

# Mariner East Projects – FAQ

## About

### **Q: What is Mariner East?**

A: Mariner East is a pipeline infrastructure project in Pennsylvania, Delaware, Ohio and West Virginia. Three pipelines will transport natural resources such as propane, ethane and butane from the Marcellus and Utica shale formations to the Marcus Hook Industrial Complex in southeastern Pennsylvania and other access points in between. These resources will be distributed to destinations in Pennsylvania and other domestic and international markets.

The project has two phases:

- Mariner East 1 is an underground pipeline, completed in 2014, that transports liquid propane and ethane from western Pennsylvania approximately 300 miles east to the Marcus Hook Industrial Complex in Marcus Hook, Pa., and Claymont, Del.
- Mariner East 2 is a new, approximately 350-mile underground pipeline system, currently under construction, that will deliver propane, butane and ethane east from Ohio and West Virginia into Pennsylvania. Mariner East 2 consists of two pipelines, one 20 inches in diameter and one 16 inches in diameter.

### **Q: Who is building Mariner East?**

A: Sunoco Pipeline L.P., a wholly owned subsidiary of Energy Transfer Partners L.P. with more than eight decades' experience building and operating pipelines, operates the Mariner East 1 pipeline and is building the Mariner East 2 system. The combined Energy Transfer family owns and operates approximately 71,000 miles of pipeline.

### **Q: What is the status of Mariner East 2?**

A: Sunoco Pipeline has begun construction of Mariner East 2 across Pennsylvania, West Virginia and Ohio. The 20-inch pipeline is scheduled to be in service in the fourth quarter of 2017. The 16-inch pipeline is scheduled to be finished in 2018.

## Products

### **Q: What are natural gas liquids?**

A: Mariner East pipelines transport natural gas liquids (NGLs), also known as liquefied petroleum gases (LPGs). NGLs include propane, ethane, butane and natural gasoline. In certain shale areas, such as western Pennsylvania, West Virginia and eastern Ohio, natural gas liquids are found in abundance with traditional natural gas, or methane. They are described as liquids because they are moved through pipes in liquid form. In the atmosphere, these substances usually take the form of a gas.

### **Q: What are natural gas liquids used for?**

A: Propane is a common fuel for heating, cooking, crop drying and motor vehicles. Propane can be used as a basic material in the manufacture of chemicals such as propylene, which is used to make plastics, textiles and many other goods. Ethane has uses as a fuel for generating electricity and is widely used as an essential building block of plastics, textiles, detergents and coatings. Butane and natural gasoline can be blended as an ingredient in gasoline, and butane can also be used as a fuel, refrigerant and feedstock for petrochemical manufacturing.

### **Q: Is an odorant added to the natural gas liquids before they are shipped on the Mariner East system?**

A: The addition of odorant is not possible given the potential end uses of the products, such as textiles and plastics. This is one reason that the addition of odorants in transmission pipelines is not required by regulation.

## Benefits

### **Q: How does Mariner East benefit Pennsylvania, Ohio, West Virginia and Delaware?**

The Mariner East system is helping to sustain and develop the natural gas and related industries in Pennsylvania, Ohio, West Virginia and Delaware. Energy Transfer has approximately 900 employees in Pennsylvania, Ohio, West Virginia and Delaware.

Our total investment in Pennsylvania for the combined Mariner East projects is expected to be more than \$3 billion. The Mariner East projects will support the equivalent of more than 15,000 jobs annually over a two-year construction period, with total labor income of \$1.9 billion, according to an economic impact study performed for Sunoco Pipeline by Econsult Solutions, a widely respected economics consultant. Those temporary jobs include 6,900 construction jobs annually for two years, and more than 1,500 jobs in architecture, engineering, wholesale trade, and professional, scientific and technical services hired directly by Sunoco Pipeline or its contractors.

The annual operations of the Mariner East system will support 290 to 440 permanent jobs, producing earnings of \$22 million to \$33 million annually, according to Econsult Solutions. The annual impact from operation of the pipelines and facilities is estimated to be \$100 million to \$150 million on the Pennsylvania economy.

The critical infrastructure built as part of Mariner East:

- Increases the reliable supply of propane to Pennsylvania and surrounding areas, including planned offtake points in Lebanon and Berks counties, exerting downward pressure on prices
- Will provide ethane to fuel an electricity generating plant in Cambria County, Pa.
- Increases the supply of butane to the region for use in gasoline
- Provides feedstock for potential manufacturing businesses in the state
- Keeps the resources of the Marcellus Shale in Pennsylvania for marketing, distribution and use for manufacturing businesses, rather than sending business, jobs and revenue to the Gulf Coast

All of this helps increase our energy independence and has helped make the U.S. the No. 1 producer of natural gas in the world, leaving us less dependent on foreign energy sources while reducing our carbon emissions.

### **Q: How does this fit into Sunoco Pipeline's long-term strategy for Marcus Hook?**

A: We believe that the Marcus Hook Industrial Complex (MHIC) – the former refinery built in 1902 – can become the preeminent hub for natural gas liquids on the East Coast. Once the materials begin to arrive via the pipelines, there are a number of development opportunities at MHIC for industrial processing facilities, such as a propane cracker to create propylene. This new market can anchor the resurgence of manufacturing in the region and create hundreds of additional high-quality jobs.

### **Q: Is this direct to Marcus Hook, or will there be interim access points for regional propane suppliers?**

A: For Mariner East 2, initially we expect to have offtake points across the state: in Berks County and Lebanon County for local propane retailers, and in Cambria County for an electricity generating station powered in part by ethane.

## Our Pipelines

### **Q: How does your pipeline system work?**

A: Natural gas liquids are separated from methane by natural gas producers at processing plants in the shale areas of Pennsylvania, Ohio and West Virginia. The natural gas liquids enter the Mariner East pipelines from these processing facilities under pressure to keep them in liquid form. The product is moved along the pipeline with the help of pump stations placed at intervals along the line. The pump stations include instruments that measure temperature, pressure and flow and act as a layer of safety. The pipeline is further controlled with the help of valve sites, also placed at intervals along the line, many of which can be closed remotely from our control center near Reading, Pa. The products will arrive at a terminal, where they can be stored in tanks and moved to local, regional and international markets.

**Q: Who regulates the Mariner East pipelines?**

A: As a system that provides interstate service between states and intrastate service within Pennsylvania, the service provided by the Mariner East pipelines is regulated by the Federal Energy Regulatory Commission and the Pennsylvania Public Utility Commission. The Public Utility Commission (PUC) and the U.S. Department of Transportation’s Pipeline and Hazardous Materials Safety Administration oversee the safe and secure movement of petroleum products, including natural gas liquids such as propane, ethane and butane, with periodic inspections. With respect to purely intrastate portions of product movement within Pennsylvania, the PUC regulates transportation service provided by pipeline operators and collects public utility tax on pipeline revenue.

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## Safety

**Q: How safe are natural gas liquids pipelines?**

A: Pipelines safely transport large volumes of petroleum products over long distances every day. “Pipeline systems are the safest means to move these products,” according to the Pipeline and Hazardous Materials Safety Administration (PHMSA), the division of the U.S. Department of Transportation responsible for enforcing pipeline safety. An ordinary pipeline can safely transport the equivalent of 750 tanker trucks per day, or a train of 75 tank railcars a day, as noted by PHMSA.

In 2015 there were more than 2.4 million miles of petroleum pipelines in the U.S., and natural gas liquid pipelines account for more than 62,000 miles of those pipelines, according to the American Petroleum Institute and the Association of Oil Pipe Lines. America’s pipelines shipped more than 750 billion gallons of crude oil and liquid petroleum products – including propane, ethane, butane, gasoline, diesel, jet fuel and other products – in 2015.

Our Mariner East pipelines are regulated for safety by PHMSA at the federal level and in Pennsylvania by the Pennsylvania Public Utility Commission.

**Q: How much experience does Sunoco Pipeline have with natural gas liquids?**

A: We have been shipping natural gas liquids, particularly propane and butane, since 1958.

**Q: Do any of these pipelines pass through residential areas?**

A: It is not uncommon for pipelines to pass through residential areas. In fact, for more than 50 years we have safely operated our Inkster-Samia line, which formerly carried propane and butane and now transports ethane, through urban, suburban and rural areas of Ohio and Michigan. We have safely transported natural gas liquids via pipeline between refineries in the Philadelphia region for decades.

**Q: How does Sunoco Pipeline ensure the safety of its pipelines and facilities?**

A: As a pipeline operator, safety is our highest priority. Our pipelines are built and operated with many layers of safety features working together to protect people, property and the environment.

Sunoco Pipeline works closely with the companies that design, build and coat the pipelines we use in our operations. All new pipe is thoroughly tested and inspected to ensure that it meets or exceeds industry standards and meets or exceeds all state and federal safety requirements. Routine inspections during construction are conducted by the U.S. Pipeline and Hazardous Materials Safety Administration (PHMSA) and the Pennsylvania Public Utility Commission, both of which regulate the pipeline for safety.

All newly installed steel pipelines are treated with a protective bonded-epoxy coating to prevent damage and corrosion. In addition, cathodic protection systems, which further inhibit corrosion, are placed along the pipeline.

As the sections of Mariner East pipeline are welded, an independent, third-party inspector checks every weld visually and using X-ray technology.

Before placing any natural gas liquids line in service, Sunoco Pipeline tests new and existing pipe with water at pressures at least 25 percent above the highest pressure at which the line will be operating. This confirms the pipeline’s strength. This process is known as hydrostatic testing, or hydrotesting.

Sunoco Pipeline conducts periodic inspections of our pipelines to determine that they are operating safely and efficiently. Inspection tools, commonly referred to as “smart pigs,” travel internally throughout the line, measuring wall thickness and other features to detect suspected defects and/or corrosion.

We will make any necessary repairs to ensure that the line is operating safely. For more details on the measures we take to maintain the safety of our systems, go to [marinerpipelinefacts.com](http://marinerpipelinefacts.com).

### **Q: Does Sunoco Pipeline take additional safety measures in residential areas?**

A: Yes. The U.S. Department of Transportation’s Pipeline and Hazardous Materials Safety Administration (PHMSA), along with the Pennsylvania Public Utility Commission (PUC), oversees the safe operation of pipelines. (Pipeline safety standards are found in the Code of Federal Regulations, specifically 49 CFR 195.) These regulations require enhanced protection for defined “High Consequence Areas” (HCA) areas, which include urbanized areas delineated by the U.S. Census Bureau, Unusually Sensitive Areas (USAs), and commercially navigable waterways.

One of the measures used to protect HCAs is to upgrade existing main line valves or add new valves to act as “emergency flow restriction devices” (EFRDs). Such valves can be controlled remotely by the pipeline control center at all times. Some EFRD valves can automatically close in response to changes in pressure that could signal a problem with the pipeline system and trigger a systemwide shutdown. EFRD valves are placed strategically along the pipeline as determined via risk analysis evaluations to minimize potential impact to HCAs in the event of a pipeline emergency.

Pipelines regulated under 49 CFR 195 are assessed for integrity at least once every five years. These assessments are carried out via the use of in-line inspection tools or a via a hydrostatic pressure test. The technologically sophisticated in-line inspection tools have the ability to detect conditions on the pipeline that require repair. Necessary repairs are identified along the length of the pipelines, with priority given to those repairs located within HCAs in accordance with federal regulations. Hydrostatic pressure testing involves filling the pipeline with water and pressurizing that water above the pipeline’s maximum operating pressure. Pressure testing has the ability to identify critical flaws that require repair prior to refilling the pipeline. It also provides a safety buffer between the test pressure and operating pressure of the system during transportation of hazardous liquids.

Sunoco Pipeline assessed the entirety of the Mariner East 1 pipeline and not just those areas identified to be HCAs via both of the methods identified above. Mariner East 2 will be constructed using new pipe that will be hydrostatically tested prior to being placed into operation.

Sunoco Pipeline exceeds requirements for inspecting our pipeline rights of way by conducting frequent ground and aerial patrols. The patrols monitor for any activity on the pipeline rights of way and for other conditions that could impact pipeline and public safety. Aerial patrols are targeted to be performed at least weekly, weather permitting.

Please see additional information on hazardous liquid HCAs at <http://primis.phmsa.dot.gov/iim/fact.htm>.

### **Q: How does Sunoco Pipeline’s safety program measure up to industry standards?**

A: Sunoco Pipeline meets or exceeds all federal safety requirements, and a safety inspection of new Mariner East 1 construction by the Pennsylvania Public Utility Commission resulted in no adverse findings.

In 2015 and 2017, a Chester County township commissioned an independent study of our safety practices and integrity management, which found that Sunoco Pipeline meets or exceeds federal safety requirements at every level. Here is one passage from the 2015 report by Accufacts, Inc.:

*“It is Accufacts’ opinion for the section of 8-inch pipeline that crosses the Township, that Sunoco far exceeds a number of requirements of the federal pipeline safety regulations, that it embraces the intent of integrity management, or IM, regulations that are meant to prevent pipe mainline rupture failure, and that their IM approach is currently prudent.”*

Accufacts performed a similar analysis for the township on Mariner East 2, with similar conclusions published in early 2017: *“Accufacts finds that Sunoco has incorporated additional processes in excess of minimum federal pipeline safety regulations that should assure the safety of this proposal across the Township.”*

**Q: How does Sunoco Pipeline monitor its pipelines?**

A: All our pipelines are monitored for pressure, flow and temperature 24/7 and can be shut down remotely in minutes. Our systems are built to shut down automatically in response to abnormal changes in pressure.

The Mariner East pipelines will be monitored from our control center in Sinking Spring, Pa., near Reading. We have a backup control center for use in an emergency.

Our pump stations have monitors on-site that would shut down and block off the station automatically if any vapors are detected. Valve sites placed at intervals along the pipeline can shut down and isolate a section remotely or manually on-site.

We inspect the pipeline route, or right of way, on the ground and by air for any potential hazards, with frequency in excess of federal safety requirements.

**Q: What other measures do you take to protect the communities you operate in?**

A: We reach out to neighbors, contractors and first responders to educate them about the pipelines in their communities. Through our community engagement program, we work with landowners and other members of the community to educate them about our operations and encourage them to contact Sunoco Pipeline with any potential issues. Through our Mariner Emergency Response Outreach program, we meet with emergency responders in all the counties we pass through to train them on the products we transport and assist them in refining their own emergency response plans.

Sunoco Pipeline participates in the One Call program in all areas where we have operations. One Call works with project owners, designers, excavators and facilities owners to make sure utilities and pipelines are clearly marked prior to any surface work being done. Anyone preparing to dig on their property, or contractors performing excavation, should call 811.

Pipeline markers and signage are placed along all of our routes at key intersections to notify the community of the pipeline location. All signage will identify Sunoco Pipeline or an affiliate company as the operator and will have our emergency toll-free number: (800) 786-7440.

**Q: How do you respond to problems or emergencies?**

A: We have in place the emergency response plans required by federal and state regulatory agencies, and we have teams trained to respond immediately. In case of emergency, local emergency dispatch centers would be notified, and we would work in coordination with local first responders to determine protective measures such as neighborhood notification and evacuation. Evacuation can be ordered only by government agencies, and we work with counties to provide the information and training they need to develop appropriate emergency preparedness plans.

Our emergency response professionals work and train with local first responders and county emergency services officials to ensure a coordinated response. Firefighters, police, EMS and emergency management personnel have been offered classroom training, orientations and site visits to our pump stations. More than 1,300 first responders have participated in this training in Pennsylvania alone. In conjunction with other local pipeline operators, pipeline awareness and emergency response training is offered annually on a regional basis across the commonwealth. Additional training is provided when specifically requested by a local response organization.

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## Environmental Protection

**Q: What measures does Sunoco Pipeline take to protect the environment?**

A: Protection of people, property and the environment is a core value for all Sunoco Pipeline employees. We choose our pipeline routes to avoid sensitive habitats whenever possible. We often use existing rights of way to limit disturbance during construction. And we work with all regulatory agencies to fully comply with laws and regulations and to protect sensitive areas.

Our construction contractors are experienced pipeline builders who are trained and supervised to minimize environmental impacts during construction.

We will make every effort to thoroughly clean our construction sites and restore the land to its original condition.

The 300-plus-mile pipeline route uses over 80 percent existing rights of way or other utility corridors, minimizing environmental impact. When possible, we diverted the existing corridor to avoid wetlands and waterways, sensitive species

and habitats and cultural resources. Our construction processes, such as horizontal directional drilling, will allow us to avoid sensitive areas and minimize impact and replace or restore habitat where affected.

We will have environmental inspectors at construction sites who are responsible for holding our construction methods and erosion-control devices to the specific requirements of our water-crossing and earth-disturbance permits on each of the six construction spreads. The comprehensive, 2.5-year-long environmental permitting process has included local, state and federal agencies, along with full public participation.

### **Q: How do you protect wetlands and other water resources?**

A: The total wetland area of 118 acres was reduced to 36 acres of impact by using approximately 800 drills/bores to bury the pipeline well below the surface, narrowing the construction right of way in certain sensitive areas and rerouting around others.

The horizontal directional drilling (HDD) or boring technique allows us to install the pipe deep below (20-180 feet) the surface and avoid disturbing wetlands and wildlife habitat.

Less than half an acre of wetlands, the approximate size of an NHL hockey rink, will be permanently converted from its original state. This total is divided among 19 wetlands over 12 counties.

Affected wetland will be replaced and upgraded at a ratio of more than 5:1.

We have demonstrated total commitment to protection of public and private water supplies around the project with detailed plans.

### **Q: How do you protect wildlife during construction?**

A: Sunoco Pipeline conducted exhaustive research into the presence of threatened or endangered species.

Fully approved conservation plans are in place from all appropriate federal and state agencies.

All threatened and endangered species coordination has been completed with a no-impact determination.

Bog turtle habitat will be protected through the use of horizontal directional drilling that involves groundwater and vibration monitoring, as well as an independent herpetologist who will monitor daily construction.

A timber rattlesnake expert, also on staff, will clear construction areas each morning and relocate snakes as necessary. We will build additional rattlesnake habitat, as well as woodrat habitat.

Restoration includes native plants conducive to pollinator insects, such as bumblebees.

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## Regulation

### **Q: What role does the Pennsylvania Public Utility Commission play?**

A: The Pennsylvania Public Utility Commission, also referred to as the PUC, was created by the Legislature in 1937 to regulate the state's utility infrastructure and development.

The agency, according to its website, “balances the needs of consumers and utilities; ensures safe and reliable utility service at reasonable rates; protects the public interest; educates consumers to make independent and informed utility choices; furthers economic development; and fosters new technologies and competitive markets in an environmentally sound manner.”

The PUC regulates the service of pipeline operators moving products intrastate within Pennsylvania and collects public utility tax on pipeline revenue. It determines which private companies provide a service for the convenience and welfare of the public and qualify as public utilities.

### **Q: What is a public utility corporation?**

A: A public utility corporation is a for-profit entity that “is subject to regulation as a public utility by the Pennsylvania Public Utility Commission,” according to Pennsylvania law. In other words, it is a company that offers service that is regulated by the Pennsylvania Public Utility Commission.

**Q: Is Sunoco Pipeline a public utility corporation?**

A: Sunoco Pipeline is (and has been since 2002) a public utility corporation regulated by the PUC. This fact has been confirmed repeatedly by trial courts and appellate courts.

**Q: Does Sunoco Pipeline have the power of eminent domain, and what is the company's position on using it?**

A: Eminent domain was established in Pennsylvania to ensure that infrastructure that is deemed critical to the public and the commonwealth gets built. Sunoco Pipeline's authority to use eminent domain is derived from its status as a public utility corporation. Sunoco Pipeline holds a certificate of public convenience for the transportation of petroleum products within certain counties in Pennsylvania.

We respect landowner rights and take those rights very seriously. We appreciate the enormity of eminent domain authority. We exercise this authority, if at all, in very limited cases, cautiously, and only as a last resort when negotiations with a landowner fail and can impede the successful completion of the project.

**Q: What is the difference between interstate and intrastate service?**

A: Interstate pipeline service carries products through more than one state and is regulated by the Federal Energy Regulatory Commission (FERC).

Intrastate pipeline service ships products completely within the borders of one state and is regulated by state bodies such as the Pennsylvania Public Utility Commission.

The Mariner East pipelines, because they provide interstate and intrastate service, are regulated by both the federal and state agencies.

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## CONSTRUCTION

**Q: Where will you be buying steel and from whom?**

A: The 5,400 tons of steel pipe for Mariner East 1 (53 miles) were produced at U.S. Steel in McKeesport, Pa., and coated at the Dura-Bond facility in Duquesne, Pa.

Mariner East 2 will use more than 85,000 tons of domestic steel pipes milled, rolled and coated in the U.S. for all 350 miles of the 20-inch pipeline and 50 miles of the 16-inch pipeline. The remaining 200 miles of the 16-inch pipeline will be built with European steel purchased from another U.S. pipeline operator, from a project that was canceled.

In total, Mariner East 1 and 2 will consist of more than 90,000 tons of steel milled, rolled and coated in the U.S.

**Q: What construction methods will you use for the Mariner East projects?**

A: There are two main construction methods used in the construction of the pipeline.

Most areas will see traditional, open-cut construction in which a right of way is cleared and graded and crews dig a trench. The pipe is laid out in sections alongside the trench, welded on-site, then lowered into the trench, filled back in with dirt and restored to its previous condition, wherever possible.

Another technique is drilling, which can be either a horizontal boring or a horizontal directional drill, generally used to cross roads or environmentally sensitive areas, such as wetlands. This type of drilling is less invasive to the environment and to property than the typical open-trench method. In essence, this process involves establishing an entry/exit point, then precisely drilling a new bore.

New pipe is then pulled through the hole that was bored underground, up to 200 feet deep, depending on the area. In some cases, additional details need to be worked out with landowners, because a staging or laydown area is necessary in locations where we will insert and exit with the HDD. Any workspace disturbance will be restored.

**Q: When will Mariner East 2 construction begin?**

A: Mariner East 2 construction began in Ohio, West Virginia and Washington County, Pa., in September 2016. Construction from Washington County to Delaware County, Pa., began in February 2017 and is ongoing.

**Q: When will you complete construction of Mariner East?**

A: We estimate construction of the 20-inch Mariner East 2 pipeline to be completed by the end of September 2017, with the 16-inch pipeline to be completed in 2018.

**Q: How will this impact citizens along the line?**

A: Residents will see construction for a period of several months, more in some areas. Those with land impacted will have their property restored to its previous condition, wherever possible.

**Q: Can property owners still use the right of way once the pipeline is installed?**

A: In most cases, property owners can use their land in the right of way just as they did before construction. Farmers can resume activities such as growing crops and pasturing. There may be some restrictions on use that would be detrimental to the pipeline, such as the building of permanent structures. The impact of such restrictions will be addressed as part of the right-of-way agreement.

**Q: How do you choose a route for the pipeline? Will the Mariner East 2 pipeline use existing rights of way?**

A: Mariner East 2 uses existing rights of way where possible, as recommended by the Pennsylvania Pipeline Infrastructure Task Force. We have studied all reasonable route options, including the use of adjacent rights of way, such as electric power lines, highways, railroads and other pipelines. This reduces the amount of clearing required for a project, minimizing environmental disturbance and disruption to property owners. In Pennsylvania we have made reasonable efforts to place the route adjacent to our existing pipelines.

**Q: What is the width of a right of way?**

A: A pipeline typically requires a permanent right of way that is 50 feet wide. During construction of the pipeline, we will need 25 feet of additional, temporary workspace next to the permanent right of way. We may need additional temporary workspace in certain areas such as road, railroad and stream crossings.

**Q: What is the role of a land agent?**

A: A land agent is a professional contracted by a pipeline company to work with property owners along a proposed pipeline route. The land agent's job is to:

- Make certain that the landowner receives important information about the project.
- Negotiate a “grant of easement” between the property owner and Sunoco Pipeline, or an option agreement for such an easement. The easement grants certain legal rights of access to Sunoco Pipeline to install and maintain the pipeline and related facilities. It does not grant the pipeline company ownership of the land.
- Act as a liaison between the property owner and Sunoco Pipeline’s Mariner East 2 project team throughout construction.
- Be available for meetings with the property owner to discuss questions and concerns.

**Q: Who are Sunoco Pipeline’s land agents?**

A: We have contracted Tablerock Land Services for Ohio, West Virginia and parts of western Pennsylvania, and Percheron LLC for the remainder of Pennsylvania. They are being directed and supervised by Sunoco Pipeline employees.

**Q: Who is the primary contact for affected property owners?**

A: Each property owner will be assigned a specific land agent to serve as primary contact. In the event the land agent cannot address all your questions or concerns, please call the Sunoco Pipeline information line at (855) 430-4491 and your Mariner East 2 issue will be directed to the right person.