIX C
LIST OF FEDERAL AND STATE PROTECTED SPECIES

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Texas Coastal Ecological Services Field Office
17629 EL CAMINO REAL, SUITE 211
HOUSTON, TX 77058
PHONE: (281)286-8282 FAX: (281)488-5882
URL: www.fws.gov/southwest/es/TexasCoastal/;
www.fws.gov/southwest/es/ES_Lists_Main2.html

Consultation Code: 02ETTXX0-2016-SLI-0445 February 18, 2016
Event Code: 02ETTXX0-2016-E-00460
Project Name: NuStar Dos Laredos Pipeline Presidential Permit Application Review

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The U.S. Fish and Wildlife Service (Service) field offices in Clear Lake, Tx, and Corpus Christi, Tx, have combined administratively to form the Texas Coastal Ecological Services Field Office. A map of the Texas Coastal Ecological Services Field Office area of responsibility can be found at: http://www.fws.gov/southwest/es/TexasCoastal/Map.html. All project related correspondence should be sent to the field office responsible for the area in which your project occurs. For projects located in southeast Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; 17629 El Camino Real Ste. 211; Houston, Texas 77058. For projects located in southern Texas please write to: Field Supervisor; U.S. Fish and Wildlife Service; 6300 Ocean Drive, Unit 5837, Corpus Christi, Texas 78412.

The enclosed species list identifies federally threatened, endangered, and proposed to be listed species; designated critical habitat; and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list is provided by the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information from updated surveys, changes in the abundance and distribution of species, changes in habitat conditions, or other factors could change the list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the ECOS-IPaC website http://ecos.fws.gov/ipac/ at regular intervals during project planning and implementation for updates to species list and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

Candidate species have no protection under the Act but are included for consideration because they could be listed prior to the completion of your project. The other species information should help you determine if suitable habitat for these listed species exists in any of the proposed project areas or if project activities may affect species on-site, off-site, and/or result in "take" of a federally listed species.

"Take" is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. In addition to the direct take of an individual animal, habitat destruction or modification can be considered take, regardless of whether it has been formally designated as critical habitat, if the activity results in the death or injury of wildlife by removing essential habitat components or significantly alters essential behavior patterns, including breeding, feeding, or sheltering.

Section 7

Section 7 of the Act requires that all Federal agencies consult with the Service to ensure that actions authorized, funded or carried out by such agencies do not jeopardize the continued existence of any listed threatened or endangered species or adversely modify or destroy critical habitat of such species. It is the responsibility of the Federal action agency to determine if the proposed project may affect threatened or endangered species. If a "may affect" determination is made, the Federal agency shall initiate the section 7 consultation process by writing to the office that has responsibility for the area in which your project occurs.

Is not likely to adversely affect – the project may affect listed species and/or critical habitat; however, the effects are expected to be discountable, insignificant, or completely beneficial. Certain avoidance and minimization measures may need to be implemented in order to reach this level of effects. The Federal agency or the designated non-Federal representative should seek written concurrence from the Service that adverse effects have been eliminated. Be sure to include all of the information and documentation used to reach your decision with your request for concurrence. The Service must have this documentation before issuing a concurrence.

Is likely to adversely affect – adverse effects to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial. If the overall effect of the proposed action is beneficial to the listed species but also is likely to cause some adverse effects to individuals of that species, then the proposed action "is likely to adversely affect" the listed species. An "is likely to adversely affect" determination requires the Federal action agency to initiate formal section 7 consultation with this office.

No effect – the proposed action will not affect federally listed species or critical habitat (i.e., suitable habitat for the species occurring in the project county is not present in or adjacent to the action area). No further coordination or contact with the Service is necessary. However, if the project changes or additional information on the distribution of listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered.

Regardless of your determination, the Service recommends that you maintain a complete record of the evaluation, including steps leading to the determination of affect, the qualified personnel

conducting the evaluation, habitat conditions, site photographs, and any other related articles.

Please be advised that while a Federal agency may designate a non-Federal representative to conduct informal consultations with the Service, assess project effects, or prepare a biological assessment, the Federal agency must notify the Service in writing of such a designation. The Federal agency shall also independently review and evaluate the scope and contents of a biological assessment prepared by their designated non-Federal representative before that document is submitted to the Service.

The Service's Consultation Handbook is available online to assist you with further information on definitions, process, and fulfilling Act requirements for your projects at: http://www.fws.gov/endangered/esa-library/pdf/esa_section7_handbook.pdf

Section 10

If there is no federal involvement and the proposed project is being funded or carried out by private interests and/or non-federal government agencies, and the project as proposed may affect listed species, a section 10(a)(1)(B) permit is recommended. The Habitat Conservation Planning Handbook is available at http://www.fws.gov/midwest/endangered/permits/hcp/hcphandbook.html.

Service Response

Please note that the Service strives to respond to requests for project review within 30 days of receipt, however, this time period is not mandated by regulation. Responses may be delayed due to workload and lack of staff. Failure to meet the 30-day timeframe does not constitute a concurrence from the Service that the proposed project will not have impacts to threatened and endangered species.

Candidate Species

Several species of freshwater mussels occur in Texas and five are candidates for listing under the ESA. The Service is also reviewing the status of six other species for potential listing under the ESA. One of the main contributors to mussel die offs is sedimentation, which smothers and suffocates mussels. To reduce sedimentation within rivers, streams, and tributaries crossed by a project, the Service recommends that that you implement the best management practices found at: http://www.fws.gov/southwest/es/TexasCoastal/FreshwaterMussels.html.

Candidate Conservation Agreements (CCAs) or Candidate Conservation Agreements with Assurances (CCAAs) are voluntary agreements between the Service and public or private entities to implement conservation measures to address threats to candidate species. Implementing conservation efforts before species are listed increases the likelihood that simpler, flexible, and more cost-effective conservation options are available. A CCAA can provide participants with assurances that if they engage in conservation actions, they will not be required to implement additional conservation measures beyond those in the agreement. For additional information on CCAs/CCAAs please visit the Service's website at http://www.fws.gov/endangered/what-we-do/cca.html.

Migratory Birds

The Migratory Bird Treaty Act (MBTA) implements various treaties and conventions for the protection of migratory birds. Under the MBTA, taking, killing, or possessing migratory birds is unlawful. Many may nest in trees, brush areas or other suitable habitat. The Service recommends activities requiring vegetation removal or disturbance avoid the peak nesting period of March through August to avoid destruction of individuals or eggs. If project activities must be conducted during this time, we recommend surveying for active nests prior to commencing work. A list of migratory birds may be viewed at http://www.fws.gov/migratorybirds/regulationspolicies/mbta/mbtandx.html.

The bald eagle (*Haliaeetus leucocephalus*) was delisted under the Act on August 9, 2007. Both the bald eagle and the goden eagle (*Aquila chrysaetos*) are still protected under the MBTA and BGEPA. The BGEPA affords both eagles protection in addition to that provided by the MBTA, in particular, by making it unlawful to "disturb" eagles. Under the BGEPA, the Service may issue limited permits to incidentally "take" eagles (e.g., injury, interfering with normal breeding, feeding, or sheltering behavior nest abandonment). For more information on bald and golden eagle management guidlines, we recommend you review information provided at http://www.fws.gov/midwest/eagle/pdf/NationalBaldEagleManagementGuidelines.pdf

The construction of overhead power lines creates threats of avian collision and electrocution. The Service recommends the installation of underground rather than overhead power lines whenever possible. For new overhead lines or retrofitting of old lines, we recommend that project developers implement, to the maximum extent practicable, the Avian Power Line Interaction Committee guidelines found at http://www.aplic.org/.

Meteorological and communication towers are estimated to kill millions of birds per year. We recommend following the guidance set forth in the Service Interim Guidelines for Recommendations on Communications Tower Siting, Constructions, Operation and Decommissioning, found online at: http://www.fws.gov/habitatconservation/communicationtowers.html, to minimize the threat of avian mortality at these towers. Monitoring at these towers would provide insight into the effectiveness of the minimization measures. We request the results of any wildlife mortality monitoring at towers associated with this project.

We request that you provide us with the final location and specifications of your proposed towers, as well as the recommendations implemented. A Tower Site Evaluation Form is also available via the above website; we recommend you complete this form and keep it in your files. If meteorological towers are to be constructed, please forward this completed form to our office.

More information concerning sections 7 and 10 of the Act, migratory birds, candidate species, and landowner tools can be found on our website at: http://www.fws.gov/southwest/es/TexasCoastal/ProjectReviews.html.

Wetlands and Wildlife Habitat

Wetlands and riparian zones provide valuable fish and wildlife habitat as well as contribute to

ﬂood control, water quality enhancement, and groundwater recharge. Wetland and riparian vegetation provides food and cover for wildlife, stabilizes banks and decreases soil erosion. These areas are inherently dynamic and very sensitive to changes caused by such activities as overgrazing, logging, major construction, or earth disturbance. Executive Order 11990 asserts that each agency shall provide leadership and take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial value of wetlands in carrying out the agency's responsibilities. Construction activities near riparian zones should be carefully designed to minimize impacts. If vegetation clearing is needed in these riparian areas, they should be re-vegetated with native wetland and riparian vegetation to prevent erosion or loss of habitat. We recommend minimizing the area of soil scarification and initiating incremental re-establishment of herbaceous vegetation at the proposed work sites. Denuded and/or disturbed areas should be re-vegetated with a mixture of native legumes and grasses. Species commonly used for soil stabilization are listed in the Texas Department of Agriculture's (TDA) Native Tree and Plant Directory, available from TDA at P.O. Box 12847, Austin, Texas 78711. The Service also urges taking precautions to ensure sediment loading does not occur to any receiving streams in the proposed project area. To prevent and/or minimize soil erosion and compaction associated with construction activities, avoid any unnecessary clearing of vegetation, and follow established rights-of-way whenever possible. All machinery and petroleum products should be stored outside the ﬂoodplain and/or wetland area during construction to prevent possible contamination of water and soils.

Wetlands and riparian areas are high priority fish and wildlife habitat, serving as important sources of food, cover, and shelter for numerous species of resident and migratory wildlife. Waterfowl and other migratory birds use wetlands and riparian corridors as stopover, feeding, and nesting areas. We strongly recommend that the selected project site not impact wetlands and riparian areas, and be located as far as practical from these areas. Migratory birds tend to concentrate in or near wetlands and riparian areas and use these areas as migratory ﬂyways or corridors. After every effort has been made to avoid impacting wetlands, you anticipate unavoidable wetland impacts will occur; you should contact the appropriate U.S. Army Corps of Engineers office to determine if a permit is necessary prior to commencement of construction activities.

If your project will involve filling, dredging, or trenching of a wetland or riparian area it may require a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers (COE). For permitting requirements please contact the U.S. Corps of Engineers, District Engineer, P.O. Box 1229, Galveston, Texas 77553-1229, (409) 766-3002.

Beneficial Landscaping

In accordance with Executive Order 13112 on Invasive Species and the Executive Memorandum on Beneficial Landscaping (42 C.F.R. 26961), where possible, any landscaping associated with project plans should be limited to seeding and replanting with native species. A mixture of grasses and forbs appropriate to address potential erosion problems and long-term cover should be planted when seed is reasonably available. Although Bermuda grass is listed in seed mixtures, this species and other introduced species should be avoided as much as possible. The Service also recommends the use of native trees, shrubs, and herbaceous species that are adaptable, drought tolerant and conserve water.

State Listed Species

The State of Texas protects certain species. Please contact the Texas Parks and Wildlife Department (Endangered Resources Branch), 4200 Smith School Road, Austin, Texas 78744 (telephone 512/389-8021) for information concerning fish, wildlife, and plants of State concern or visit their website at: http://www.tpwd.state.tx.us/huntwild/wild/wildlife_diversity/texas_rare_species/listed_species/.

If we can be of further assistance, or if you have any questions about these comments, please contact 281/286-8282 if your project is in southeast Texas, or 361/994-9005 if your project is in southern Texas. Please refer to the Service consultation number listed above in any future correspondence regarding this project.

Attachment

Official Species List

Provided by:

Texas Coastal Ecological Services Field Office
17629 EL CAMINO REAL, SUITE 211
HOUSTON, TX 77058
(281) 286-8282
http://www.fws.gov/southwest/es/TexasCoastal/
http://www.fws.gov/southwest/es/ES_Lists_Main2.html

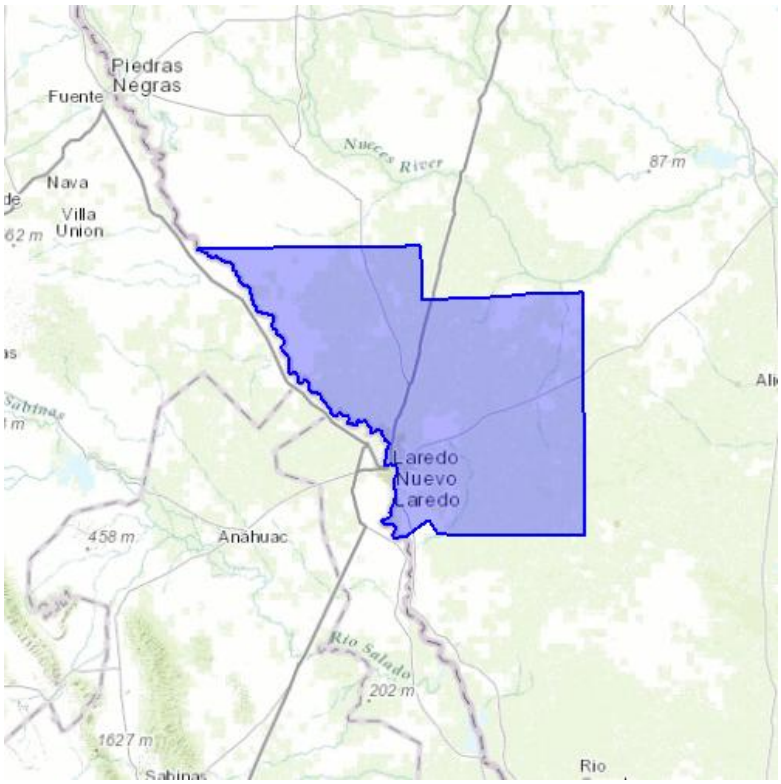
Consultation Code: 02ETTXX0-2016-SLI-0445
Event Code: 02ETTXX0-2016-E-00460

Project Type: OIL OR GAS

Project Name: NuStar Dos Laredos Pipeline Presidential Permit Application Review
Project Description: On December 4, 2013, NuStar Logistics, L.P., (NuStar) submitted an application for a new Presidential Permit for the existing Dos Laredos Pipeline that would permit NuStar to transport a broader range of refined petroleum products across the international border in addition to the liquefied petroleum gas (LPG). The pipeline that connects the NuStar terminal in Laredo, Texas, with a terminal in Nuevo Laredo, Tamaulipas, Mexico and is approximately 10.6 miles long.

Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.

Project Location Map:



Project Coordinates: The coordinates are too numerous to display here.

Project Counties: Webb, TX

Endangered Species Act Species List

There are a total of 7 threatened, endangered, or candidate species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 2 of these species should be considered only under certain conditions. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Birds	**Status**	**Has Critical Habitat**	**Condition(s)**
Least tern *(Sterna antillarum)* Population: interior pop.	Endangered		
Piping Plover *(Charadrius melodus)* Population: except Great Lakes watershed	Threatened	Final designated	Wind related projects within migratory route.
Red Knot *(Calidris canutus rufa)*	Threatened		Wind Related Projects Within Migratory Route
Clams			
Texas Hornshell *(Popenaias popei)*	Candidate		
Flowering Plants			
Ashy dogweed *(Thymophylla tephroleuca)*	Endangered		
Mammals			
Gulf Coast jaguarundi *(Herpailurus (=felis) yagouaroundi cacomitli)* Population: Wherever found	Endangered		

ocelot *(Leopardus (=felis) pardalis)* Population: wherever found	Endangered		

Critical habitats that lie within your project area

There are no critical habitats within your project area.

WEBB COUNTY

BIRDS

		Federal Status	State Status
American Peregrine Falcon	*Falco peregrinus anatum*	DL	T

year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more northern breeding areas in US and Canada, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.

Arctic Peregrine Falcon	*Falco peregrinus tundrius*	DL	

migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south; occupies wide range of habitats during migration, including urban, concentrations along coast and barrier islands; low-altitude migrant, stopovers at leading landscape edges such as lake shores, coastlines, and barrier islands.

Audubon's Oriole	*Icterus graduacauda audubonii*		

scrub, mesquite; nests in dense trees, or thickets, usually along water courses

Baird's Sparrow	*Ammodramus bairdii*		

shortgrass prairie with scattered low bushes and matted vegetation; mostly migratory in western half of State, though winters in Mexico and just across Rio Grande into Texas from Brewster through Hudspeth counties

Common Black-Hawk	*Buteogallus anthracinus*		T

cottonwood-lined rivers and streams; willow tree groves on the lower Rio Grande floodplain; formerly bred in south Texas

Interior Least Tern	*Sterna antillarum athalassos*	LE	E

subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony

Mexican Hooded Oriole	*Icterus cucullatus cucullatus*		

scrub, mesquite; nests in dense trees, or thickets, usually along water courses

Mountain Plover	*Charadrius montanus*		

breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous

Peregrine Falcon	*Falco peregrinus*	DL	T

both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies (F. p. anatum) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, F.p. tundrius is no longer listed in Texas; but because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat.

WEBB COUNTY

BIRDS

		Federal Status	State Status

Sennett's Hooded Oriole *Icterus cucullatus sennetti*

often builds nests in and of Spanish moss (Tillandsia unioides); feeds on invertebrates, fruit, and nectar; breeding March to August

Sprague's Pipit *Anthus spragueii* C

only in Texas during migration and winter, mid September to early April; short to medium distance, diurnal migrant; strongly tied to native upland prairie, can be locally common in coastal grasslands, uncommon to rare further west; sensitive to patch size and avoids edges.

Western Burrowing Owl *Athene cunicularia hypugaea*

open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows

Wood Stork *Mycteria americana* T

forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960

FISHES

		Federal Status	State Status

Blue sucker *Cycleptus elongatus* T

larger portions of major rivers in Texas; usually in channels and flowing pools with a moderate current; bottom type usually of exposed bedrock, perhaps in combination with hard clay, sand, and gravel; adults winter in deep pools and move upstream in spring to spawn on riffles

Headwater catfish *Ictalurus lupus*

originally throughout streams of the Edwards Plateau and the Rio Grande basin, currently limited to Rio Grande drainage, including Pecos River basin; springs, and sandy and rocky riffles, runs, and pools of clear creeks and small rivers

Rio Grande darter *Etheostoma grahami* T

Rio Grande and lower Pecos River basins; gravel and rubble riffles of creeks and small rivers; spawns in the winter

Rio Grande shiner *Notropis jemezanus*

Rio Grande and upper Pecos River basins; large, open, weedless rivers or large creeks with bottom of rubble, gravel and sand, often overlain with silt

Rio Grande silvery minnow *Hybognathus amarus* LE E

extirpated; historically Rio Grande and Pecos River systems and canals; reintroduced in Big Bend area; pools and backwaters of medium to large streams with low or moderate gradient in mud, sand, or gravel bottom; ingests mud and bottom ooze for algae and other organic matter; probably spawns on silt substrates of quiet coves

WEBB COUNTY

INSECTS

		Federal Status	State Status
Neojuvenile tiger beetle	*Cicindela obsoleta neojuvenilis*		

bare or sparsely vegetated, dry, hard-packed soil; typically in previously disturbed areas; peak adult activity in Jul

MAMMALS

		Federal Status	State Status
Black bear	*Ursus americanus*	T/SA;NL	T

bottomland hardwoods and large tracts of inaccessible forested areas; due to field characteristics similar to Louisiana Black Bear (LT, T), treat all east Texas black bears as federal and state listed Threatened

Cave myotis bat *Myotis velifer*

colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (Hirundo pyrrhonota) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore

Davis pocket gopher *Geomys personatus davisi*

burrows in sandy soils in southern Texas

Gray wolf	*Canis lupus*	LE	E

extirpated; formerly known throughout the western two-thirds of the state in forests, brushlands, or grasslands

Jaguarundi	*Herpailurus yaguarondi*	LE	E

thick brushlands, near water favored; 60 to 75 day gestation, young born sometimes twice per year in March and August, elsewhere the beginning of the rainy season and end of the dry season

Ocelot	*Leopardus pardalis*	LE	E

dense chaparral thickets; mesquite-thorn scrub and live oak mottes; avoids open areas; breeds and raises young June-November

Plains spotted skunk *Spilogale putorius interrupta*

catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie

White-nosed coati	*Nasua narica*		T

woodlands, riparian corridors and canyons; most individuals in Texas probably transients from Mexico; diurnal and crepuscular; very sociable; forages on ground and in trees; omnivorous; may be susceptible to hunting, trapping, and pet trade

MOLLUSKS

		Federal Status	State Status
Mexican fawnsfoot mussel	*Truncilla cognata*		T

largely unknown; possibly intolerant of impoundment; possibly needs flowing streams and rivers with sand or gravel bottoms based on related species needs; Rio Grande basin

WEBB COUNTY

MOLLUSKS

		Federal Status	State Status
Salina mucket	*Potamilus metnecktayi*		T

lotic waters; submerged soft sediment (clay and silt) along river bank; other habitat requirements are poorly understood; Rio Grande Basin

		Federal Status	State Status
Texas hornshell	*Popenaias popeii*	C	T

both ends of narrow shallow runs over bedrock, in areas where small-grained materials collect in crevices, along river banks, and at the base of boulders; not known from impoundments; Rio Grande Basin and several rivers in Mexico

REPTILES

		Federal Status	State Status
Reticulate collared lizard	*Crotaphytus reticulatus*		T

requires open brush-grasslands; thorn-scrub vegetation, usually on well-drained rolling terrain of shallow gravel, caliche, or sandy soils; often on scattered flat rocks below escarpments or isolated rock outcrops among scattered clumps of prickly pear and mesquite

Spot-tailed earless lizard *Holbrookia lacerata*

central and southern Texas and adjacent Mexico; moderately open prairie-brushland; fairly flat areas free of vegetation or other obstructions, including disturbed areas; eats small invertebrates; eggs laid underground

		Federal Status	State Status
Texas horned lizard	*Phrynosoma cornutum*		T

open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September

		Federal Status	State Status
Texas indigo snake	*Drymarchon melanurus erebennus*		T

Texas south of the Guadalupe River and Balcones Escarpment; thornbush-chaparral woodlands of south Texas, in particular dense riparian corridors; can do well in suburban and irrigated croplands if not molested or indirectly poisoned; requires moist microhabitats, such as rodent burrows, for shelter

		Federal Status	State Status
Texas tortoise	*Gopherus berlandieri*		T

open brush with a grass understory is preferred; open grass and bare ground are avoided; when inactive occupies shallow depressions at base of bush or cactus, sometimes in underground burrows or under objects; longevity greater than 50 years; active March-November; breeds April-November

PLANTS

Arrowleaf milkvine *Matelea sagittifolia*

GLOBAL RANK: G3 ; Most consistently encountered in thornscrub in South Texas; Perennial; Flowering March-July; Fruiting April-July & Dec?

		Federal Status	State Status
Ashy dogweed	*Thymophylla tephroleuca*	LE	E

Texas endemic; grasslands with scattered shrubs; most sites on sands or sandy loams on level or very gently rolling topography over Eocene strata of the Laredo Formation; flowering March-May depending to some extent on rainfall

WEBB COUNTY

PLANTS

		Federal Status	State Status
Buckley's spiderwort	*Tradescantia buckleyi*		

Occurs on sandy loam or clay soils in grasslands or shrublands underlain by the Beaumount Formation.

		Federal Status	State Status
Fitch's hedgehog cactus	*Echinocereus reichenbachii var. fitchii*		

GLOBAL RANK: G5T3; Grasslands, thorn shrublands, and mesquite-acacia woodlands on sandy, possibly somewhat saline, soils on the coastal prairie. Within these communities, the plants may be most frequently found in open areas that are somewhat sparsely covered with brush of a low stature. Frequently grows at the ecotone where these upland areas meet lower areas dominated by halophytic grasses and forbs; Perennial

		Federal Status	State Status
Johnston's frankenia	*Frankenia johnstonii*	LE-PDL	E

dwarf shrublands on strongly saline, highly alkaline, calcareous or gypseous, clayey to sandy soils of valley flats or rocky slopes; mapped soils at many sites are of the Catarina and/or Maverick Series, other mapped soils include Copita, Brennan, Zapata, and Montell series; most sites are underlain by Eocene sandstones and clays of the Jackson Group or the Yegua and Laredo formations; a few are underlain by El Pico clay or the Catahoula and Frio formations shrublands; flowering throughout the growing season depending upon rainfall

		Federal Status	State Status
Kleberg saltbush	*Atriplex klebergorum*		

Texas endemic; usually occurs in sparsely vegetated saline areas, including flats and draws; in light sandy or clayey loam soils with other halophytes; occasionally observed on scraped oil pad sites; observed flowering in late August-early September, but may vary with rainfall, fruits are usually present in fall; because of its annual nature, populations fluctuate widely from year to year

		Federal Status	State Status
McCart's whitlow-wort	*Paronychia maccartii*		

Texas endemic; known only from the type specimen, habitat poorly understood; substrate for type location described as 'very hard-packed red sand', possibly the Cuevita-Randado Complex, probably occurring in thorn shrubland plant community; based on type specimen's presence of flowers and collection date, flowers in March, possibly also in other months and in response to rainfall

		Federal Status	State Status
Sand sheet leaf-flower	*Phyllanthus abnormis var. riograndensis*		

GLOBAL RANK: G5T3; Semi-desert scrub of deep South Texas; Annual; Flowering Feb-July; Fruiting Oct-March

		Federal Status	State Status
Shortcrown milkvine	*Matelea brevicoronata*		

GLOBAL RANK: G3; Primarily in grasslands on tight sandy or silty substrates; Perennial; Flowering March-Sept; Fruiting May-Sept

		Federal Status	State Status
Siler's huaco	*Manfreda sileri*		

GLOBAL RANK: G3; Rare in a variety of grasslands and shrublands on dry sites; Perennial; Flowering April-July; Fruiting June-July

		Federal Status	State Status
South Texas gilia	*Gilia ludens*		

GLOBAL RANK: G3; Occurs in open areas in shrublands on shallow sandy loam over rock outcrops; Perennial; Flowering Dec-April; Fruiting March

WEBB COUNTY

PLANTS

Federal Status State Status

Texas almond *Prunus minutiflora*

GLOBAL RANK: G3; Wide-ranging but scarce, in a variety of grassland and shrubland situations, mostly on calcareous soils underlain by limestone but occasionally in sandier neutral soils underlain by granite; Perennial; Flowering Feb-May & Oct; Fruiting Feb-Sept

Texas shrimp-plant *Yeatesia platystegia*

GLOBAL RANK: G3G4; Occurs very sparingly in a variety of shrublands and canyon woodlands at widely scattered locations; Perennial; Flowering/Fruiting April-Dec

Texas stonecrop *Lenophyllum texanum*

GLOBAL RANK: G3; Found in shrublands on clay dunes (lomas) at the mouth of the Rio Grande and on xeric calcareous rock outcrops at scattered inland sites; Perennial; Flowering/Fruiting Nov-Feb

Yellow-flowered alicoche *Echinocereus papillosus*

GLOBAL RANK: G3; Under shrubs or in open areas on various substrates; Perennial; Flowering Jan-April

APPENDIX D
AIR QUALITY EFFECTS REPORT

Air Quality Effects
Supplemental Environmental Assessment
for the
NuStar Dos Laredos Pipeline Presidential Permit Application Review

Background

Effects on air quality from operation of the NuStar Dos Laredos Pipeline were previously addressed in the 2003 Environmental Assessment (EA) and ensuing Finding of No Significant Impact, which were accepted with the issuance of a Presidential Permit on December 19, 2003. The operating conditions proposed in the 2003 EA represent the No Action Alternative described above, and include the effects from transmission of up to 32,400 barrels/day of liquefied petroleum gas (LPG).

The Proposed Action, as described, would affect significant changes on how the pipeline is operated. Specifically, the Proposed Action would allow the pipeline to transmit petroleum fuels including gasoline and diesel fuel, in addition to LPG. Presently, gasoline and diesel fuels are transported between the Laredo, Texas and Nuevo Laredo, Mexico terminal facilities via diesel-fueled tanker trucks. When transmitting, LPG, the daily limit of the pipeline will remain 32,400 barrels/day; when transmitting other liquid fuels, the pipeline is proposed to transmit a maximum of 24,000 barrels/day.

Sources of air quality changes from the Proposed Action are expected to result from the following operating conditions:

- Fuel tanker trucks currently transporting liquid fuels (diesel fuel and gasoline) between Laredo, Texas and Nuevo Laredo, Mexico;
- Accidental release of fuel from the pipeline; and
- Fugitive releases from flanges and valves and terminals during normal operation.

A summary of the operational changes as a result of the Proposed Action and how they impact air quality is provided in Table 1.

Table 1. Operating Conditions of Dos Laredos Pipeline as they Impact Air Quality

Sources of Air Emissions from Operation of Dos Laredos Pipeline	Operating Condition No Action Alternative	Operating Condition Proposed Action
Fuel tanker trucks transporting gasoline and diesel fuel between Laredo and Nuevo Laredo terminals	39,400 tanker trucks / year travel 30 miles roundtrip, plus 30 minutes idling at the border.	Elimination of 39,400 tanker trucks / year, and associated air (exhaust) emissions.

Sources of Air Emissions from Operation of Dos Laredos Pipeline	Operating Condition No Action Alternative	Operating Condition Proposed Action
Accidental release / pipeline rupture	LPG: Potential explosive release and short-term air quality effects (not quantified in 2003 EA).	LPG: Potential release (same as No Action); Gasoline/Diesel: Potential release, effects less than LPG because non-explosive gas and spilled fuel is absorbed by soil.
Fugitive losses from pipeline operation	LPG: Pipeline in operation 90% of time during the year.	LPG: Same as No Action; Gasoline/Diesel: Reduced VOC emissions when operating with gasoline/diesel because of lower VOC content of fuel.

Air Quality Effects from Proposed Action

To adequately address the effects on air quality from the Proposed Action, it should be understood that operating conditions under the Proposed Action will still allow current LPG operations as stipulated in the No Action Alternative (e.g., pipeline may operate at 32,400 barrels/day of LPG -or- it may operate at 25,000 barrels/day of diesel or gasoline). When evaluating the net effects on air quality, the worst-case fuel was used in evaluating potential fugitive emissions from pipeline operations. LPG is the worst-case fuel, based on VOC and CO_2 equivalents; therefore, there is no net impact on air emissions from operation of the pipeline because the worst-case fuel is the same as the fuel currently in use. In a more realistic scenario, if gasoline and diesel were used, fugitive losses and air emissions from pipeline operations would decrease due to the lower volatility of gasoline and diesel compared to LPG. The air quality effects are summarized in Table 2. Detailed assumptions and calculations are presented in the Appendix.

Table 2. Air Quality Effects from No Action and Proposed Actions

Pollutant	Air Emissions No Action (Baseline) (tons/year)	Air Emissions Proposed Action(tons/year)	Air Emissions Net Emissions Change(tons/year)
CO	2.57	0.00	(-2.57)
VOC	1.49	0.61	(-0.88)
NO_x	6.29	0.00	(-6.29)
PM-10	0.41	0.00	(-0.41)
PM-2.5	0.38	0.00	(-0.38)
SO_2	0.01	0.00	(-0.01)
CO_2 and CO_2 equivalents	1,635.24	1.53	(-1,633.71)

Significance of Air Quality Effects from Proposed Action

Table 3. Significance of Net Air Emissions (tons/year) Change from Proposed Action versus the *de minimis* Threshold Levels[1]

Pollutant	Net Emissions Change	*de minimis* Thresholds	Significant Impact (y/n)
CO	(-2.57)	N/A	no
VOC	(-0.88)	N/A	no
NOx	(-6.29)	N/A	no
PM-10	(-0.41)	N/A	no
PM-2.5	(-0.38)	N/A	no
SO2	(-0.01)	N/A	no
CO_2 and CO_2 equivalents	(-1,633.71)	N/A	no

Air Quality effects from the proposed action would be significant if emissions would:

1) increase ambient air pollution concentrations above the NAAQS,
2) contribute to an existing violation of the NAAQS,
3) interfere with, or delay timely attainment of the NAAQS,
4) impair visibility within Federally-mandated Prevention of Significant Deterioration Class I areas,
5) result in the potential for any new stationary source to be considered a major source of emissions as defined in 40 CFR Part 52.21 (total emissions of any pollutant subject to regulation under the CAA that is greater than 250 tons per year for attainment areas),
6) for mobile source emissions, the increase in emissions to exceed 250 tons per year for any pollutant, or
7) for GHG emissions, exceed 25,000 metric tons (27,557 U.S. tons) of direct CO_2-equivalent emissions on an annual basis.

Webb County, Texas is in attainment for NAAQS pollutants and therefore the General Conformity Rule does not apply. Since the General Conformity Rule *de minimis* thresholds do not apply and the total emissions from all activities are demonstrated to be below the significance thresholds identified above, the proposed action is determined to have no significant effects on ambient air quality. As proposed, the air quality in the region would see an improvement as a result of the Preferred Action.

[1] Source: *de minimis* thresholds (40 CFR 51.853) apply only to non-attainment and maintenance areas. Results are model projections

ATTACHMENT 1: AIR QUALITY ASSUMPTIONS AND CALCULATIONS

Assumptions for Calculating Motor Vehicle Emissions:

1. EPA's software model MOVES2014 was used to estimate motor vehicle emissions
2. 39,400 tanker trucks annually, divided equally among 12 months = 3283.33 trips/month
3. Assume each trip is 30 miles roundtrip. 30 miles * 3283.33 trips/month = 98,499.9 miles/month
4. Month-specific emission rates were used for each pollutant
5. Emissions were estimated using the maximum hourly factor (12:00 pm) and Weekday traffic density
6. The model used Urban Unrestricted roads for running emissions
7. For running emissions, trucks were assumed to be diesel-fired, Single Unit Short-haul Truck, with emissions from :
    a. Running Exhaust
    b. Refueling Spillage Loss
    c. Crankcase Running Exhaust
8. National average was used for vehicle model year
9. For idling emissions, trucks were assumed to be diesel-fired, Combination Long-haul Truck, with emissions from :
    a. Extended Idle
10. Idling emissions were assumed to be 30 minutes per trip * 3283.33 trips/month

Assumptions for Calculating Fugitive VOC Emissions for Dos Laredos Pipeline:

1. Emission factors pertaining to Table 2-4 Oil and Gas Production Operations Average Emission Factors for Light Oil were assumed for Diesel and Gasoline from US EPA's Protocol for Equipment Leak Emissions Estimates (pg. 2-15, 1995) as shown in Ch. 4.12 Air Quality and Noise from the SEIS Keystone Pipeline XL (pg. 4.12-16).
    a. Light Oil is defined as, "material in a liquid state in which the sum of the concentration of individual constituents with a vapor pressure over 0.3 kilopascals (kPa) at 20 °C is greater than or equal to 20 weight percent" (pg. 2-7).
2. Emission factors pertaining to Table 2-4 Oil and Gas Production Operations Average Emission Factors for Gas were assumed for LP Gas from USEPA's Protocol for Equipment Leak Emissions Estimates (pg. 2-15, 1995) as shown in Ch. 4.12 Air Quality and Noise from the SEIS Keystone Pipeline XL (pg. 4.12-16).
    a. Gas/vapor is defined as, "material in a gaseous state at operating conditions" (pg. 2-7).
3. Number of operating hours was assumed to be 90% of total hours per year (24 hours/day * 365 days/year = 8,760 hours). Total hours assumed for operation were 90% * 8,760 hours = 7,884 operating hours. (90% operation was assumed from NuStar DOPAA, pg. 12, 2015).
4. Valero MSDS were used for Unleaded Gasoline, Diesel Fuels, and Liquefied Petroleum Gas (LP Gas).
5. Equation used was Average Emission Factor Approach documented in USEPA's Protocol for Equipment Leak Emissions Estimates (p. 2-11, 1995).
6. Due to number of components (e.g., flanges and valves) being unavailable, the number was assumed from the Longhorn Pipeline Environmental Assessment Volume 1: Chapter 7, page 71-7 through 71-11.
    a. The length of Cartman Station continues from Milepost (MP) 334 – 344 indicating a length of 10 miles therefore the number of valves and flanges was taken and an approximate number of valves and flanges per mile was determined, due to the similar length of this section of pipeline to the Dos Laredos pipeline.
    b. The number of flanges was assumed to be 5/mile while the number of valves was assumed to be 1/mile.
    c. Numbers were rounded-up regardless of decimal.
    d. Total number of flanges for the Dos Laredos Pipeline was assumed to be:
        i. 10.67 mi * 5/mi = 53.35 ~ 54 flanges.
    e. Total number of valves for the Dos Laredos Pipeline was assumed to be:
        i. 10.67 mi * 1/mi = 10.67 ~ 11 valves.
7. Weight Fraction VOC for LP Gas and Gasoline was used as 100% from MSDS obtained from Valero. For Diesel was assumed to be 85%, as VOC was not given (this assumption came from USEPA's AP-42, Section 5.2, 2006, for VOC's typical weight fraction pg. 5.2-9).
8. VOC Compounds were found at http://www.epa.gov/region9/qa/pdfs/8260.pdf.

Table D-1. Summary of Emissions from No Action and Preferred Alternatives

Baseline Emissions Summary

Pollutant	Emissions Running (lb / year)	Emissions Idling (lb / year)	Emissions Pipeline (lb / year)	Total Emissions (tons/year)
Carbon Monoxide (CO) Total	5,137.50	8.40		**2.57**
CO_2 Equivalent Total	3,266,517.92	903.31	3,066.05	**1635.24**
Methane (CH_4)[1] Total	138.73	1.54	122.64	**0.13**
Oxides of Nitrogen (NO_x) Total	12,557.80	19.57		**6.29**
Primary Exhaust PM10 - Total	821.39	0.28		**0.41**
Primary Exhaust PM2.5 - Total	755.67	0.25		**0.38**
Sulfur Dioxide (SO_2) Total	28.79	0.51		**0.01**
Volatile Organic Compounds Total	1,754.93	4.07	1,226.42	**1.49**

Proposed Action Emission Summary

Pollutant	Emissions Running (lb / year)	Emissions Idling (lb / year)	Emissions Pipeline (lb / year)	Total Emissions (tons/year)
Carbon Monoxide (CO) Total	0.00	0.00		**0.00**
CO_2 Equivalent Total	0.00	0.00	3,066.05	**1.53**
Methane (CH_4)1 Total	0.00	0.00	122.64	**0.06**
Oxides of Nitrogen (NO_x) Total	0.00	0.00		**0.00**
Primary Exhaust PM10 - Total	0.00	0.00		**0.00**
Primary Exhaust PM2.5 - Total	0.00	0.00		**0.00**
Sulfur Dioxide (SO_2) Total	0.00	0.00		**0.00**
Volatile Organic Compounds Total	0.00	0.00	1,226.42	**0.61**

[1]The Global Warming Potential (GWP) of methane is 25; therefore, methane is 25 x CO_2 equivalent.

Table D-2. Detailed Running Emissions from Tanker Trucks

Year ID	Month ID	Pollutant Name	Process Name	Source Type Name	Fuel Type Description	Road Description	Activity Type Description	Emission Rate	Day Name	Mass Units	Distance Units	Mileage/ Month	Emissions (lb)
2015	1	Atmospheric CO_2	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	2.67456696	Weekdays	lb	mi	98,499.9	263,444.58
2015	2	Atmospheric CO_2	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	2.67457224	Weekdays	lb	mi	98,499.9	263,445.10
2015	3	Atmospheric CO_2	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	2.67456140	Weekdays	lb	mi	98,499.9	263,444.03
2015	4	Atmospheric CO_2	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	2.67456509	Weekdays	lb	mi	98,499.9	263,444.39
2015	5	Atmospheric CO_2	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	2.73648324	Weekdays	lb	mi	98,499.9	269,543.33
2015	6	Atmospheric CO_2	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	2.89917829	Weekdays	lb	mi	98,499.9	285,568.77
2015	7	Atmospheric CO_2	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	2.96589567	Weekdays	lb	mi	98,499.9	292,140.43
2015	8	Atmospheric CO_2	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	2.95120564	Weekdays	lb	mi	98,499.9	290,693.46
2015	9	Atmospheric CO_2	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	2.82664033	Weekdays	lb	mi	98,499.9	278,423.79
2015	10	Atmospheric CO_2	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	2.67456559	Weekdays	lb	mi	98,499.9	263,444.44
2015	11	Atmospheric CO_2	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	2.67456536	Weekdays	lb	mi	98,499.9	263,444.42
2015	12	Atmospheric CO_2	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	2.67456760	Weekdays	lb	mi	98,499.9	263,444.64
		Atmospheric CO_2 Total											**3,260,481.38**
2015	1	Carbon Monoxide (CO)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00004720	Weekdays	lb	mi	98,499.9	4.65
2015	1	Carbon Monoxide (CO)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00429925	Weekdays	lb	mi	98,499.9	423.48
2015	2	Carbon Monoxide (CO)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00004720	Weekdays	lb	mi	98,499.9	4.65
2015	2	Carbon Monoxide (CO)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00429926	Weekdays	lb	mi	98,499.9	423.48
2015	3	Carbon Monoxide (CO)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00004720	Weekdays	lb	mi	98,499.9	4.65
2015	3	Carbon Monoxide (CO)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00429925	Weekdays	lb	mi	98,499.9	423.48

Year ID	Month ID	Pollutant Name	Process Name	Source Type Name	Fuel Type Description	Road Description	Activity Type Description	Emission Rate	Day Name	Mass Units	Distance Units	Mileage/ Month	Emissions (lb)
2015	4	Carbon Monoxide (CO)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00004720	Weekdays	lb	mi	98,499.9	4.65
2015	4	Carbon Monoxide (CO)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00429925	Weekdays	lb	mi	98,499.9	423.48
2015	5	Carbon Monoxide (CO)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00004720	Weekdays	lb	mi	98,499.9	4.65
2015	5	Carbon Monoxide (CO)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00429924	Weekdays	lb	mi	98,499.9	423.48
2015	6	Carbon Monoxide (CO)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00004720	Weekdays	lb	mi	98,499.9	4.65
2015	6	Carbon Monoxide (CO)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00429925	Weekdays	lb	mi	98,499.9	423.48
2015	7	Carbon Monoxide (CO)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00004720	Weekdays	lb	mi	98,499.9	4.65
2015	7	Carbon Monoxide (CO)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00429925	Weekdays	lb	mi	98,499.9	423.48
2015	8	Carbon Monoxide (CO)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00004720	Weekdays	lb	mi	98,499.9	4.65
2015	8	Carbon Monoxide (CO)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00429925	Weekdays	lb	mi	98,499.9	423.48
2015	9	Carbon Monoxide (CO)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00004720	Weekdays	lb	mi	98,499.9	4.65
2015	9	Carbon Monoxide (CO)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00429926	Weekdays	lb	mi	98,499.9	423.48
2015	10	Carbon Monoxide (CO)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00004720	Weekdays	lb	mi	98,499.9	4.65
2015	10	Carbon Monoxide (CO)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00429925	Weekdays	lb	mi	98,499.9	423.48
2015	11	Carbon Monoxide (CO)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00004720	Weekdays	lb	mi	98,499.9	4.65
2015	11	Carbon Monoxide (CO)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00429925	Weekdays	lb	mi	98,499.9	423.48
2015	12	Carbon Monoxide (CO)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00004720	Weekdays	lb	mi	98,499.9	4.65
2015	12	Carbon Monoxide (CO)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00429925	Weekdays	lb	mi	98,499.9	423.48
		Carbon Monoxide (CO) Total											**5,137.50**
2015	1	CO_2 Equivalent	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	2.67967618	Weekdays	lb	mi	98,499.9	263,947.84

Year ID	Month ID	Pollutant Name	Process Name	Source Type Name	Fuel Type Description	Road Description	Activity Type Description	Emission Rate	Day Name	Mass Units	Distance Units	Mileage/ Month	Emissions (lb)
2015	2	CO_2 Equivalent	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	2.67967597	Weekdays	lb	mi	98,499.9	263,947.81
2015	3	CO_2 Equivalent	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	2.67967054	Weekdays	lb	mi	98,499.9	263,947.28
2015	4	CO_2 Equivalent	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	2.67967289	Weekdays	lb	mi	98,499.9	263,947.51
2015	5	CO_2 Equivalent	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	2.74159208	Weekdays	lb	mi	98,499.9	270,046.55
2015	6	CO_2 Equivalent	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	2.90428640	Weekdays	lb	mi	98,499.9	286,071.92
2015	7	CO_2 Equivalent	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	2.97099966	Weekdays	lb	mi	98,499.9	292,643.17
2015	8	CO_2 Equivalent	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	2.95631083	Weekdays	lb	mi	98,499.9	291,196.32
2015	9	CO_2 Equivalent	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	2.83174916	Weekdays	lb	mi	98,499.9	278,927.01
2015	10	CO_2 Equivalent	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	2.67967150	Weekdays	lb	mi	98,499.9	263,947.37
2015	11	CO_2 Equivalent	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	2.67967197	Weekdays	lb	mi	98,499.9	263,947.42
2015	12	CO_2 Equivalent	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	2.67967495	Weekdays	lb	mi	98,499.9	263,947.72
		CO_2 Equivalent Total											**3,266,517.92**
2015	1	Methane (CH_4)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000009	Weekdays	lb	mi	98,499.9	0.01
2015	1	Methane (CH_4)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00011727	Weekdays	lb	mi	98,499.9	11.55
2015	2	Methane (CH_4)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000009	Weekdays	lb	mi	98,499.9	0.01
2015	2	Methane (CH_4)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00011727	Weekdays	lb	mi	98,499.9	11.55
2015	3	Methane (CH_4)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000009	Weekdays	lb	mi	98,499.9	0.01
2015	3	Methane (CH_4)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00011727	Weekdays	lb	mi	98,499.9	11.55
2015	4	Methane (CH_4)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000009	Weekdays	lb	mi	98,499.9	0.01
2015	4	Methane (CH_4)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00011727	Weekdays	lb	mi	98,499.9	11.55

Year ID	Month ID	Pollutant Name	Process Name	Source Type Name	Fuel Type Description	Road Description	Activity Type Description	Emission Rate	Day Name	Mass Units	Distance Units	Mileage/ Month	Emissions (lb)
2015	5	Methane (CH_4)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000009	Weekdays	lb	mi	98,499.9	0.01
2015	5	Methane (CH_4)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00011727	Weekdays	lb	mi	98,499.9	11.55
2015	6	Methane (CH_4)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000009	Weekdays	lb	mi	98,499.9	0.01
2015	6	Methane (CH_4)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00011727	Weekdays	lb	mi	98,499.9	11.55
2015	7	Methane (CH_4)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000009	Weekdays	lb	mi	98,499.9	0.01
2015	7	Methane (CH_4)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00011727	Weekdays	lb	mi	98,499.9	11.55
2015	8	Methane (CH_4)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000009	Weekdays	lb	mi	98,499.9	0.01
2015	8	Methane (CH_4)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00011727	Weekdays	lb	mi	98,499.9	11.55
2015	9	Methane (CH_4)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000009	Weekdays	lb	mi	98,499.9	0.01
2015	9	Methane (CH_4)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00011727	Weekdays	lb	mi	98,499.9	11.55
2015	10	Methane (CH_4)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000009	Weekdays	lb	mi	98,499.9	0.01
2015	10	Methane (CH_4)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00011727	Weekdays	lb	mi	98,499.9	11.55
2015	11	Methane (CH_4)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000009	Weekdays	lb	mi	98,499.9	0.01
2015	11	Methane (CH_4)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00011727	Weekdays	lb	mi	98,499.9	11.55
2015	12	Methane (CH_4)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000009	Weekdays	lb	mi	98,499.9	0.01
2015	12	Methane (CH_4)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00011727	Weekdays	lb	mi	98,499.9	11.55
		Methane (CH_4) Total											**138.73**
2015	1	Nitrous Oxide (N_2O)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000730	Weekdays	lb	mi	98,499.9	0.72
2015	2	Nitrous Oxide (N_2O)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000730	Weekdays	lb	mi	98,499.9	0.72
2015	3	Nitrous Oxide (N_2O)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000730	Weekdays	lb	mi	98,499.9	0.72

Year ID	Month ID	Pollutant Name	Process Name	Source Type Name	Fuel Type Description	Road Description	Activity Type Description	Emission Rate	Day Name	Mass Units	Distance Units	Mileage/ Month	Emissions (lb)
2015	4	Nitrous Oxide (N_2O)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000730	Weekdays	lb	mi	98,499.9	0.72
2015	5	Nitrous Oxide (N_2O)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000730	Weekdays	lb	mi	98,499.9	0.72
2015	6	Nitrous Oxide (N_2O)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000730	Weekdays	lb	mi	98,499.9	0.72
2015	7	Nitrous Oxide (N_2O)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000730	Weekdays	lb	mi	98,499.9	0.72
2015	8	Nitrous Oxide (N_2O)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000730	Weekdays	lb	mi	98,499.9	0.72
2015	9	Nitrous Oxide (N_2O)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000730	Weekdays	lb	mi	98,499.9	0.72
2015	10	Nitrous Oxide (N_2O)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000730	Weekdays	lb	mi	98,499.9	0.72
2015	11	Nitrous Oxide (N_2O)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000730	Weekdays	lb	mi	98,499.9	0.72
2015	12	Nitrous Oxide (N_2O)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000730	Weekdays	lb	mi	98,499.9	0.72
		Nitrous Oxide (N_2O) Total											**8.63**
2015	1	Non-Methane Hydrocarbons	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006160	Weekdays	lb	mi	98,499.9	6.07
2015	1	Non-Methane Hydrocarbons	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00120920	Weekdays	lb	mi	98,499.9	119.11
2015	2	Non-Methane Hydrocarbons	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006160	Weekdays	lb	mi	98,499.9	6.07
2015	2	Non-Methane Hydrocarbons	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00120920	Weekdays	lb	mi	98,499.9	119.11
2015	3	Non-Methane Hydrocarbons	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006160	Weekdays	lb	mi	98,499.9	6.07
2015	3	Non-Methane Hydrocarbons	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00120919	Weekdays	lb	mi	98,499.9	119.11
2015	4	Non-Methane Hydrocarbons	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006160	Weekdays	lb	mi	98,499.9	6.07
2015	4	Non-Methane Hydrocarbons	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00120919	Weekdays	lb	mi	98,499.9	119.11
2015	5	Non-Methane Hydrocarbons	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006300	Weekdays	lb	mi	98,499.9	6.21
2015	5	Non-Methane Hydrocarbons	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00120919	Weekdays	lb	mi	98,499.9	119.10

Year ID	Month ID	Pollutant Name	Process Name	Source Type Name	Fuel Type Description	Road Description	Activity Type Description	Emission Rate	Day Name	Mass Units	Distance Units	Mileage/ Month	Emissions (lb)
2015	6	Non-Methane Hydrocarbons	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006670	Weekdays	lb	mi	98,499.9	6.57
2015	6	Non-Methane Hydrocarbons	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00120920	Weekdays	lb	mi	98,499.9	119.11
2015	7	Non-Methane Hydrocarbons	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006830	Weekdays	lb	mi	98,499.9	6.73
2015	7	Non-Methane Hydrocarbons	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00120919	Weekdays	lb	mi	98,499.9	119.11
2015	8	Non-Methane Hydrocarbons	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006790	Weekdays	lb	mi	98,499.9	6.69
2015	8	Non-Methane Hydrocarbons	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00120919	Weekdays	lb	mi	98,499.9	119.11
2015	9	Non-Methane Hydrocarbons	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006510	Weekdays	lb	mi	98,499.9	6.41
2015	9	Non-Methane Hydrocarbons	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00120920	Weekdays	lb	mi	98,499.9	119.11
2015	10	Non-Methane Hydrocarbons	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006160	Weekdays	lb	mi	98,499.9	6.07
2015	10	Non-Methane Hydrocarbons	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00120920	Weekdays	lb	mi	98,499.9	119.11
2015	11	Non-Methane Hydrocarbons	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006160	Weekdays	lb	mi	98,499.9	6.07
2015	11	Non-Methane Hydrocarbons	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00120919	Weekdays	lb	mi	98,499.9	119.11
2015	12	Non-Methane Hydrocarbons	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006160	Weekdays	lb	mi	98,499.9	6.07
2015	12	Non-Methane Hydrocarbons	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00120919	Weekdays	lb	mi	98,499.9	119.11
		Non-Methane Hydrocarbons Total											**1,504.34**
2015	1	Oxides of Nitrogen (NO_x)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000883	Weekdays	lb	mi	98,499.9	0.87
2015	1	Oxides of Nitrogen (NO_x)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.01141691	Weekdays	lb	mi	98,499.9	1,124.56
2015	2	Oxides of Nitrogen (NO_x)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000882	Weekdays	lb	mi	98,499.9	0.87
2015	2	Oxides of Nitrogen (NO_x)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.01139714	Weekdays	lb	mi	98,499.9	1,122.62
2015	3	Oxides of Nitrogen (NO_x)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000864	Weekdays	lb	mi	98,499.9	0.85

Year ID	Month ID	Pollutant Name	Process Name	Source Type Name	Fuel Type Description	Road Description	Activity Type Description	Emission Rate	Day Name	Mass Units	Distance Units	Mileage/ Month	Emissions (lb)
2015	3	Oxides of Nitrogen (NO_x)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.01117269	Weekdays	lb	mi	98,499.9	1,100.51
2015	4	Oxides of Nitrogen (NO_x)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000843	Weekdays	lb	mi	98,499.9	0.83
2015	4	Oxides of Nitrogen (NO_x)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.01089846	Weekdays	lb	mi	98,499.9	1,073.50
2015	5	Oxides of Nitrogen (NO_x)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000807	Weekdays	lb	mi	98,499.9	0.79
2015	5	Oxides of Nitrogen (NO_x)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.01043385	Weekdays	lb	mi	98,499.9	1,027.73
2015	6	Oxides of Nitrogen (NO_x)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000763	Weekdays	lb	mi	98,499.9	0.75
2015	6	Oxides of Nitrogen (NO_x)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00986434	Weekdays	lb	mi	98,499.9	971.64
2015	7	Oxides of Nitrogen (NO_x)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000737	Weekdays	lb	mi	98,499.9	0.73
2015	7	Oxides of Nitrogen (NO_x)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00952290	Weekdays	lb	mi	98,499.9	938.00
2015	8	Oxides of Nitrogen (NO_x)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000740	Weekdays	lb	mi	98,499.9	0.73
2015	8	Oxides of Nitrogen (NO_x)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00956692	Weekdays	lb	mi	98,499.9	942.34
2015	9	Oxides of Nitrogen (NO_x)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000777	Weekdays	lb	mi	98,499.9	0.77
2015	9	Oxides of Nitrogen (NO_x)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.01004857	Weekdays	lb	mi	98,499.9	989.78
2015	10	Oxides of Nitrogen (NO_x)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000826	Weekdays	lb	mi	98,499.9	0.81
2015	10	Oxides of Nitrogen (NO_x)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.01067305	Weekdays	lb	mi	98,499.9	1,051.29
2015	11	Oxides of Nitrogen (NO_x)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000856	Weekdays	lb	mi	98,499.9	0.84
2015	11	Oxides of Nitrogen (NO_x)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.01105858	Weekdays	lb	mi	98,499.9	1,089.27
2015	12	Oxides of Nitrogen (NO_x)	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00000877	Weekdays	lb	mi	98,499.9	0.86
2015	12	Oxides of Nitrogen (NO_x)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.01133848	Weekdays	lb	mi	98,499.9	1,116.84
		Oxides of Nitrogen (NO_x) Total											**12,557.80**

Year ID	Month ID	Pollutant Name	Process Name	Source Type Name	Fuel Type Description	Road Description	Activity Type Description	Emission Rate	Day Name	Mass Units	Distance Units	Mileage/ Month	Emissions (lb)
2015	1	Primary Exhaust PM10 - Total	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00023318	Weekdays	lb	mi	98,499.9	22.97
2015	1	Primary Exhaust PM10 - Total	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00046173	Weekdays	lb	mi	98,499.9	45.48
2015	2	Primary Exhaust PM10 - Total	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00023318	Weekdays	lb	mi	98,499.9	22.97
2015	2	Primary Exhaust PM10 - Total	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00046174	Weekdays	lb	mi	98,499.9	45.48
2015	3	Primary Exhaust PM10 - Total	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00023318	Weekdays	lb	mi	98,499.9	22.97
2015	3	Primary Exhaust PM10 - Total	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00046173	Weekdays	lb	mi	98,499.9	45.48
2015	4	Primary Exhaust PM10 - Total	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00023318	Weekdays	lb	mi	98,499.9	22.97
2015	4	Primary Exhaust PM10 - Total	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00046173	Weekdays	lb	mi	98,499.9	45.48
2015	5	Primary Exhaust PM10 - Total	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00023318	Weekdays	lb	mi	98,499.9	22.97
2015	5	Primary Exhaust PM10 - Total	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00046173	Weekdays	lb	mi	98,499.9	45.48
2015	6	Primary Exhaust PM10 - Total	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00023318	Weekdays	lb	mi	98,499.9	22.97
2015	6	Primary Exhaust PM10 - Total	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00046174	Weekdays	lb	mi	98,499.9	45.48
2015	7	Primary Exhaust PM10 - Total	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00023318	Weekdays	lb	mi	98,499.9	22.97
2015	7	Primary Exhaust PM10 - Total	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00046173	Weekdays	lb	mi	98,499.9	45.48
2015	8	Primary Exhaust PM10 - Total	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00023318	Weekdays	lb	mi	98,499.9	22.97
2015	8	Primary Exhaust PM10 - Total	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00046174	Weekdays	lb	mi	98,499.9	45.48
2015	9	Primary Exhaust PM10 - Total	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00023318	Weekdays	lb	mi	98,499.9	22.97
2015	9	Primary Exhaust PM10 - Total	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00046174	Weekdays	lb	mi	98,499.9	45.48
2015	10	Primary Exhaust PM10 - Total	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00023318	Weekdays	lb	mi	98,499.9	22.97
2015	10	Primary Exhaust PM10 - Total	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00046173	Weekdays	lb	mi	98,499.9	45.48

Year ID	Month ID	Pollutant Name	Process Name	Source Type Name	Fuel Type Description	Road Description	Activity Type Description	Emission Rate	Day Name	Mass Units	Distance Units	Mileage/ Month	Emissions (lb)
2015	11	Primary Exhaust PM10 - Total	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00023318	Weekdays	lb	mi	98,499.9	22.97
2015	11	Primary Exhaust PM10 - Total	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00046173	Weekdays	lb	mi	98,499.9	45.48
2015	12	Primary Exhaust PM10 - Total	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00023318	Weekdays	lb	mi	98,499.9	22.97
2015	12	Primary Exhaust PM10 - Total	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00046174	Weekdays	lb	mi	98,499.9	45.48
		Primary Exhaust PM10 - Total Total											**821.39**
2015	1	Primary Exhaust PM2.5 - Total	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00021452	Weekdays	lb	mi	98,499.9	21.13
2015	1	Primary Exhaust PM2.5 - Total	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00042480	Weekdays	lb	mi	98,499.9	41.84
2015	2	Primary Exhaust PM2.5 - Total	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00021453	Weekdays	lb	mi	98,499.9	21.13
2015	2	Primary Exhaust PM2.5 - Total	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00042480	Weekdays	lb	mi	98,499.9	41.84
2015	3	Primary Exhaust PM2.5 - Total	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00021452	Weekdays	lb	mi	98,499.9	21.13
2015	3	Primary Exhaust PM2.5 - Total	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00042479	Weekdays	lb	mi	98,499.9	41.84
2015	4	Primary Exhaust PM2.5 - Total	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00021452	Weekdays	lb	mi	98,499.9	21.13
2015	4	Primary Exhaust PM2.5 - Total	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00042479	Weekdays	lb	mi	98,499.9	41.84
2015	5	Primary Exhaust PM2.5 - Total	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00021452	Weekdays	lb	mi	98,499.9	21.13
2015	5	Primary Exhaust PM2.5 - Total	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00042479	Weekdays	lb	mi	98,499.9	41.84
2015	6	Primary Exhaust PM2.5 - Total	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00021452	Weekdays	lb	mi	98,499.9	21.13
2015	6	Primary Exhaust PM2.5 - Total	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00042479	Weekdays	lb	mi	98,499.9	41.84
2015	7	Primary Exhaust PM2.5 - Total	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00021452	Weekdays	lb	mi	98,499.9	21.13
2015	7	Primary Exhaust PM2.5 - Total	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00042479	Weekdays	lb	mi	98,499.9	41.84
2015	8	Primary Exhaust PM2.5 - Total	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00021452	Weekdays	lb	mi	98,499.9	21.13

Year ID	Month ID	Pollutant Name	Process Name	Source Type Name	Fuel Type Description	Road Description	Activity Type Description	Emission Rate	Day Name	Mass Units	Distance Units	Mileage/ Month	Emissions (lb)
2015	8	Primary Exhaust PM2.5 - Total	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00042480	Weekdays	lb	mi	98,499.9	41.84
2015	9	Primary Exhaust PM2.5 - Total	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00021452	Weekdays	lb	mi	98,499.9	21.13
2015	9	Primary Exhaust PM2.5 - Total	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00042480	Weekdays	lb	mi	98,499.9	41.84
2015	10	Primary Exhaust PM2.5 - Total	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00021452	Weekdays	lb	mi	98,499.9	21.13
2015	10	Primary Exhaust PM2.5 - Total	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00042479	Weekdays	lb	mi	98,499.9	41.84
2015	11	Primary Exhaust PM2.5 - Total	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00021452	Weekdays	lb	mi	98,499.9	21.13
2015	11	Primary Exhaust PM2.5 - Total	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00042479	Weekdays	lb	mi	98,499.9	41.84
2015	12	Primary Exhaust PM2.5 - Total	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00021452	Weekdays	lb	mi	98,499.9	21.13
2015	12	Primary Exhaust PM2.5 - Total	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00042479	Weekdays	lb	mi	98,499.9	41.84
		Primary Exhaust PM2.5 - Total Total											**755.67**
2015	1	Sulfur Dioxide (SO_2)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00002360	Weekdays	lb	mi	98,499.9	2.32
2015	2	Sulfur Dioxide (SO_2)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00002360	Weekdays	lb	mi	98,499.9	2.32
2015	3	Sulfur Dioxide (SO_2)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00002360	Weekdays	lb	mi	98,499.9	2.32
2015	4	Sulfur Dioxide (SO_2)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00002360	Weekdays	lb	mi	98,499.9	2.32
2015	5	Sulfur Dioxide (SO_2)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00002420	Weekdays	lb	mi	98,499.9	2.38
2015	6	Sulfur Dioxide (SO_2)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00002560	Weekdays	lb	mi	98,499.9	2.52
2015	7	Sulfur Dioxide (SO_2)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00002620	Weekdays	lb	mi	98,499.9	2.58
2015	8	Sulfur Dioxide (SO_2)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00002610	Weekdays	lb	mi	98,499.9	2.57
2015	9	Sulfur Dioxide (SO_2)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00002500	Weekdays	lb	mi	98,499.9	2.46
2015	10	Sulfur Dioxide (SO_2)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00002360	Weekdays	lb	mi	98,499.9	2.32

Year ID	Month ID	Pollutant Name	Process Name	Source Type Name	Fuel Type Description	Road Description	Activity Type Description	Emission Rate	Day Name	Mass Units	Distance Units	Mileage/ Month	Emissions (lb)
2015	11	Sulfur Dioxide (SO_2)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00002360	Weekdays	lb	mi	98,499.9	2.32
2015	12	Sulfur Dioxide (SO_2)	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00002360	Weekdays	lb	mi	98,499.9	2.32
		Sulfur Dioxide (SO_2) Total											**28.79**
2015	1	Total Energy Consumption	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.01561009	Weekdays	lb	mi	98,499.9	1,537.59
2015	2	Total Energy Consumption	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.01561009	Weekdays	lb	mi	98,499.9	1,537.59
2015	3	Total Energy Consumption	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.01561006	Weekdays	lb	mi	98,499.9	1,537.59
2015	4	Total Energy Consumption	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.01561008	Weekdays	lb	mi	98,499.9	1,537.59
2015	5	Total Energy Consumption	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.01597146	Weekdays	lb	mi	98,499.9	1,573.19
2015	6	Total Energy Consumption	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.01692101	Weekdays	lb	mi	98,499.9	1,666.72
2015	7	Total Energy Consumption	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.01731040	Weekdays	lb	mi	98,499.9	1,705.07
2015	8	Total Energy Consumption	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.01722466	Weekdays	lb	mi	98,499.9	1,696.63
2015	9	Total Energy Consumption	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.01649765	Weekdays	lb	mi	98,499.9	1,625.02
2015	10	Total Energy Consumption	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.01561006	Weekdays	lb	mi	98,499.9	1,537.59
2015	11	Total Energy Consumption	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.01561006	Weekdays	lb	mi	98,499.9	1,537.59
2015	12	Total Energy Consumption	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.01561009	Weekdays	lb	mi	98,499.9	1,537.59
		Total Energy Consumption Total											**19,029.76**
2015	1	Total Gaseous Hydrocarbons	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006160	Weekdays	lb	mi	98,499.9	6.07
2015	1	Total Gaseous Hydrocarbons	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00132647	Weekdays	lb	mi	98,499.9	130.66
2015	2	Total Gaseous Hydrocarbons	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006160	Weekdays	lb	mi	98,499.9	6.07
2015	2	Total Gaseous Hydrocarbons	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00132647	Weekdays	lb	mi	98,499.9	130.66

Year ID	Month ID	Pollutant Name	Process Name	Source Type Name	Fuel Type Description	Road Description	Activity Type Description	Emission Rate	Day Name	Mass Units	Distance Units	Mileage/ Month	Emissions (lb)
2015	3	Total Gaseous Hydrocarbons	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006160	Weekdays	lb	mi	98,499.9	6.07
2015	3	Total Gaseous Hydrocarbons	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00132646	Weekdays	lb	mi	98,499.9	130.66
2015	4	Total Gaseous Hydrocarbons	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006160	Weekdays	lb	mi	98,499.9	6.07
2015	4	Total Gaseous Hydrocarbons	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00132646	Weekdays	lb	mi	98,499.9	130.66
2015	5	Total Gaseous Hydrocarbons	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006300	Weekdays	lb	mi	98,499.9	6.21
2015	5	Total Gaseous Hydrocarbons	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00132647	Weekdays	lb	mi	98,499.9	130.66
2015	6	Total Gaseous Hydrocarbons	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006670	Weekdays	lb	mi	98,499.9	6.57
2015	6	Total Gaseous Hydrocarbons	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00132646	Weekdays	lb	mi	98,499.9	130.66
2015	7	Total Gaseous Hydrocarbons	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006830	Weekdays	lb	mi	98,499.9	6.73
2015	7	Total Gaseous Hydrocarbons	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00132647	Weekdays	lb	mi	98,499.9	130.66
2015	8	Total Gaseous Hydrocarbons	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006790	Weekdays	lb	mi	98,499.9	6.69
2015	8	Total Gaseous Hydrocarbons	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00132647	Weekdays	lb	mi	98,499.9	130.66
2015	9	Total Gaseous Hydrocarbons	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006510	Weekdays	lb	mi	98,499.9	6.41
2015	9	Total Gaseous Hydrocarbons	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00132647	Weekdays	lb	mi	98,499.9	130.66
2015	10	Total Gaseous Hydrocarbons	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006160	Weekdays	lb	mi	98,499.9	6.07
2015	10	Total Gaseous Hydrocarbons	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00132647	Weekdays	lb	mi	98,499.9	130.66
2015	11	Total Gaseous Hydrocarbons	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006160	Weekdays	lb	mi	98,499.9	6.07
2015	11	Total Gaseous Hydrocarbons	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00132647	Weekdays	lb	mi	98,499.9	130.66
2015	12	Total Gaseous Hydrocarbons	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006160	Weekdays	lb	mi	98,499.9	6.07
2015	12	Total Gaseous Hydrocarbons	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00132647	Weekdays	lb	mi	98,499.9	130.66

Year ID	Month ID	Pollutant Name	Process Name	Source Type Name	Fuel Type Description	Road Description	Activity Type Description	Emission Rate	Day Name	Mass Units	Distance Units	Mileage/ Month	Emissions (lb)
		Total Gaseous Hydrocarbons Total											**1,642.96**
2015	1	Volatile Organic Compounds	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00004690	Weekdays	lb	mi	98,499.9	4.62
2015	1	Volatile Organic Compounds	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006160	Weekdays	lb	mi	98,499.9	6.07
2015	1	Volatile Organic Compounds	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00137430	Weekdays	lb	mi	98,499.9	135.37
2015	2	Volatile Organic Compounds	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00004690	Weekdays	lb	mi	98,499.9	4.62
2015	2	Volatile Organic Compounds	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006160	Weekdays	lb	mi	98,499.9	6.07
2015	2	Volatile Organic Compounds	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00137430	Weekdays	lb	mi	98,499.9	135.37
2015	3	Volatile Organic Compounds	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00004690	Weekdays	lb	mi	98,499.9	4.62
2015	3	Volatile Organic Compounds	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006160	Weekdays	lb	mi	98,499.9	6.07
2015	3	Volatile Organic Compounds	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00137429	Weekdays	lb	mi	98,499.9	135.37
2015	4	Volatile Organic Compounds	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00004690	Weekdays	lb	mi	98,499.9	4.62
2015	4	Volatile Organic Compounds	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006160	Weekdays	lb	mi	98,499.9	6.07
2015	4	Volatile Organic Compounds	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00137430	Weekdays	lb	mi	98,499.9	135.37
2015	5	Volatile Organic Compounds	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00004690	Weekdays	lb	mi	98,499.9	4.62
2015	5	Volatile Organic Compounds	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006300	Weekdays	lb	mi	98,499.9	6.21
2015	5	Volatile Organic Compounds	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00137429	Weekdays	lb	mi	98,499.9	135.37
2015	6	Volatile Organic Compounds	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00004690	Weekdays	lb	mi	98,499.9	4.62
2015	6	Volatile Organic Compounds	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006670	Weekdays	lb	mi	98,499.9	6.57
2015	6	Volatile Organic Compounds	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00137430	Weekdays	lb	mi	98,499.9	135.37
2015	7	Volatile Organic Compounds	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00004690	Weekdays	lb	mi	98,499.9	4.62

Year ID	Month ID	Pollutant Name	Process Name	Source Type Name	Fuel Type Description	Road Description	Activity Type Description	Emission Rate	Day Name	Mass Units	Distance Units	Mileage/ Month	Emissions (lb)
2015	7	Volatile Organic Compounds	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006830	Weekdays	lb	mi	98,499.9	6.73
2015	7	Volatile Organic Compounds	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00137429	Weekdays	lb	mi	98,499.9	135.37
2015	8	Volatile Organic Compounds	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00004690	Weekdays	lb	mi	98,499.9	4.62
2015	8	Volatile Organic Compounds	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006790	Weekdays	lb	mi	98,499.9	6.69
2015	8	Volatile Organic Compounds	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00137430	Weekdays	lb	mi	98,499.9	135.37
2015	9	Volatile Organic Compounds	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00004690	Weekdays	lb	mi	98,499.9	4.62
2015	9	Volatile Organic Compounds	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006510	Weekdays	lb	mi	98,499.9	6.41
2015	9	Volatile Organic Compounds	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00137430	Weekdays	lb	mi	98,499.9	135.37
2015	10	Volatile Organic Compounds	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00004690	Weekdays	lb	mi	98,499.9	4.62
2015	10	Volatile Organic Compounds	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006160	Weekdays	lb	mi	98,499.9	6.07
2015	10	Volatile Organic Compounds	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00137429	Weekdays	lb	mi	98,499.9	135.37
2015	11	Volatile Organic Compounds	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00004690	Weekdays	lb	mi	98,499.9	4.62
2015	11	Volatile Organic Compounds	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006160	Weekdays	lb	mi	98,499.9	6.07
2015	11	Volatile Organic Compounds	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00137429	Weekdays	lb	mi	98,499.9	135.37
2015	12	Volatile Organic Compounds	Crankcase Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00004690	Weekdays	lb	mi	98,499.9	4.62
2015	12	Volatile Organic Compounds	Refueling Spillage Loss	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00006160	Weekdays	lb	mi	98,499.9	6.07
2015	12	Volatile Organic Compounds	Running Exhaust	Single Unit Short-haul Truck	Diesel Fuel	Urban Unrestricted Access	Distance traveled	0.00137429	Weekdays	lb	mi	98,499.9	135.37
		Volatile Organic Compounds Total											**1,754.93**
		Grand Total											**6,570,379.79**

Table D-3. Detailed Idling Emissions from Tanker Trucks

Year ID	Month ID	Pollutant Name	Process Name	Source Type Name	Fuel Type Description	Road Description	Activity Type Description	Rate(g) Per Hour	Day Name	Mass Units	Output Units	Hours/ Month	Emissions (lb)
2015	1	Atmospheric CO_2	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	19.9136	Weekdays	grams	hours	1641.665	72.07
2015	2	Atmospheric CO_2	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	19.9136	Weekdays	grams	hours	1641.665	72.07
2015	3	Atmospheric CO_2	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	19.9136	Weekdays	grams	hours	1641.665	72.07
2015	4	Atmospheric CO_2	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	19.9136	Weekdays	grams	hours	1641.665	72.07
2015	5	Atmospheric CO_2	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	19.9136	Weekdays	grams	hours	1641.665	72.07
2015	6	Atmospheric CO_2	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	19.9136	Weekdays	grams	hours	1641.665	72.07
2015	7	Atmospheric CO_2	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	19.9136	Weekdays	grams	hours	1641.665	72.07
2015	8	Atmospheric CO_2	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	19.9136	Weekdays	grams	hours	1641.665	72.07
2015	9	Atmospheric CO_2	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	19.9136	Weekdays	grams	hours	1641.665	72.07
2015	10	Atmospheric CO_2	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	19.9136	Weekdays	grams	hours	1641.665	72.07
2015	11	Atmospheric CO_2	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	19.9136	Weekdays	grams	hours	1641.665	72.07
2015	12	Atmospheric CO_2	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	19.9136	Weekdays	grams	hours	1641.665	72.07
		Atmospheric CO_2 Total											**864.87**
2015	1	Carbon Monoxide (CO)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.193355	Weekdays	grams	hours	1641.665	0.70
2015	2	Carbon Monoxide (CO)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.193355	Weekdays	grams	hours	1641.665	0.70
2015	3	Carbon Monoxide (CO)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.193355	Weekdays	grams	hours	1641.665	0.70
2015	4	Carbon Monoxide (CO)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.193355	Weekdays	grams	hours	1641.665	0.70
2015	5	Carbon Monoxide (CO)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.193355	Weekdays	grams	hours	1641.665	0.70
2015	6	Carbon Monoxide (CO)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.193355	Weekdays	grams	hours	1641.665	0.70

Year ID	Month ID	Pollutant Name	Process Name	Source Type Name	Fuel Type Description	Road Description	Activity Type Description	Rate(g) Per Hour	Day Name	Mass Units	Output Units	Hours/ Month	Emissions (lb)
2015	7	Carbon Monoxide (CO)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.193355	Weekdays	grams	hours	1641.665	0.70
2015	8	Carbon Monoxide (CO)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.193355	Weekdays	grams	hours	1641.665	0.70
2015	9	Carbon Monoxide (CO)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.193355	Weekdays	grams	hours	1641.665	0.70
2015	10	Carbon Monoxide (CO)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.193355	Weekdays	grams	hours	1641.665	0.70
2015	11	Carbon Monoxide (CO)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.193355	Weekdays	grams	hours	1641.665	0.70
2015	12	Carbon Monoxide (CO)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.193355	Weekdays	grams	hours	1641.665	0.70
		Carbon Monoxide (CO) Total											**8.40**
2015	1	CO_2 Equivalent	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	20.7988	Weekdays	grams	hours	1641.665	75.28
2015	2	CO_2 Equivalent	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	20.7988	Weekdays	grams	hours	1641.665	75.28
2015	3	CO_2 Equivalent	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	20.7988	Weekdays	grams	hours	1641.665	75.28
2015	4	CO_2 Equivalent	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	20.7988	Weekdays	grams	hours	1641.665	75.28
2015	5	CO_2 Equivalent	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	20.7988	Weekdays	grams	hours	1641.665	75.28
2015	6	CO_2 Equivalent	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	20.7988	Weekdays	grams	hours	1641.665	75.28
2015	7	CO_2 Equivalent	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	20.7988	Weekdays	grams	hours	1641.665	75.28
2015	8	CO_2 Equivalent	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	20.7988	Weekdays	grams	hours	1641.665	75.28
2015	9	CO_2 Equivalent	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	20.7988	Weekdays	grams	hours	1641.665	75.28
2015	10	CO_2 Equivalent	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	20.7987	Weekdays	grams	hours	1641.665	75.28
2015	11	CO_2 Equivalent	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	20.7988	Weekdays	grams	hours	1641.665	75.28
2015	12	CO_2 Equivalent	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	20.7988	Weekdays	grams	hours	1641.665	75.28
		CO_2 Equivalent Total											**903.31**

Year ID	Month ID	Pollutant Name	Process Name	Source Type Name	Fuel Type Description	Road Description	Activity Type Description	Rate(g) Per Hour	Day Name	Mass Units	Output Units	Hours/ Month	Emissions (lb)
2015	1	Methane (CH_4)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0354045	Weekdays	grams	hours	1641.665	0.13
2015	2	Methane (CH_4)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0354045	Weekdays	grams	hours	1641.665	0.13
2015	3	Methane (CH_4)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0354045	Weekdays	grams	hours	1641.665	0.13
2015	4	Methane (CH_4)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0354045	Weekdays	grams	hours	1641.665	0.13
2015	5	Methane (CH_4)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0354045	Weekdays	grams	hours	1641.665	0.13
2015	6	Methane (CH_4)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0354045	Weekdays	grams	hours	1641.665	0.13
2015	7	Methane (CH_4)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0354045	Weekdays	grams	hours	1641.665	0.13
2015	8	Methane (CH_4)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0354045	Weekdays	grams	hours	1641.665	0.13
2015	9	Methane (CH_4)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0354045	Weekdays	grams	hours	1641.665	0.13
2015	10	Methane (CH_4)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0354045	Weekdays	grams	hours	1641.665	0.13
2015	11	Methane (CH_4)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0354045	Weekdays	grams	hours	1641.665	0.13
2015	12	Methane (CH_4)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0354045	Weekdays	grams	hours	1641.665	0.13
		Methane (CH_4) Total											**1.54**
2015	1	Non-Methane Hydrocarbons	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0803786	Weekdays	grams	hours	1641.665	0.29
2015	2	Non-Methane Hydrocarbons	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0803786	Weekdays	grams	hours	1641.665	0.29
2015	3	Non-Methane Hydrocarbons	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0803786	Weekdays	grams	hours	1641.665	0.29
2015	4	Non-Methane Hydrocarbons	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0803786	Weekdays	grams	hours	1641.665	0.29
2015	5	Non-Methane Hydrocarbons	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0803786	Weekdays	grams	hours	1641.665	0.29
2015	6	Non-Methane Hydrocarbons	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0803786	Weekdays	grams	hours	1641.665	0.29
2015	7	Non-Methane Hydrocarbons	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0803786	Weekdays	grams	hours	1641.665	0.29

Year ID	Month ID	Pollutant Name	Process Name	Source Type Name	Fuel Type Description	Road Description	Activity Type Description	Rate(g) Per Hour	Day Name	Mass Units	Output Units	Hours/ Month	Emissions (lb)
2015	8	Non-Methane Hydrocarbons	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0803786	Weekdays	grams	hours	1641.665	0.29
2015	9	Non-Methane Hydrocarbons	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0803786	Weekdays	grams	hours	1641.665	0.29
2015	10	Non-Methane Hydrocarbons	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0803786	Weekdays	grams	hours	1641.665	0.29
2015	11	Non-Methane Hydrocarbons	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0803786	Weekdays	grams	hours	1641.665	0.29
2015	12	Non-Methane Hydrocarbons	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0803786	Weekdays	grams	hours	1641.665	0.29
		Non-Methane Hydrocarbons Total											**3.49**
2015	1	Oxides of Nitrogen (NO_x)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.49929	Weekdays	grams	hours	1641.665	1.81
2015	2	Oxides of Nitrogen (NO_x)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.495458	Weekdays	grams	hours	1641.665	1.79
2015	3	Oxides of Nitrogen (NO_x)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.475824	Weekdays	grams	hours	1641.665	1.72
2015	4	Oxides of Nitrogen (NO_x)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.453934	Weekdays	grams	hours	1641.665	1.64
2015	5	Oxides of Nitrogen (NO_x)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.425257	Weekdays	grams	hours	1641.665	1.54
2015	6	Oxides of Nitrogen (NO_x)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.406381	Weekdays	grams	hours	1641.665	1.47
2015	7	Oxides of Nitrogen (NO_x)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.402765	Weekdays	grams	hours	1641.665	1.46
2015	8	Oxides of Nitrogen (NO_x)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.403618	Weekdays	grams	hours	1641.665	1.46
2015	9	Oxides of Nitrogen (NO_x)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.416928	Weekdays	grams	hours	1641.665	1.51
2015	10	Oxides of Nitrogen (NO_x)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.44738	Weekdays	grams	hours	1641.665	1.62
2015	11	Oxides of Nitrogen (NO_x)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.480357	Weekdays	grams	hours	1641.665	1.74
2015	12	Oxides of Nitrogen (NO_x)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.499083	Weekdays	grams	hours	1641.665	1.81
		Oxides of Nitrogen (NO_x) Total											**19.57**
2015	1	Primary Exhaust PM10 - Total	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.00633737	Weekdays	grams	hours	1641.665	0.02

Year ID	Month ID	Pollutant Name	Process Name	Source Type Name	Fuel Type Description	Road Description	Activity Type Description	Rate(g) Per Hour	Day Name	Mass Units	Output Units	Hours/ Month	Emissions (lb)
2015	2	Primary Exhaust PM10 - Total	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.00633737	Weekdays	grams	hours	1641.665	0.02
2015	3	Primary Exhaust PM10 - Total	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.00633737	Weekdays	grams	hours	1641.665	0.02
2015	4	Primary Exhaust PM10 - Total	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.00633737	Weekdays	grams	hours	1641.665	0.02
2015	5	Primary Exhaust PM10 - Total	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.00633737	Weekdays	grams	hours	1641.665	0.02
2015	6	Primary Exhaust PM10 - Total	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.00633737	Weekdays	grams	hours	1641.665	0.02
2015	7	Primary Exhaust PM10 - Total	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.00633737	Weekdays	grams	hours	1641.665	0.02
2015	8	Primary Exhaust PM10 - Total	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.00633737	Weekdays	grams	hours	1641.665	0.02
2015	9	Primary Exhaust PM10 - Total	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.00633737	Weekdays	grams	hours	1641.665	0.02
2015	10	Primary Exhaust PM10 - Total	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.00633737	Weekdays	grams	hours	1641.665	0.02
2015	11	Primary Exhaust PM10 - Total	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.00633737	Weekdays	grams	hours	1641.665	0.02
2015	12	Primary Exhaust PM10 - Total	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.00633737	Weekdays	grams	hours	1641.665	0.02
		Primary Exhaust PM10 - Total Total											**0.28**
2015	1	Primary Exhaust PM2.5 - Total	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.00583035	Weekdays	grams	hours	1641.665	0.02
2015	2	Primary Exhaust PM2.5 - Total	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.00583035	Weekdays	grams	hours	1641.665	0.02
2015	3	Primary Exhaust PM2.5 - Total	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.00583037	Weekdays	grams	hours	1641.665	0.02
2015	4	Primary Exhaust PM2.5 - Total	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.00583035	Weekdays	grams	hours	1641.665	0.02
2015	5	Primary Exhaust PM2.5 - Total	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.00583035	Weekdays	grams	hours	1641.665	0.02
2015	6	Primary Exhaust PM2.5 - Total	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.00583035	Weekdays	grams	hours	1641.665	0.02
2015	7	Primary Exhaust PM2.5 - Total	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.00583037	Weekdays	grams	hours	1641.665	0.02
2015	8	Primary Exhaust PM2.5 - Total	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.00583035	Weekdays	grams	hours	1641.665	0.02

Year ID	Month ID	Pollutant Name	Process Name	Source Type Name	Fuel Type Description	Road Description	Activity Type Description	Rate(g) Per Hour	Day Name	Mass Units	Output Units	Hours/ Month	Emissions (lb)
2015	9	Primary Exhaust PM2.5 - Total	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.00583035	Weekdays	grams	hours	1641.665	0.02
2015	10	Primary Exhaust PM2.5 - Total	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.00583037	Weekdays	grams	hours	1641.665	0.02
2015	11	Primary Exhaust PM2.5 - Total	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.00583035	Weekdays	grams	hours	1641.665	0.02
2015	12	Primary Exhaust PM2.5 - Total	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.00583035	Weekdays	grams	hours	1641.665	0.02
		Primary Exhaust PM2.5 - Total Total											**0.25**
2015	1	Sulfur Dioxide (SO_2)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0117344	Weekdays	grams	hours	1641.665	0.04
2015	2	Sulfur Dioxide (SO_2)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0117344	Weekdays	grams	hours	1641.665	0.04
2015	3	Sulfur Dioxide (SO_2)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0117344	Weekdays	grams	hours	1641.665	0.04
2015	4	Sulfur Dioxide (SO_2)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0117344	Weekdays	grams	hours	1641.665	0.04
2015	5	Sulfur Dioxide (SO_2)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0117344	Weekdays	grams	hours	1641.665	0.04
2015	6	Sulfur Dioxide (SO_2)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0117344	Weekdays	grams	hours	1641.665	0.04
2015	7	Sulfur Dioxide (SO_2)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0117344	Weekdays	grams	hours	1641.665	0.04
2015	8	Sulfur Dioxide (SO_2)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0117344	Weekdays	grams	hours	1641.665	0.04
2015	9	Sulfur Dioxide (SO_2)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0117344	Weekdays	grams	hours	1641.665	0.04
2015	10	Sulfur Dioxide (SO_2)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0117344	Weekdays	grams	hours	1641.665	0.04
2015	11	Sulfur Dioxide (SO_2)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0117344	Weekdays	grams	hours	1641.665	0.04
2015	12	Sulfur Dioxide (SO_2)	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0117344	Weekdays	grams	hours	1641.665	0.04
		Sulfur Dioxide (SO_2) Total											**0.51**
2015	1	Total Energy Consumption	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	7.54625	Weekdays	grams	hours	1641.665	27.31
2015	2	Total Energy Consumption	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	7.54625	Weekdays	grams	hours	1641.665	27.31

Year ID	Month ID	Pollutant Name	Process Name	Source Type Name	Fuel Type Description	Road Description	Activity Type Description	Rate(g) Per Hour	Day Name	Mass Units	Output Units	Hours/ Month	Emissions (lb)
2015	3	Total Energy Consumption	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	7.54625	Weekdays	grams	hours	1641.665	27.31
2015	4	Total Energy Consumption	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	7.54625	Weekdays	grams	hours	1641.665	27.31
2015	5	Total Energy Consumption	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	7.54625	Weekdays	grams	hours	1641.665	27.31
2015	6	Total Energy Consumption	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	7.54625	Weekdays	grams	hours	1641.665	27.31
2015	7	Total Energy Consumption	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	7.54625	Weekdays	grams	hours	1641.665	27.31
2015	8	Total Energy Consumption	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	7.54625	Weekdays	grams	hours	1641.665	27.31
2015	9	Total Energy Consumption	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	7.54625	Weekdays	grams	hours	1641.665	27.31
2015	10	Total Energy Consumption	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	7.54625	Weekdays	grams	hours	1641.665	27.31
2015	11	Total Energy Consumption	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	7.54625	Weekdays	grams	hours	1641.665	27.31
2015	12	Total Energy Consumption	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	7.54625	Weekdays	grams	hours	1641.665	27.31
		Total Energy Consumption Total											**327.74**
2015	1	Total Gaseous Hydrocarbons	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.115783	Weekdays	grams	hours	1641.665	0.42
2015	2	Total Gaseous Hydrocarbons	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.115783	Weekdays	grams	hours	1641.665	0.42
2015	3	Total Gaseous Hydrocarbons	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.115783	Weekdays	grams	hours	1641.665	0.42
2015	4	Total Gaseous Hydrocarbons	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.115783	Weekdays	grams	hours	1641.665	0.42
2015	5	Total Gaseous Hydrocarbons	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.115783	Weekdays	grams	hours	1641.665	0.42
2015	6	Total Gaseous Hydrocarbons	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.115783	Weekdays	grams	hours	1641.665	0.42
2015	7	Total Gaseous Hydrocarbons	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.115783	Weekdays	grams	hours	1641.665	0.42
2015	8	Total Gaseous Hydrocarbons	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.115783	Weekdays	grams	hours	1641.665	0.42
2015	9	Total Gaseous Hydrocarbons	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.115783	Weekdays	grams	hours	1641.665	0.42

Year ID	Month ID	Pollutant Name	Process Name	Source Type Name	Fuel Type Description	Road Description	Activity Type Description	Rate(g) Per Hour	Day Name	Mass Units	Output Units	Hours/ Month	Emissions (lb)
2015	10	Total Gaseous Hydrocarbons	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.115783	Weekdays	grams	hours	1641.665	0.42
2015	11	Total Gaseous Hydrocarbons	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.115783	Weekdays	grams	hours	1641.665	0.42
2015	12	Total Gaseous Hydrocarbons	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.115783	Weekdays	grams	hours	1641.665	0.42
		Total Gaseous Hydrocarbons Total											**5.03**
2015	1	Volatile Organic Compounds	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0936679	Weekdays	grams	hours	1641.665	0.34
2015	2	Volatile Organic Compounds	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0936679	Weekdays	grams	hours	1641.665	0.34
2015	3	Volatile Organic Compounds	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0936679	Weekdays	grams	hours	1641.665	0.34
2015	4	Volatile Organic Compounds	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0936679	Weekdays	grams	hours	1641.665	0.34
2015	5	Volatile Organic Compounds	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0936679	Weekdays	grams	hours	1641.665	0.34
2015	6	Volatile Organic Compounds	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0936679	Weekdays	grams	hours	1641.665	0.34
2015	7	Volatile Organic Compounds	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0936679	Weekdays	grams	hours	1641.665	0.34
2015	8	Volatile Organic Compounds	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0936679	Weekdays	grams	hours	1641.665	0.34
2015	9	Volatile Organic Compounds	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0936679	Weekdays	grams	hours	1641.665	0.34
2015	10	Volatile Organic Compounds	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0936679	Weekdays	grams	hours	1641.665	0.34
2015	11	Volatile Organic Compounds	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0936679	Weekdays	grams	hours	1641.665	0.34
2015	12	Volatile Organic Compounds	Extended Idle Exhaust	Combination Long-haul Truck	Diesel Fuel	Off-Network	Hours idled	0.0936679	Weekdays	grams	hours	1641.665	0.34
		Volatile Organic Compounds Total											**4.07**
		Grand Total											**2,139.05**

Table D-4. Emissions from Fugitive Pipeline Leaks (a)

Chemical Compounds in Fuel

Chemical Name	CAS #	Max. Weight %	Source	VOC?[2]
BIODIESEL	67762-38-3	5	MSDS DIESEL (VALERO)	
DIESEL C9-18 ALKANE	1159170-26-9	5	MSDS DIESEL (VALERO)	
DIESEL NO. 2	68476-34-6	100	MSDS DIESEL (VALERO)	
HEXANE	96-14-0	1	MSDS DIESEL (VALERO)	YES
NAPHTHALENE	91-20-3	1	MSDS DIESEL (VALERO)	YES
N-HEPTANE	142-82-5	1	MSDS DIESEL (VALERO)	YES
N-HEXANE	110-54-3	1	MSDS DIESEL (VALERO)	YES
N-NONANE	111-84-2	3	MSDS DIESEL (VALERO)	YES
OCTANE	111-65-9	2	MSDS DIESEL (VALERO)	YES
1,2,4 TRIMETHYLBENZENE	95-63-6	6	MSDS GAS (VALERO)	YES
BENZENE	71-43-2	4.9	MSDS GAS (VALERO)	YES
CUMENE (ISOPROPYLBENZENE)	98-82-8	5	MSDS GAS (VALERO)	YES
CYCLOHEXANE	110-82-7	3	MSDS GAS (VALERO)	YES
ETHANOL	64-17-5	10	MSDS GAS (VALERO)	YES
ETHYL BENZENE	100-41-4	5	MSDS GAS (VALERO)	YES
GASOLINE	86290-81-5	100	MSDS GAS (VALERO)	
HEXANE	96-14-0	25	MSDS GAS (VALERO)	YES
N-HEPTANE	142-82-5	5	MSDS GAS (VALERO)	YES
N-HEXANE	110-54-3	3	MSDS GAS (VALERO)	YES

[2] VOC from EPA List of Volatile Organic Compounds & AQT Complete List of VOC's.

Chemical Name	CAS #	Max. Weight %	Source	VOC?[2]
OCTANE	111-65-9	18.5	MSDS GAS (VALERO)	YES
PENTANE	109-66-0	5	MSDS GAS (VALERO)	YES
TOLUENE	108-88-3	30	MSDS GAS (VALERO)	YES
XYLENE	1330-20-7	25	MSDS GAS (VALERO)	
1,3 BUTADIENE	106-99-0	0.3	MSDS LPG (VALERO)	YES
1-BUTANE	25167-67-3	30	MSDS LPG (VALERO)	
BUTANE	106-97-8	70	MSDS LPG (VALERO)	YES
ETHANE	74-84-0	10	MSDS LPG (VALERO)	
ETHYLENE	74-85-1	10	MSDS LPG (VALERO)	YES
ISOBUTANE	75-28-5	70	MSDS LPG (VALERO)	YES
METHANE	74-82-8	10	MSDS LPG (VALERO)	
PROPANE	74-98-6	100	MSDS LPG (VALERO)	YES
PROPYLENE	115-07-1	5	MSDS LPG (VALERO)	YES

Table D-4. Emissions from Fugitive Pipeline Leaks (b)

Average Emission Factor Calculation[3]

Pipeline Fuel	Equipment Type/Service	Equipment Count	Hours of Operation (hr/yr)[4]	Fuel Composition Constituent	Fuel Composition Wt. Fraction[5]	Emission Factor (kg/hr)[6]	VOC Fugitive Emissions (kg/yr)	VOC Fugitive Emissions (lb/yr)	Total VOC (lb/yr) Flanges & Valves
LP Gas	Flanges / Gas	54	7,884	VOC	1.00	3.90E-04	166.04	366.05	1226.42
LP Gas	Valves / Gas	11	7,884	VOC	1.00	4.50E-03	390.26	860.37	
Diesel	Flanges / Light Oil	54	7,884	VOC	0.85	1.10E-04	39.81	87.76	494.04
Diesel	Valves / Light Oil	11	7,884	VOC	0.85	2.50E-03	184.29	406.29	
Gasoline	Flanges / Light Oil	54	7,884	VOC	1.00	1.10E-04	46.83	103.24	581.23
Gasoline	Valves / Light Oil	11	7,884	VOC	1.00	2.50E-03	216.81	477.98	

[3] Equation used from US EPA Protocol for Equipment Leak Emissions Estimates, Average Emission Factor Approach (1995).
[4] Hours of Operation assumed to be 90% of total hours in a year (8,760 hours).
[5] Wt Fraction assumed from appropriate fuel MSDS, or where not applicable from AP-42 Ch 5-2 (2006).
[6] Emission Factor taken from Table 2-4 Oil and Gas Production Operations Average Emission Factor (US EPA Protocol for Equipment Leak Emissions Estimates, pg. 2-15, 1995).

Table D-4. Emissions from Fugitive Pipeline Leaks (c)

VOC Chemical & Max Percent	Pipeline Fuel LP Gas	Pipeline Fuel Diesel	Pipeline Fuel Gasoline	Pipeline Fuel Max. VOC (lb)
Naphthalene (91-20-3) 1%	12.26	4.94	5.81	12.26
Benzene (71-43-2) 4.9%	60.09	24.21	28.48	60.09
1,2,4 Trimethylbenzene (95-63-6) 6%	73.59	29.64	34.87	73.59
Cumene (98-82-8) 5%	61.32	24.70	29.06	61.32
Ethyl Benzene (100-41-4) 5%	61.32	24.70	29.06	61.32
Toluene (108-88-3) 30%	367.93	148.21	174.37	367.93
Hexane (96-14-0) 3%	36.79	14.82	17.44	36.79
N-Heptane (142-82-5) 1%	12.26	4.94	5.81	12.26
N-Hexane (110-54-3) 3%	36.79	14.82	17.44	36.79
N-Nonane (11-84-2) 3%	36.79	14.82	17.44	36.79
Octane (111-65-9) 18.5%	226.89	91.40	107.53	226.89
Cyclohexane (111-82-7) 3%	36.79	14.82	17.44	36.79
Ethanol (64-17-5) 10%	122.64	49.40	58.12	122.64
Pentane (109-66-0) 5%	61.32	24.70	29.06	61.32
1,3 Butadiene (106-99-0) 0.3%	3.68	1.48	1.74	3.68
Butane (106-97-8) 70%	858.49	345.83	406.86	858.49
Ethylene (74-85-1) 10%	122.64	49.40	58.12	122.64
Methane (74-82-8) 10%	122.64	49.40	58.12	122.64
Isobutane (75-28-5) 70%	858.49	345.83	406.86	858.49
Propane (74-98-6) 100%	1226.42	494.04	581.23	1226.42
Propylene (115-07-1) 5%	61.32	24.70	29.06	61.32