Inadvertent Release Contingency Plan

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Prepared For:

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Adelphia Gateway Project

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1.0 INTRODUCTION AND PURPOSE

Adelphia Gateway, LLC (Adelphia), an indirect wholly owned subsidiary of New Jersey Resources, proposes to construct and operate facilities of the Adelphia Gateway Project (Project). Adelphia designed the Project to increase available natural gas pipeline capacity to the Greater Philadelphia industrial region with the potential to serve additional markets in the Northeast while continuing to provide uninterrupted service to two existing power plants at the northern end of the system, the Lower Mount Bethel Power Plant and the Martins Creek Power Plant. The Project would achieve this objective by acquiring and enhancing Interstate Energy Company, LLC (IEC) and its existing natural gas and oil pipeline system located in eastern Pennsylvania.

The Project would use existing infrastructure to the greatest extent practicable and would also require the construction and operation of some new facilities, including the Tilghman Lateral. The Tilghman Lateral is an approximately 4.2 mile, 16-inch outer diameter pipeline lateral in Delaware County, Pennsylvania. The Lateral begins at IEC's existing Marcus Hook Pump Station in Lower Chichester Township and terminates at an existing interconnect between the Philadelphia Electric Company and Texas Eastern Transmission Company, LP systems in Chester Township.

Adelphia proposes to install the majority of the Tilghman Lateral belowground using horizontal directional drill (HDD) technology to minimize potential impacts to the human and natural environments. Adelphia would not use HDD installation methods for any other Project component. Adelphia hired a contractor to explore the subsurface conditions along the Tilghman Lateral using soil borings and geotechnical laboratory testing, evaluate the subsurface conditions encountered, and develop geotechnical recommendations for installation of the HDD sections proposed for the Tilghman Lateral. Adelphia incorporated the study's findings into its Project design. The Geotechnical Engineering Report is included in Attachment A of this document.

Directional bore operations have a potential to release drilling fluids into the surface environment through inadvertent returns (IR), which is the condition where the surrounding subsurface geology and escapes to the surface). Because drilling muds consist largely of a bentonite clay-water mixture, they are not classified as toxic or hazardous substances. However, if released into waterbodies, bentonite has the potential to adversely affect aquatic life.

While drilling fluid seepage associated with an IR is most likely to occur near the bore entry and exit points where the drill head is shallow, an IR can occur in any location along a directional bore. This Inadvertent Release Contingency Plan (IRC Plan) establishes operational procedures and responsibilities for the prevention, containment, and cleanup of an IR associated with the proposed Project. This IRC Plan satisfies the requirements set forth in 25 Pa. Code Section 78a68a and Section 102.5(l), and is in accordance with the Pennsylvania Department of Environmental Protection's (DEP) Guidelines for the Development of Emergency Response Plans. All personnel and contractors responsible for the work must adhere to the IRC Plan during the directional drilling process.

The specific objectives of the IRC Plan are to:

- Define the HDD process and how to identify when the HDD has failed and should be abandoned;
- Identify procedures that will be followed when an HDD drill hole has to be abandoned;

- Minimize the potential for a IR associated with directional drilling activities;
- Protect aquatic resources;
- Ensure an organized, timely, and "minimum-impact" response in the event of a IR and release of drilling bentonite; and
- Ensure that all appropriate notifications are made immediately.

Adelphia will ensure that all contractors comply with the methods outlined herein during construction of the Project. Adelphia will ensure that all Project contractors are trained on the requirements of this Plan during mandatory pre-construction environmental training (see Section 5).

In addition to adhering to measures in this IRC Plan, Adelphia will implement measures in the following plans to prevent and minimize potential Project-related impacts to aquatic resources:

- Adelphia's *Unanticipated Discovery of Contamination Plan*;
- Adelphia's *Preparedness, Prevention, and Contingency Plan*; and
- Adelphia's site-specific *Emergency Management Plans*.

Adelphia will also implement applicable measures in the Federal Energy Regulatory Commission's (FERC) *Upland Erosion Control, Revegetation, and Maintenance Plan* and the FERC's *Wetland and Waterbody Construction and Mitigation Procedures* to minimize impacts to aquatic resources.

2.0 ENVIRONMENTAL COORDINATOR RESPONSIBILITIES

An Adelphia Environmental Coordinator (EC) will have the overall responsibility for enforcing the implementation of this IRC Plan. Table 2-1 provides the contact information for Adelphia's ECs. An EC will be notified immediately when an IR is detected. The EC will be responsible for ensuring that Adelphia's Project Manager and Safety Representatives are aware of the IR; coordinating personnel for response and cleanup; regulatory agency notification; and timely reporting of the incident. The EC will ensure that all waste materials are properly containerized, labeled, and removed from the site to an approved disposal facility by personnel experienced in the removal, transport and disposal of drilling mud.

Table 2-1: Emergency Coordinator Contact Information

Role	Name	Phone Number
Primary Emergency Coordinator	Mr. Pat Scott	(812) 620 – 8256
Alternate Emergency Coordinator	Mr. Curtis Rounds	(484) 226 – 4339
Alternate Emergency Coordinator	Mr. Ken Scott	(607) 377 – 2610

The EC will be familiar with all aspects of the drilling activity, the contents of the IRC Plan, and the conditions of approval under which the activity is permitted to take place. The EC will have the authority to stop work and commit the resources (personnel and equipment) necessary to implement the IRC Plan. Adelphia's Environmental, Health, and Safety (EHS) Manager will ensure that a copy of this IRC Plan is available onsite and accessible to all construction personnel. The EHS Manager will ensure that all workers are properly trained and familiar with the necessary procedures for response to an IR prior to commencement of drilling operations.

3.0 FLUID CONTAINMENT

The EHS Manager or EC will ensure that the HDD alignment is being monitored for signs of inadvertent drilling fluid returns and that adequate spill containment and collection equipment and supplies are onsite at all times to contain and collect any release of drilling fluids to the ground surface, wetlands, or waterbodies. All areas contaminated by drilling fluid migration and release will be cleaned up and restored to the original condition, according to applicable regulatory agency requirements. Equipment stored onsite for immediate response may include, but is not limited to:

- Spill kits and spill containment materials;
- Silt fencing, sand bags, or straw bales for containment structures (certified weed-free);
- Stakes to secure bales;
- Straw logs (wattles or fiber rolls);
- Hand tools, such as sledge hammers, push brooms, shovels, rakes, etc.;
- Several 5-gallon buckets and plastic sheeting;
- Several 55-gallon drums; and
- Portable spill containment booms, absorbent pads, turbidity curtains, or other portable spill containment kits.

The EHS Manager will ensure that all equipment and vehicles are checked and maintained to prevent leaks of hazardous materials, spill kits and spill containment materials are available onsite at all times, and that the equipment is in good working order. Materials staging areas will not be located in the 100-year floodway of any watercourse or greater than 50 feet from any body of water, in accordance with Pa. Code 78.68a.

4.0 DRILLING FLUID AND ADDITIVES

Drilling fluids serve several functions to support an HDD installation. The primary functions include:

- Cooling and lubrication of drilling tools, drill pipe, and the carrier pipe;
- Rotation of the drill bit (in bedrock installations);
- Suspension of cuttings within the drilling fluid/slurry mixture;
- Removal of soil/bedrock cuttings from the bore during each phase of the installation process;
- Provision of a hydrostatic fluid pressure in the bore that offsets natural ground water formation pressures; and
- Stabilization of the bore and prevention of raveling of surrounding soil/bedrock materials.

Adelphia's contractors will use HDD drilling fluid additives certified for conformance with National Sanitation Foundation (NSF)/American National Standards Institute (ANSI) Standard 60 and deemed acceptable by the DEP. Should an additive that is not currently approved by the DEP be required for use during HDD operations, Adelphia will submit the Safety Datasheets for DEP review and approval. Adelphia will not use additives in drilling activities until approval is received.

5.0 ENVIRONMENTAL INSPECTION AND TRAINING

Prior to the start of construction, Adelphia will ensure that the crew members receive training in the following:

- The provisions of this IRC Plan, equipment maintenance, and site-specific permit and monitoring requirements;
- Inspection procedures for release prevention and containment equipment and materials;
- Contractor/crew obligation to immediately stop the drilling operation upon first evidence of the occurrence of a IR and to immediately report any IR releases;
- Contractor/crew member responsibilities in the event of a release;
- Instructions on how to complete an Environmental Incident Report (see Attachment B);
- Operation of release prevention and control equipment and the location of release control materials, as necessary and appropriate; and
- Protocols for communication with agency representatives who might be on-site during the cleanup effort.

An environmental inspector (EI) experienced in HDD installations and associated environmental protection measures will work with contractors to verify that the proper equipment and materials are available onsite at all times, and that the necessary procedures are followed on a daily basis. Onsite safety and environmental protection meetings will provide ongoing communications and awareness regarding prevention, mitigation, and response measures associated with potential inadvertent drilling fluid release events. Visual observation along the land and water portions of the HDD alignment will be completed on a regular basis throughout the drilling program. The frequency of these observations will be greatest during the pilot bore and initial reaming passes where the probability of an inadvertent release (IR) of drilling fluid event occurring is the highest. Compliance with these requirements will be documented in the field in biweekly construction inspection reports, which will be submitted to the FERC.

6.0 DRILLING PROCEDURES

The following procedures will be followed each day:

- Adelphia's EHS Manager will ensure that a job briefing meeting is held at the start of each day of drilling to review the appropriate procedures to be followed in case of an IR;
- The EHS Manager will ensure that the IRC Plan is available onsite during all construction; and
- An EC or designated appointee will be onsite at any time that drilling is occurring or is planned to occur.

During the HDD installation process, the HDD Contractor will make every effort to maintain drilling fluid circulation and reduce the potential for inadvertent drilling fluid returns. The efforts may include, but will not be limited to:

- daily inspection and repair of equipment components (e.g. drilling equipment, hydraulic hoses, and pumps);
- using special downhole monitoring equipment to monitor fluid pressure;

- using best management practices to remove cuttings from the hole and maintaining an open flow path from the downhole tooling to the drill rig;
- maintaining adequate drilling fluid flow rates and penetration rates;
- using drilling fluid relief wells, if necessary;
- maintaining drilled annulus during the pilot bore; and
- pulling back cutters and reamers into previously drilled sections after each new joint of pipe is added.

Silt fences and straw controls will be placed around entry and exit pits. Containment materials (straw, silt, fencing, sand bags, IR spill kits, etc.) will be staged onsite at a location where they are readily available and easily mobilized for immediate use if needed. If necessary, barriers (straw bales or sedimentation fences) between the bore site and the edge of the water source will be constructed prior to drilling to stop released bentonite material from reaching the water. A vacuum truck will be staged at a location from which it can be mobilized and relocated so that any place along the drill path, can be reached by the apparatus within ten minutes of an IR.

Once the drill rig is in place and drilling begins, the drill operator will stop work whenever the pressure in the drill rig drops, or there is a lack of returns in the entrance pit. At this time, the EC will be informed of the potential IR. The EC or his/her appointee and the drill rig operator(s) will work to coordinate the likely location of the IR. The location of the IR will be recorded and notes made on the location and measures taken to address the concern. The following subsections will be followed when addressing an IR situation.

6.1 RESPONSE TO INADVERTENT RETURNS

The response of the field crew to an IR will be immediate and in accordance with procedures identified in this Plan.

Upland Areas

If the inadvertent returns are observed in an upland area, the following steps will be taken:

a) The HDD Contractor will stop drilling immediately;
b) The HDD Contractor will pull back the bore stem to relieve pressure on the IR;
c) The HDD Contractor will notify the EI(s) and EC;
d) The EC or his/her appointee will notify all concerned parties and regulatory agencies;
e) The HDD Contractor will document the size and impacts of the inadvertent return with photographs;
f) The EC will evaluate the situation and recommend the type and level of response warranted.
    - If the IR is minor, easily contained, and is not threatening sensitive resources pumping pressure will be reduced and evaluated; a leak-stopping compound will be used to block the IR from continuing. If the use of leak-stopping compound is not fully successful, the bore stem will be redirected to a new location along the desired drill path where an IR has not occurred. Any drilling fluid and spoil containing bentonite on the ground's surface will be removed by hand, contained and properly disposed of in accordance with all applicable regulations. A temporary dike or berm may be constructed around the IR to entrap released drilling fluid, if necessary. Once the fluid/spoil has been removed from the area, the surface would be raked to

reestablish vegetation, and the area will be returned to pre-Project contours, as necessary;
    - If the IR occurs and becomes widespread, the EC or his/her appointee will contact Adelphia's emergency response contractor, Lewis Environmental. The response contractor could use a readily accessible vacuum truck and bulldozer stored offsite to contain and clean up the release. The vacuum truck may be positioned at either end of the line of the drill so that the IR can be reached by crews on foot, or may be pulled by a bulldozer, so that contaminated soils can be vacuumed up;

g) The HDD Contractor will follow the direction of the onsite EI for clean-up and mitigation requirements;
h) The HDD Contractor will document the conditions of the cleaned up area with photographs;
i) Once the inadvertent drilling fluid returns are contained and collected, the HDD Contractor may resume drilling operations using modified drilling techniques. These will be used to reduce further inadvertent drilling fluid returns while maintaining full-time monitoring of the inadvertent drilling fluid returns area to ensure that containment and collection measures are sufficient to handle any additional inadvertent returns that may result from resuming operations.

Wetlands, Waterbodies, and Culturally Sensitive Areas

If the inadvertent returns are observed in an environmentally or culturally sensitive area, the HDD Contractor will, in addition to the measures listed above, contain the inadvertent returns with measures such as straw bales or sand bags, if practical and possible without additional disturbance. All IRs in wetlands, waterbodies, or culturally sensitive areas, regardless of size, are to be reported to the appropriate agencies in accordance with the notification section below.

In addition, the HDD Contractor will contain any IRs that occur within a waterbody using the following methods:

- Monitoring the IR area for up to four hours to determine if the drilling mud congeals. Bentonite will usually harden, effectively sealing the IR location;
- Consulting with applicable regulatory agencies regarding the next appropriate action among the following:
    - If drilling mud congeals, take no other action that would potentially suspend sediments in the water column;
    - If drilling mud does not congeal, erect an isolation/containment environment (underwater boom and curtain); and/or
    - If the release becomes excessively large, call Adelphia's response contractor (Lewis Environmental) to the site to contain and clean up excess drilling mud in the water.

Containment, cleanup, and restoration activities that would require the installation of construction matting, placement of materials in the wetland or waterway, or the entry of construction vehicles and equipment are not allowed without prior DEP approval.

6.2 REPONSE CLOSEOUT PROCEDURES

When the release has been contained and cleaned up, the EC will direct response closeout activities and will include the following:

- The recovered drilling fluid will either be recycled or hauled to an approved facility for disposal. No recovered drilling fluids will be discharged into streams, storm drains, or any other water source;
- All IR excavation and clean-up sites will be returned to pre-Project contours using clean fill, as necessary;
- All containment measures (fiber rolls, straw bale, etc.) will be removed, unless otherwise specified by the EC; and
- The EC or his/her designated appointee will complete an Environmental Incident Form (see Attachment B).

6.3 RESTART PROCEDURES

For small releases, drilling may continue if 100 percent containment is achieved through the use of a leak-stopping compound or redirection of the bore and the IR location is regularly monitored throughout the remaining drilling period. For larger releases, construction activities will not restart without prior approval from Adelphia's Project Manager.

6.4 BORE ABANDONMENT PROCEDURES

Bores will only be abandoned when all efforts to control the IR within the existing directional bore have failed. If deemed necessary by Adelphia, the HDD Contractor may be required to complete grouting up to and including the entire abandoned hole to reduce the risk of ground subsidence, inadvertent drilling fluid returns from adjacent HDD alignments, or to comply with applicable regulatory requirements or other project conditions.

The grout mixture used to abandon a borehole will consist of either a cement grout or cement/bentonite grout mixture that can be pumped downhole through the drill pipe used to drill/ream the hole. The grout mix design (e.g. water/cement/bentonite ratios) will be generally based on the geologic formation(s) along the abandoned portion of the hole for each HDD location.

Additional modifiers, such as those used in structural concrete, may be used to modify the flow and/or set time of the grout. To grout the abandoned hole, the HDD Contractor will extract all cutting tools (i.e. reamer and cutting heads) from the hole, advance the drill pipe into the hole to the required grout depth, and begin pumping the grout mixture while the drill pipe is extracted from the hole. The rate at which the drill pipe is extracted during grouting operations will be regulated to match the rate of grout placement.

6.5 DRILLING PROCEDURES IN AREAS OF KNOWN CONTAMINATION

The Tilghman and Parkway Laterals are in a highly industrialized area and crosses areas of previously documented soil and groundwater contamination. Adelphia conducted soil and groundwater testing along the Tilghman Lateral prior to construction in April 2019 to identify areas of contamination in order to prevent the potential spread of existing contaminated media and associated exposure that could occur due to Project activities.

Laboratory analysis of the samples indicated that the majority of soil and groundwater samples contained elevated concentrations of metals. In addition, several samples had exceedances of polycyclic aromatic hydrocarbons (PAHs). According to field observations and laboratory analytical results, it is apparent that historic fill material is located along the majority of the Tilghman Lateral and is likely a primary source of elevated metals and PAHs in area.

Based on the above data, the introduction of pathways for contaminant migration due to HDD activities is not a concern, because cross-contamination between soils and groundwater already exists throughout the area in which the Laterals would be installed.

Additionally, lab results identified lead to potentially be above the U.S. Environmental Protection Agency's Resource Conservation and Recovery Act (RCRA) hazardous waste concentration level. To determine if installation of the Laterals would generate soil with lead levels over the RCRA hazardous waste concentrations, a composite sample was analyzed for lead using the required Toxicity Characteristic Leaching Procedure. The results indicated that the soil material was not a hazardous waste for lead.

Adelphia will develop a site-specific Health and Safety Plan be developed for the construction activities along the Parkway and Tilghman Laterals. The Plan will include procedures and personal protective equipment (PPE) that would protect workers from potential exposure to contaminated media. PPE will be available onsite in areas of confirmed contamination at all times during construction.

Should an IR occur along the Tilghman Lateral, the same procedures listed in Section 6.0 through 6.4 will be implemented. In addition, recovered drilling fluids will be tested for contamination prior to disposal to determine the appropriate disposal methods/facilities. If the fluids are confirmed to be contaminated, they will be disposed of as hazardous waste in accordance with all applicable laws and regulations.

7.0 NOTIFICATIONS

Mr. Ken Scott (Adelphia EHS Manager) and affected landowners will be promptly notified of all IRs.

- Mr. Ken Scott – (607) 377 – 2610

The EC or his/her appointee will contact Adelphia's emergency response contractor, Lewis Environmental, if an IR becomes widespread and cannot be contained by onsite Adelphia personnel.

- Lewis Environmental – (800) 258 – 5585

The EC or his/her appointee will immediately contact the following regulatory agencies in the event of an IR in aquatic resources:

- DEP Southeast Regional Office – (484) 250 – 5900
- Pennsylvania Fish and Boat Commission – (717) 628 – 0228
- U.S. Army Corps of Engineers – (215) 656 – 6728

No agency notifications are required for IRs occurring in and contained in upland areas.

The EC or his/her appointee will immediately contact the Pennsylvania Historical and Museum Commission in the event of an IR that could affect sensitive cultural resources.

- Pennsylvania Historical and Museum Commission – (717) 787 – 3362

The EC will ensure that an incident report is prepared for hazardous waste releases and submitted as soon as possible, but not later than 15 days after the release to the following entities:

- FERC – (Contact information to be provided prior to construction);
- U.S. Fish and Wildlife Service - (Contact information to be provided prior to construction);
- Delaware County Conservation District – (Contact information to be provided prior to construction).

The report should include, at a minimum:

- an updated listing of all the information provided in the verbal notification;
- actions taken to respond to and contain the release;
- any known or anticipated acute or chronic health risks associated with the release;
- a summary of all action taken by the owner or operator to prevent a recurrence; and
- other information as may be required.

All employees and subcontractors will adhere to the aforementioned protocols when permitting regulatory agency personnel arrive onsite. Regulatory agency personnel will be required to comply with appropriate safety rules. Only the EC (or his/her appointee) and the Project Manager are to coordinate communication with regulatory agency personnel.

8.0 PROJECT COMPLETION AND CLEAN-UP

All materials and construction debris will be removed from the construction zone at the end of each workday. Sump pits at bore entry and exits will be filled and returned to natural grade, and all protective measures (fiber rolls, straw bale, silt fence, etc.) will be removed unless otherwise specified by the EC.

Water-containing mud, silt, bentonite, or other pollutants from equipment washing or other activities, will not be allowed to enter a lake, flowing stream or any other water source. The bentonite used in the drilling process will be either disposed of at an approved disposal facility or recycled in an approved manner. Other construction materials and wastes will be recycled, or disposed of, as appropriate.

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