APPENDIX E

Soil Management Plan

Prepared for

Hercules LLC
500 Hercules Road
Wilmington, DE 19808

SOIL MANAGEMENT PLAN
HERCULES/PINOVA BRUNSWICK FACILITY
BRUNSWICK, GEORGIA

Prepared by

Geosyntec consultants
engineers | scientists | innovators

1255 Roberts Boulevard, Suite 200
Kennesaw, Georgia 30144

Project Number GR6881R

January 2022

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

1.0 INTRODUCTION AND PURPOSE

1.1 Introduction

This Soil Management Plan ("SMP") sets forth procedures that are to be followed for soil disturbance activities at an industrial facility located at 2801 Cook Street in Brunswick, Georgia (the "Brunswick facility" or the "Site"). Hercules LLC ("Hercules") owns portions of the Brunswick facility while Pinova, Inc. ("Pinova") owns the remainder of the Brunswick facility (including all portions of the Brunswick facility that are being used for active manufacturing operations).

Hercules is addressing environmental conditions at the Brunswick facility pursuant to the corrective action program under the Resource Conservation and Recovery Act ("RCRA") as administered by the Georgia Department of Natural Resources, Environmental Protection Division ("EPD"). On November 2, 2020, EPD issued Hazardous Waste Permit No. HW-052 (D&S)-2 to Hercules and Pinova for the Brunswick facility pursuant to the Georgia Hazardous Waste Management Act and the Georgia Rules for Hazardous Waste Management containing requirements relating to, among other things, sitewide corrective action obligations at the Brunswick facility pursuant to the RCRA corrective action program. As part of the corrective action process, various solid waste management units ("SWMUs") and areas of concern ("AOCs") have been identified at the Brunswick facility. Hercules has conducted environmental investigation activities to assess these SWMUs and AOCs and has documented areas where historical operations have impacted soils and/or groundwater at the Brunswick facility. A site plan showing the locations of the SWMUs at the Brunswick facility and property boundaries for the Brunswick facility is attached hereto as **Figure 1**.

Construction and maintenance activities at the Brunswick facility sometimes involve the excavation of soils to facilitate the installation of new equipment, repairs to piping, upgrades to secondary containment systems, or installation of subsurface infrastructure. In addition, excavation of soils may be necessary as part of ongoing corrective actions under the RCRA corrective action program or to address accidental spills or releases that may occur in conjunction with current operations. Such intrusive activities and the subsequent handling of the soils generated during these excavation activities must be conducted in a manner that meets regulatory requirements and protects workers.

The Occupational Safety and Health Administration ("OSHA") has promulgated regulations codified under Title 29 of the Code of Federal Regulations ("CFR") that implement the Occupational Safety and Health Act. These regulations contain

requirements for corrective actions involving cleanup operations at RCRA sites, and for activities conducted in areas where workers may encounter releases or substantial threats of releases of hazardous substances as defined under the Occupational Safety and Health Act, including petroleum products. Previous environmental investigations have shown that soils in some areas of the Brunswick facility are contaminated with such hazardous substances at concentrations that may exceed risk-based screening levels. Workers who perform tasks that disturb soils in these areas at the Brunswick facility must be familiar with and follow the requirements of this SMP and are subject to the requirements of 29 CFR § 1910.120.

1.2 Purpose/Terms of Reference

The purpose of this SMP is to provide a process and set of procedures that are to be followed for any soil disturbance activity ("SDA") that takes place at the Brunswick facility and to ensure that operational activities are (i) congruent with the ongoing RCRA corrective action process, (ii) consistent with health and safety requirements, and (iii) consistent with other relevant work procedures at the Brunswick facility.

This SMP describes the process that is to be followed for SDAs at the Brunswick facility, including those that:

- involve or are related to facility expansion, construction, or re-build activities;
- involve or are related to repairs and maintenance;
- involve landscaping modifications;
- involve a new accidental spill or release;
- involve an historical release;
- or involve other activities that may result in soil disturbance in areas with potential soil contamination from historical operations.

The SMP is based upon currently available information and has been developed in accordance with currently accepted professional standards. The SMP is intended for use by Hercules and Pinova, their contractors and subcontractors, and those entities specifically identified otherwise in writing by Hercules or Pinova as a user of this document. As employers under the Occupational Safety and Health Act, contractors and

subcontractors have responsibility to perform their own assessment of the requirements and precautions applicable to their workers. The information provided in this SMP is intended to provide a minimum level of required protection for workers at the Brunswick facility who could encounter hazardous substances when engaging in SDAs.

1.3 Revisions

Corrective actions are being implemented at the Brunswick facility pursuant to the corrective action program under RCRA as administered by EPD and the requirements of hazardous waste permit No. HW-052(D&S)-2. The corrective actions will reduce potential risks to on-site industrial workers and construction workers who may be engaged to perform specific construction or repair activities having a limited duration. Significant work remains in progress, however, including additional sampling and evaluation activities that contribute to an evolving and improving understanding of environmental conditions at the Brunswick facility. As such, amendments and revisions to this SMP will be made periodically that are commensurate with the corrective action progress. Amendments and revisions to this SMP will be documented and summarized in the table below. The remediation project manager for Hercules and the Environmental, Health and Safety ("EHS") manager for Pinova must approve any revisions or amendments to this SMP.

Amendment Date	Summary of Amendment

2.0 BACKGROUND AND SUMMARY OF ENVIRONMENTAL CONDITIONS

2.1 Facility Location and Description

The Brunswick facility is located at latitude N31°09′57″ and longitude W81°28′45″, within the Brunswick city limits. The Brunswick facility consists of approximately 321 acres of property, portions of which are owned by Hercules and portions of which are owned by Pinova. Hercules owns approximately 169 acres within the northern and eastern portions of the Brunswick facility while Pinova owns the remaining approximately 152 acres of the Brunswick facility, including the active manufacturing areas. The boundaries of the Brunswick facility are shown on **Figure 1.**

2.2 Facility History

The Brunswick facility has been used for more than 100 years to extract rosin from pine stumps that come from timber production operations in the southeastern United States. The stump extraction process has consisted of grinding stumps into matchstick-sized pieces and using heat, steam, and solvents to extract crude pine resins that are then distilled and refined into a number of products. The solvents used in the extraction process have varied over the years, and have included gasoline, benzene, and, more recently, methyl isobutyl ketone ("MIBK"). Pinova continues to conduct active manufacturing operations within the portion of the Brunswick facility that it owns. Pinova produces wood rosin and terpene oils utilizing a milling and extraction process. Wood chips are placed in a solvent solution of MIBK in an enclosed system to extract the rosin and oils. Following extraction, the spent wood chips and distillation residues are used to fuel on-site wood-fired boilers equipped with water scrubbers to remove particulate emissions. The wood ash from the boilers is sluiced into the mill room pond and the settled materials are dredged from the pond and disposed of off-site or appropriately reused as soil amendments consistent with environmental requirements.

The crude rosin/MIBK solution that is produced from the stump extraction process is currently refined into pale rosin and heavier or dark rosins (Belro® and Vinsol®) in the Pexite Plant. The terpene oils are subsequently extracted at the Stillhouse to remove MIBK and then shipped off-site for further processing and sale. Some components of these wood oils are received back from off-site processing for use in the production of polyterpene resins. The main products currently produced at the Brunswick facility are pale wood rosin, modified pale wood rosins, modified gum rosin, solvenol and polyterpenes. End users for these products include the adhesives, printing, building

materials, and food additives industries. Pinova also manufactures phosphate esters in the chemical plant area for use in the manufacture of paint products.

In addition to producing wood rosin, rosin-derived resins, and terpene oils, the Brunswick facility produced the pesticide toxaphene between 1948 and 1980. Toxaphene was manufactured in a production area near the center of the Brunswick facility.

No manufacturing operations are conducted on property currently owned by Hercules. All manufacturing operations are limited to Pinova property.

2.3 Overview of Investigation Findings and Corrective Actions

2.3.1 Investigation Findings

The history of investigations and corrective actions at the Brunswick facility is extensive and is presented in the Corrective Action Plan ("CAP") (Geosyntec, 2022) for the Brunswick facility. Multiple investigations to assess soils and groundwater at the Brunswick facility have been completed. To date, over 100 monitoring wells have been installed and sampled and over 4,000 soil samples have been collected for laboratory analysis as part of the RCRA Facility Investigation ("RFI") and other supplemental investigations at the Brunswick facility.

Following the RFI, a baseline human health risk assessment ("BHHRA") was performed which identified multiple chemicals of potential concern ("COPCs") in soils at the Brunswick facility using a conservative risk-based screening process. The BHHRA will be finalized during the corrective action process as described in the CAP. The BHHRA provides pertinent information relating to potential contaminants and potential risks at the Brunswick facility. Toxaphene was identified as the primary COPC in soils, contributing over 90% of the potential carcinogenic risk and/or non-carcinogenic hazard to potential receptors at the Brunswick facility. Other detected COPCs identified in the BHHRA Report that contributed at least one percent (1%) of the potential risk to potential receptors from soils at the Brunswick facility include: dieldrin, alpha-hexachlorocyclohexane ("alpha-BHC"), chlorobenzilate, polychlorinated biphenyls ("PCBs") (specifically Aroclor 1254 and Aroclor 1260), and arsenic. These constituents are considered primary COPCs in soils for the purpose of understanding contaminant distribution at the Brunswick facility. In addition, certain chemicals not meeting the foregoing threshold of risk contribution were also considered COPCs in soils primarily due to their presence in groundwater. These other constituents considered to be COPCs in soils include benzene, chlorobenzene, chloroform, methylene chloride, para-cymene, and xylene.

In summary, the following 13 chemicals are considered to be the primary COPCs at the Brunswick facility:

Direct-Contact Soil COPCs	Groundwater-Related COPCs
Alpha-BHC	Benzene
Aroclor 1254	Chlorobenzene
Aroclor 1260	Chloroform
Arsenic	Methylene chloride
Chlorobenzilate	Para-cymene
Dieldrin	Xylene
Toxaphene	

The COPCs listed above reflect those constituents that have actually been detected. In certain instances, detection limits for certain analytes in certain soil samples are above risk-based screening levels. It is therefore currently unknown whether or not such analytes may contribute to potential excess risk until further evaluation is performed as part of the CAP process.

2.3.2 Corrective Actions

Corrective actions have been ongoing at the Brunswick facility since 1983. These corrective actions have been performed between and overlapping with different phases of the investigation activities. The corrective actions that have been completed to address soils at the Brunswick facility include, but are not limited to, the removal of soils in SWMU No. 5 down to the groundwater surface, removal of sediment from the N Street Ditch and lining the ditch with concrete, and more recently, in 2021, use of *in situ* solidification ("ISS") to address soils in the former toxaphene tank farm located in SWMU No. 6. Additional corrective actions are described in the CAP that are designed to address sitewide surface soils and groundwater.

2.3.3 Activity and Use Limitations

Institutional controls are a form of restrictions or activity and use limitations that mitigate potential risks from human exposure to COPCs present in environmental media. Various types of institutional controls are currently in place and are expected to be implemented at the Brunswick facility as discussed in more detail in the CAP. In this regard, the SMP

plays an important role as an activity and use limitation to minimize potential risks to on-site industrial workers and construction workers who may come into contact with impacted soils and/or groundwater during intrusive activities at the Brunswick facility. In addition, corrective actions have recently been completed in the portion of the Brunswick facility known as the former toxaphene tank farm which is part of SWMU No.6. The corrective actions have utilized *in situ* soil stabilization to create a stabilized monolith that is covered by a vegetated layer of soil. Pinova must promptly notify Hercules of any plans to utilize the former toxaphene tank farm in a manner that requires soil disturbance so that the parties can determine how such activities can proceed in a way that does not interfere with or adversely impact the integrity of the solidified monolith.

3.0 SOIL DISTURBANCE ACTIVITY NOTIFICATION PROTOCOL

3.1 Points of Contact

Hercules and Pinova have developed a protocol that must be followed for any soil disturbance activities (i.e., SDAs) at the Brunswick facility. This section of the SMP describes the notices that must be provided to the appropriate Pinova and Hercules EHS personnel regarding an SDA. The notification process promotes communication between stakeholders so that SDAs are managed in a safe, transparent, and expeditious manner. The step-by-step process described below and illustrated in **Figure 2** includes specifics regarding team members, tools, and methods to implement this SMP.

All soil disturbance activities at the Brunswick facility require notification and evaluation through submission of a form titled *Soil Disturbance Activity (SDA) – Request for Approval* (the "SDA Request Form"), a copy of which is attached hereto as **Appendix A**. **Table 1** below includes the contact information for representatives of each of the current stakeholders that may be involved in the review of soil disturbance activities.

Table 1
Soil Disturbance Activities Contacts List

Name	Company	Phone	Email	Role
Timothy Hassett	Hercules LLC	O: (302) 995-3456 M: (302) 379-0512	tdhassett@ashland.com	Hercules Remediation Project Manager
Mike Crews	Pinova, Inc.	O: (912) 602-6492 ext. 3220 M: (912) 424-7809	Mike.Crews@firmenich.com	Pinova EHS Manager
Chad Weaver	Antea Group	M: (803) 767-9281	Chad.Weaver@anteagroup.us	Hercules Consultant
Cristin Krachon	Geosyntec Consultants	O: (678) 202-9500 M: (404) 808-3057	ckrachon@geosyntec.com	Hercules Consultant (backup)

3.2 Notification Procedures

3.2.1 Planned Soil Disturbance Activities

Planned excavation activities or soil grading activities at the Brunswick facility to accommodate plant maintenance such as removal, repair, or replacement of in-place structures (including pipes, sumps, and secondary containment) or new construction that requires grading or foundation excavations are examples of a planned soil disturbance activity.

For non-emergency, planned soil disturbance activities, the Hercules remediation project manager and Pinova EHS manager must be notified using the SDA Request Form described below in Section 3.3 as early in the planning process as possible. The Hercules remediation project manager and Pinova EHS personnel collectively will decide whether to approve the proposed SDA and whether workers involved with the proposed SDA must comply with the relevant provisions of OSHA's Hazardous Waste Operations and Emergency Response ("HAZWOPER") standard (29 CFR § 1910.120) depending on the available information and the location and scope of the proposed SDA. Written approval must be obtained from the Hercules remediation project manager before the proposed SDA may proceed. For a proposed SDA within the portion of the Brunswick facility owned by Pinova, the Pinova EHS manager (or other Pinova employee with delegated authority) will then issue a Dig Permit prior to commencement of the SDA, as discussed in Section 3.3.3 of this SMP.

If there is a significant change in the scope of work after the approval of an SDA, the respective Hercules and Pinova managers should be informed promptly before initiating or proceeding with the SDA.

3.2.2 Emergency Soil Disturbance Activities

If a situation arises that requires immediate, emergency response that will involve soil disturbance activities such as an accidental chemical spill or release or a ruptured subsurface water line pipe, the entity responsible for the SDAs should coordinate directly with Pinova EHS personnel or the Hercules remediation project manager, as appropriate, depending on the ownership of the property where the SDAs will take place. Pinova should notify Hercules as soon as possible of an emergency soil disturbance for which it receives notice. For an emergency SDA within the portion of the Brunswick facility owned by Pinova, the Pinova EHS manager after being notified will evaluate the location where the SDA is expected to occur and determine the appropriate action to be

implemented for matters covered under this SMP. A Dig Permit is required before any excavation work is performed on the portion of the Brunswick facility owned by Pinova, even in an emergency response situation. Note that emergency excavations can be conducted only to make emergency repairs to underground lines or equipment or in response to spill events. An emergency excavation notification **cannot** be used for installation of new equipment or lines.

If an emergency excavation is necessary, an SDA Request Form should be completed as soon as possible. Under these situations, it is assumed that concentrations of COPCs in soils within the area that will be disturbed are above the screening levels described in Section 3.3.3 of this SMP and will require the work be performed with HAZWOPER-trained personnel with appropriate personal protective equipment.

In the event of an emergency response involving a new chemical spill or release (i.e., an accidental spill event), Hercules may request oversight of the work by a Hercules representative or contractor. Hercules representatives may collect soil confirmation samples from the excavation. If the newly released chemical(s) are still present in concentrations exceeding applicable standards as determined by Hercules, then Hercules may request that additional soil removal activities be performed. This cycle will continue until the soil removal activities have removed soils that contain the newly released chemical above the applicable standards from the release area. Once the release has been adequately cleaned up, any open excavations can be backfilled with clean soil as described in Section 5.1.3 of this SMP. After cleanup is achieved and backfilling is complete, Hercules will approve the remedy and the project will be considered complete.

3.3 SDA Evaluation Process

3.3.1 Step 1: Identification / SDA Submittal / Site Reconnaissance

When the need for a soil disturbance activity is identified or a release that will involve the disturbance of soils occurs, the responsible party must notify the Hercules remediation project manager and the Pinova EHS manager and submit a completed SDA Request Form (**Appendix A**) to the respective points of contact listed in Section 3.1 of this SMP.

Submittals should include the following information:

- the specific location where the excavation activity will take place;
- the purpose for which the excavation will be performed;

- the size and depth of the area that will be excavated; and
- the disposition of any soil left over at completion of the activity.

3.2.2 Step 2: GIS Database Review of Historical Soil Data

Following receipt of an SDA Request Form, a site reconnaissance of the SDA location will be conducted, if necessary. In addition, Hercules will evaluate the location using the sitewide geographic information system ("GIS") database of soil and groundwater sampling results that has been compiled and that conditions at that particular location can be readily assessed. The location will be evaluated for (i) sufficient characterization of soil in the area to be disturbed; (ii) the concentrations of COPCs that are present; (iii) the potential for the SDA to prevent or impede future corrective action(s); and (iv) the potential for the SDA to modify or change an existing SWMU (the locations of which are shown on **Figure 1**).

Historical soil sampling data collected from the area to be disturbed will be compared to soil screening levels calculated using the default exposure factors and methods for the excavation worker exposure scenario under regulations implementing the Georgia Hazardous Site Response Act ("HSRA"), O.C.G.A § 12-8-90 et seq. These regulations are codified at Ga. Comp. R. & Regs. R. 391-3-19 and include provisions describing the process for calculating Type 3 risk reduction standards ("RRSs") for non-residential properties. The Type 3 RRSs based on the excavation worker exposure scenario will be used as screening levels for purposes of this SMP. If the contaminant concentrations are below such screening levels, Hercules will issue an approval to proceed and note any special requirements (such as oversight from a Hercules representative) that may apply to the proposed soil disturbance activity. If the planned soil disturbance activity that is to be undertaken is part of corrective actions under the RCRA corrective action program, the activity is subject to OSHA's HAZWOPER requirements regardless of whether contaminant concentrations are below the Type 3 RRS soil screening levels.

If historical soil sampling data indicate the presence of contaminants at concentrations exceeding the soil screening levels described above or no data are available for the area that is to be disturbed, then Hercules may identify additional supplemental soil sampling or other actions that will need to be taken before the proposed soil disturbance activity can be approved. The primary purpose of any additional sampling is to further understand chemical concentrations in the area to be disturbed so that such information can inform worker protections that may be required. In addition, such additional sampling may help characterize the soils that are to be excavated so that they can be managed appropriately.

If additional soil sampling is completed and shows that target analytes are at concentrations below the soil screening levels described above, Hercules will issue an approval to proceed and note any special requirements that may apply to the proposed soil disturbance activity.

If historical or supplemental soil sampling results within the area to be disturbed exceed the soil screening levels described above, workers will be required to be HAZWOPER-trained and perform the work in compliance with a project-specific health and safety plan ("HASP") (including a task hazard analysis ("THA") or job safety analysis ("JSA")) as described below in Section 4.1 of this SMP. For emergency excavations, excavations involving a new chemical release, or an area where insufficient data exists, site workers will also be required to be HAZWOPER-trained and perform the work in compliance with a project-specific HASP (or an equivalent THA/JSA) as described below in Section 4.1 of this SMP.

3.4 Dig Permits

For any soil disturbance activity within the portion of the Brunswick facility that Pinova owns, designated Pinova EHS personnel must issue a Dig Permit before any soil excavation – whether emergency or planned - is initiated. If the scope is clearly defined, a multi-day Dig Permit may be issued. Due to the age of the Brunswick facility and the limited availability of accurate drawings fully depicting subsurface utilities, a utility location service should be used to clear an area to be excavated prior to any excavation work other than hand digging. Soil disturbance activities on the portion of the Brunswick facility that Hercules owns will not require a Dig Permit from Pinova but will require compliance with the underground utility clearance requirements set forth in **Appendix B**.

4.0 REGULATORY REQUIREMENTS

4.1 General Considerations

This section of the SMP summarizes regulatory considerations associated with the planning and implementation of SDAs at the Brunswick facility.

The Brunswick facility is regulated under RCRA requirements as implemented through Georgia's hazardous waste program. Hazardous waste generated at the Brunswick facility is subject to hazardous waste rules and regulations promulgated by EPD and incorporated into Hazardous Waste Permit No. HW-052 (D&S)-2 that EPD issued to Pinova and Hercules for the Brunswick facility. Considerations must also be made regarding EPD's HSRA notification requirements and state and local erosion and sediment control requirements. All personnel involved in site corrective action activities performed by Hercules personnel or contractors must be HAZWOPER-trained and adhere to the applicable requirements set forth in 29 CFR § 1910.120. Any soil disturbance activities by or on behalf of Pinova that involve a new chemical release, an area where historical sampling data exceeds screening levels, or an area where there is insufficient data to make a reasonable assessment of hazards must be implemented with HAZWOPER-trained personnel and in accordance with applicable requirements set forth in 29 CFR § 1910.120.

If any modifications are made, or planned to be made, to a SWMU identified on **Figure 1** and listed in Hazardous Waste Permit HW-052 (D&S)-2, in addition to adhering to the aforementioned requirements, it is the responsibility of the party performing the modification to make Hercules and Pinova aware of the changes to the SWMU prior to performing the work such that appropriate notifications to EPD can be made as discussed in Section 4.4 of this SMP.

4.2 Worker Health and Safety

For SDAs located in areas where HAZWOPER-trained personnel may not be required (because corrective actions are not being performed, contaminants are present below applicable screening levels, or emergency response to a release of hazardous substances is not involved), the work should be performed in accordance with Pinova or Hercules health and safety work protocols and practices. For SDAs that occur in areas where the workers need to be HAZWOPER trained, the work should be performed under a HASP (i.e., a health and safety plan) specific to the SDA. The HASP should include the

elements specified in 29 CFR §§ 1910.120(b)(4) or 1910.120(q)(2) (emergency response plan), as applicable, including:

- project information/description;
- hazard analysis and controls;
- air/exposure controls; and
- approvals and acknowledgements.

If a third party (contractor) is implementing the work, the contractor performing the work will be responsible for preparing and adhering to an SDA project-specific HASP, as well as adhering to Pinova or Hercules health and safety requirements depending on the location of the SDA.

4.3 Trenching Requirements

SDA-related excavation activities must be evaluated to ensure compliance with the requirements found in 29 CFR 1926, Subpart P (OSHA's Excavation Regulations). OSHA defines an excavation as any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal. A trench is defined as a narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth of a trench is greater than its width, but the width of a trench (measured at the bottom) is not greater than 15 feet (4.6 meters).

OSHA's standards require the designation of a "competent person" with appropriate training and experience to oversee certain activities to help mitigate potential hazards associated with a number of activities associated with excavation and trenching work. A competent person is defined as an individual who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to workers, and who has authorization to take prompt corrective measures to eliminate these hazards and conditions.

The following bullets provide examples of trenching and excavation activities where a competent person is necessary. The bullets also identify the OSHA standards that are applicable in such circumstances.

- Situations where water is controlled or prevented from accumulating by the use of water removal equipment [29 CFR § 1926.651(h)(2)]

- Excavations subject to runoff from heavy rains [29 CFR § 1926.651(h)(3)]
- Daily inspections of excavations, the adjacent areas, and protective systems [29 CFR § 1926.651(k)(1)]
- Sloping and benching when used as methods of protecting workers in excavations from cave-ins [29 CFR 1926 Subpart P, Appendix B (c)(3)(iii)]]
- Design of structural ramps that are used solely by employees as a means of access or egress [29 CFR 1926.651(c)(1)(i)]

Because of the shallow groundwater table across portions of the Brunswick facility, the potential for water accumulation in excavations is an important consideration when planning excavation and trenching activities. Water in an excavation can undermine the sides of the excavation and make it more difficult for workers to get out of the excavation. OSHA's standards prohibit workers from entering an excavation where water has accumulated or is accumulating unless adequate precautions are taken to protect workers. Such precautions can include removing water from the trench with pumping equipment, using support or shield systems to prevent cave-ins, or using safety harnesses and lifelines. At the Brunswick facility, the preferred mitigation measure will be removing the accumulated water from the trench.

In accordance with OSHA's requirements, initial air monitoring for all projects involving soil disturbance activities at the Brunswick facility must be performed to identify and quantify airborne levels of hazardous substances to which workers might be exposed in order to determine the appropriate level of employee protection that is needed. For projects involving trenching activities, additional atmospheric testing may be required in accordance with OSHA's requirements. If the breathing zone monitoring indicates concentrations of hazardous substances above the Permissible Exposure Limits promulgated by OSHA (or other more conservative limits established in the SDA-specific HASP), then engineering controls (such as use of a fan to ventilate the trench) or respiratory protection may be required in accordance with OSHA's requirements.

If excavation work interrupts the natural drainage of surface water, OSHA's standards require the use of diversion ditches, dikes, or other suitable means to prevent surface water from entering the excavation and to provide adequate drainage of the adjacent area.

4.4 Permit Requirements

The Hercules remediation project manager will notify EPD regarding any significant non-emergency excavations that impact any SWMU or AOC identified in Hazardous Waste Permit No. HW-052 (D&S)-2. In the event that the Hercules remediation project manager and/or Pinova EHS manager identify an excavation area as a new SWMU or AOC, the Hercules remediation project manager will notify EPD of the new SWMU or AOC in writing within 15 days after discovery as required in Section V.B.1 of the permit and provide EPD with such supplemental information as may be required under Section V.B. If conditions discovered through soil disturbance activities indicate that a previously unidentified release(s) from any SWMU or AOC has occurred, the Hercules remediation project manager will notify EPD within 30 days after discovery in accordance with the requirements in Section V.C of the permit and provide EPD with such supplemental information as may be required under Section V.C of the permit.

5.0 SOIL AND WATER MANAGEMENT

5.1 Soil Management

Care should be taken so that soils removed or otherwise disturbed during a soil disturbance activity do not impact areas not related to the soil disturbance activity. Soils removed during soil disturbance activities should be placed back into the same excavation from which they were generated unless (i) they are visibly stained or otherwise grossly contaminated as determined by oversight personnel during the excavation, or (ii) as may be occasionally identified by the Hercules remediation project manager during the notification process. Excess soils that cannot be placed back into the excavation or soils that are deemed grossly contaminated shall be placed in a lined roll off box or other suitable container for characterization and offsite disposal. As described below in Section 5.1.1, soils deemed to be grossly contaminated may occasionally need to be stockpiled to support the logistics and phasing of a project involving soil disturbances.

Prior to offsite disposal, waste profiling will be performed using generator knowledge and past analytical results for the area from which soils are excavated. If insufficient generator knowledge is available, then soil characterization samples will be collected and submitted to a certified laboratory for laboratory analysis. The requested characterization analysis will be based on knowledge of the area, current and past processes in the area, past analytical data, and disposal facility requirements.

5.1.1 Soil Stockpiles

Whenever possible, soil stockpiles should be located in close proximity to the work area or the ultimate disposition area (in the case of imported backfill). A soil stockpile must be placed on an impervious surface or on a liner of polyethylene plastic sheeting of appropriate thickness. An additional layer of polyethylene plastic sheeting shall be used to cover the stockpile at the end of each operating day or when the stockpile is not attended. The top layer of the liner should be weighted down or anchored throughout to prevent soil exposure to wind or other weather-related events and checked on a daily basis to ensure that the liner remains intact.

Soil removed from a SWMU cannot be stockpiled in an area outside of that SWMU. As appropriate, drums or covered, sealed, and lined roll-off containers should be used for staging of soils that are destined for offsite disposal. Occasionally, stockpiling excavated soil that is destined for offsite disposal may be necessary. These soils should also be placed on an impervious surface or polyethylene plastic and covered and anchored with

polyethylene plastic as described above until the soil can be placed in a suitable container for characterization and offsite disposal.

5.1.2 Reuse of Existing Soil

Excess soil generated in support of a soil disturbance activity that cannot be placed back in the excavation must be placed in a lined and covered roll off box or other suitable container for characterization for offsite disposal. Soil that is deemed to be grossly contaminated by oversight personnel cannot be placed back in an excavation and must be containerized and characterized prior to offsite disposal. Soil removed from a SWMU cannot be reused in an area outside of that SWMU.

5.1.3 Soil Import

Soils used for backfill may be obtained from a pre-approved borrow source. Soils from previously approved backfill sources must be sampled periodically. Soils from borrow sources must be sampled and analyzed for volatile organic compounds, pesticides, metals, and semi-volatile organic compounds listed in 40 CFR Part 264, Appendix IX. The Georgia HSRA Notification Concentrations (Appendix I of the EPD Rules for Hazardous Site Response) will be used as criteria for approval of backfill by the Pinova EHS manager and Hercules remediation project manager. Soil used without undergoing the required approval process will be subject to removal at the expense of the entity responsible for its use.

5.1.4 Offsite Soil Disposal

Soil scheduled for removal from the Brunswick facility shall remain onsite until results from waste characterization analysis have been returned from the certified laboratory, the Hercules remediation project manager and Pinova EHS manager have reviewed the data, the selected disposal facility has approved the waste profile, and the applicable disposal transportation paperwork has been completed. Soil transportation and disposal must be accompanied with the appropriate manifest, bill of lading, or equivalent documentation describing each shipment.

Soil destined for off-site disposal must be sampled using the toxicity characteristic leaching procedure ("TCLP") for toxicity characteristic parameters listed in 40 CFR § 261.24 and for any additional parameters using appropriate analytical methods that may be specified by the intended disposal facility. The list of toxicity characteristic parameters may be modified based on generator knowledge (but will typically always

include volatile organic compounds and pesticides). Soils found to qualify as RCRA hazardous waste should be inventoried and tracked to ensure that the soils are removed from the Brunswick facility in less than 90 days after the soils are generated. It is the responsibility of the Hercules remediation project manager and/or the Pinova EHS manager to review analytical data returned from the certified laboratory and to determine whether the soils that have been excavated qualify as hazardous waste.

Transportation and disposal of contaminated soils to an approved landfill must comply with all applicable federal, state, and local requirements. Contaminated soils must be loaded into vehicles in a manner that prevents spilling or tracking of contaminated soils into uncontaminated areas. For soil disposal associated with releases on property owned by Hercules, Hercules will provide on-site management of soil removal activities to ensure that soil is properly loaded and documented. For soil disposal associated with releases on property owned by Pinova, Pinova will provide on-site management of soil removal activities to ensure that soil is properly loaded and documented.

5.2 Water Management

5.2.1 Construction Stormwater Management

Standard soil erosion and sediment control best management practices ("BMPs") shall be implemented. Specific BMPs that may be implemented to reduce the sediment load of stormwater runoff from the SDA project area include grading or installing stormwater control devices (earth berms, silt fences, filter socks or other barriers) around the perimeter of unpaved portions of the SDA project area. Nearby catch basins must be protected with impermeable covers, silt fences or gravel bags. The BMPs shall remain in place until construction is completed. Excavated soil stockpiles should be placed on and covered with plastic, as specified in Section 5.1.1 of this SMP, to prevent sediment and stormwater runoff and to control potential odors and vapors.

5.2.2 Groundwater Management

Groundwater is expected to be encountered during deeper excavations. In addition, non-aqueous phase liquid ("NAPL") may be present at or near the water table in certain areas of the Brunswick facility. Preparations shall be made to remove, store, characterize, and properly dispose of standing water from excavations during emergency or planned SDAs. Appropriate precautions may include staging a temporary storage tank. The water should be characterized to evaluate treatment/disposal options. In no instances may groundwater that is removed from an excavation be discharged directly onto the ground

surface, or into the storm sewer or the process sewer without prior approval from the Pinova EHS manager and the Hercules remediation project manager.

5.3 Unanticipated Field Conditions

It is possible that unknown, historical subsurface features and structures may remain at the Brunswick facility given the age of the facility. Unanticipated subsurface conditions may include, but are not limited to, the following items:

- underground storage tanks;
- concrete vault(s);
- underground piping; and
- NAPL or highly impacted soil.

Whenever unanticipated conditions are encountered and where hazardous substances are suspected, the work shall be temporarily suspended, and the work area secured until health and safety hazards can be further assessed. The Hercules remediation project manager and Pinova EHS manager must be notified immediately of the discovery of any unanticipated conditions.

6.0 REFERENCES

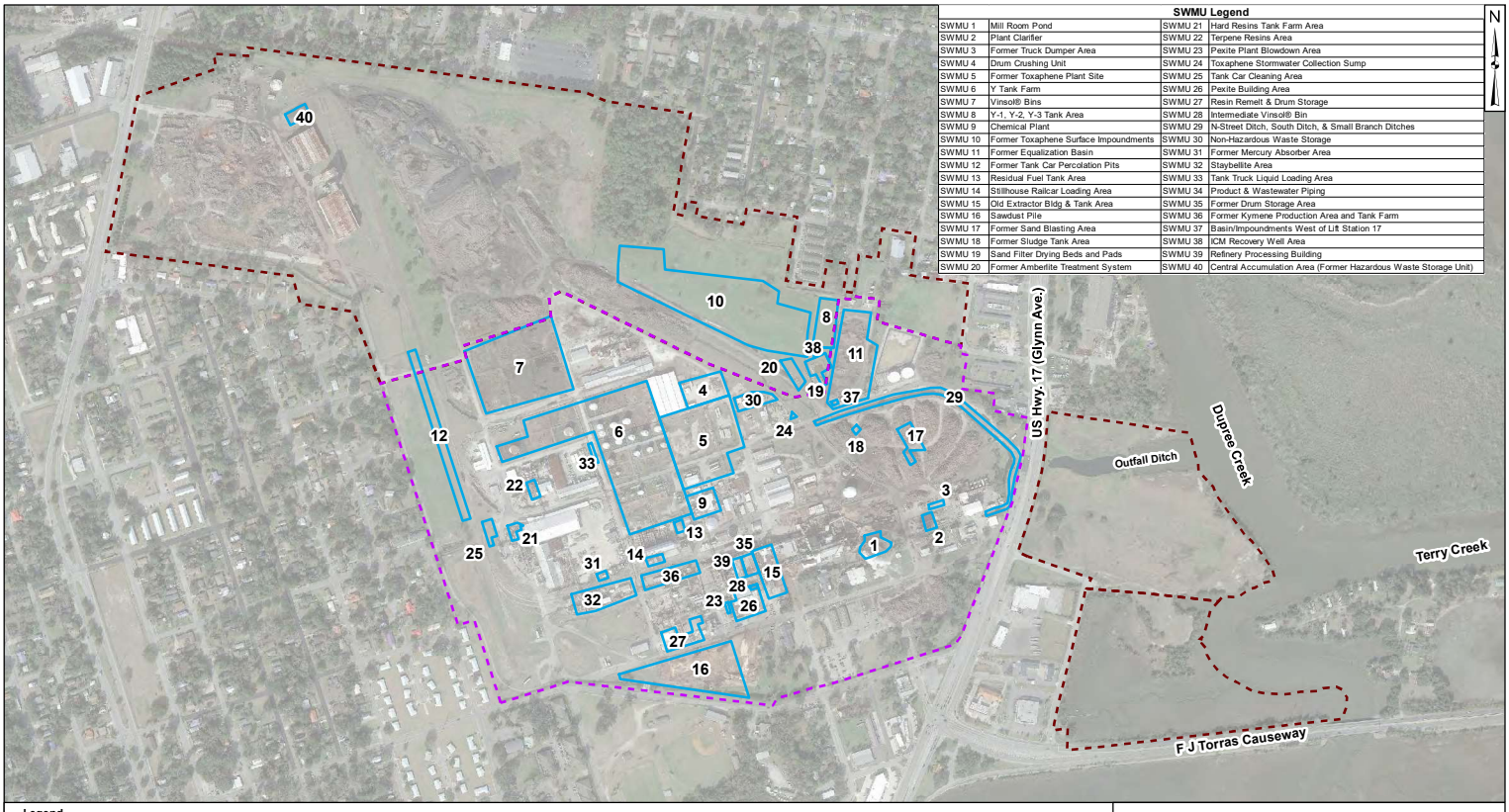
Brunswick Facility Hazardous Waste Facility Permit No. HW-052 (D&S)-2

Georgia EPD, 2018b. *Risk Reduction Standards*, Ga. Comp. R. & Regs R., Rule 391-3-19-07, revised September 25, 2018.

Pinova Permit to Dig FM-021-016-032, Short and Long Forms

Geosyntec Consultants, Inc. (Geosyntec). 2022. Corrective Action Plan. Hercules LLC/Pinova Inc. Brunswick Facility, Brunswick, Georgia. January 2022.

FIGURES



SWMU Legend

SWMU 1	Mill Room Pond	SWMU 21	Hard Resins Tank Farm Area
SWMU 2	Plant Clarifier	SWMU 22	Terpene Resins Area
SWMU 3	Former Truck Dumper Area	SWMU 23	Pexite Plant Blowdown Area
SWMU 4	Drum Crushing Unit	SWMU 24	Toxaphene Stormwater Collection Sump
SWMU 5	Former Toxaphene Plant Site	SWMU 25	Tank Car Cleaning Area
SWMU 6	Y Tank Farm	SWMU 26	Pexite Building Area
SWMU 7	Vinsol® Bins	SWMU 27	Resin Remelt & Drum Storage
SWMU 8	Y-1, Y-2, Y-3 Tank Area	SWMU 28	Intermediate Vinsol® Bin
SWMU 9	Chemical Plant	SWMU 29	N-Street Ditch, South Ditch, & Small Branch Ditches
SWMU 10	Former Toxaphene Surface Impoundments	SWMU 30	Non-Hazardous Waste Storage
SWMU 11	Former Equalization Basin	SWMU 31	Former Mercury Absorber Area
SWMU 12	Former Tank Car Percolation Pits	SWMU 32	Staybellite Area
SWMU 13	Residual Fuel Tank Area	SWMU 33	Tank Truck Liquid Loading Area
SWMU 14	Stillhouse Railcar Loading Area	SWMU 34	Product & Wastewater Piping
SWMU 15	Old Extractor Bldg & Tank Area	SWMU 35	Former Drum Storage Area
SWMU 16	Sawdust Pile	SWMU 36	Former Kymene Production Area and Tank Farm
SWMU 17	Former Sand Blasting Area	SWMU 37	Basin/Impoundments West of Lift Station 17
SWMU 18	Former Sludge Tank Area	SWMU 38	ICM Recovery Well Area
SWMU 19	Sand Filter Drying Beds and Pads	SWMU 39	Refinery Processing Building
SWMU 20	Former Amberlite Treatment System	SWMU 40	Central Accumulation Area (Former Hazardous Waste Storage Unit)

Legend

- Pinova Property
- Hercules Property
- Solid Waste Management Units

0 275 550 1,100 Feet

Notes:
1. SWMU - Solid Waste Management Unit
2. Aerial photograph approximate date - January 2019. Source: Google Earth.

Solid Waste Management Units Location Map

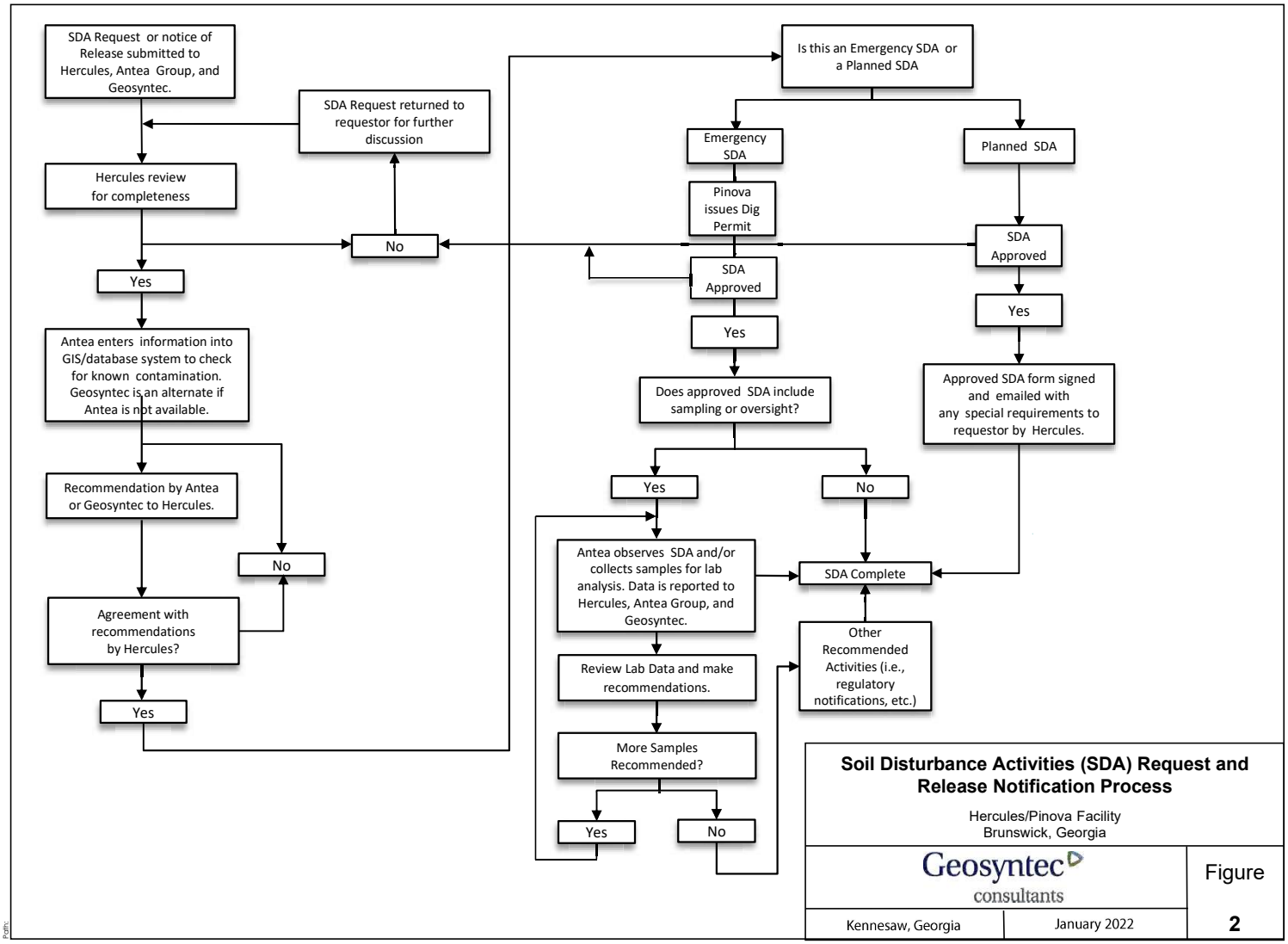
Hercules/Pinova Facility
Brunswick, Georgia

Geosyntec consultants

Kennesaw, GA | January 2022

Figure 1

Path: N:\Hercules\Brunswick\GIS\RAD\CAP Figures\January 2022\Figure 2-3 Solid Waste Management Units Location Map.mxd; DKnochon; 1/25/2022



Soil Disturbance Activities (SDA) Request and Release Notification Process

Hercules/Pinova Facility
Brunswick, Georgia

Geosyntec consultants

Kennesaw, Georgia | January 2022

Figure **2**

Path:

APPENDIX A

Soil Disturbance Activity (SDA) – Request for Approval Form

Soil Disturbance Activity (SDA) – Request for Approval

(to be completed for all subsurface intrusive work – planned or emergency)

GENERAL INFORMATION

Project/Site: Click or tap here to enter text.	**Date or Date Range for Project:** Click or tap here to enter text.	
Location of Excavation/Trench/Boring, etc.: Click or tap here to enter text.		
Contractor Company: Click or tap here to enter text.	**Contractor Representative's Name:** Click or tap here to enter text.	**Third-Party Oversight of the Project:** Click or tap here to enter text.
Type of Excavation (*please specify- trench, borehole etc.*): Click or tap here to enter text.	**Estimated Volume of Soil for Removal:** Click or tap here to enter text.	**Other Permits Required (*dig permit, hot work, confined space, etc.?*):** Click or tap here to enter text.
Detailed Project Description: Click or tap here to enter text.		

PROJECT PLANNING

Is the planned project within the boundary of a Solid Waste Management Unit (SWMU)?	☐Yes	☒No
Is the affected area involved currently part of an ongoing manufacturing operation?	☐Yes	☐No
Was the affected area historically used as part of a manufacturing operation?	☐Yes	☐No
Is soil known or suspected to contain any constituents of potential concern?	☐Yes	☐No
Does the project require a Stormwater Sediment and Erosion Permit	☐Yes	☐No

PUBLIC UTILITY CHECKLIST

1) Underground services located? *Note: No excavation work is to commence until utility verification has been obtained. Soil borings will require ground penetrating radar survey for location of services as well as Plant utility map reviews.* **Comments:** Click or tap here to enter text.	**Electrical**	☐Yes	☐No	☐N/A
	Sewer/Water	☐Yes	☐No	☐N/A
	Drainage	☐Yes	☐No	☐N/A
	Communication/Data	☐Yes	☐No	☐N/A
	Gas	☐Yes	☐No	☐N/A
	Other	☐Yes	☐No	☐N/A
2) Excavation work planned and carried out by competent and experienced person/s? *Note: Ensure soil stability and suitability of excavation procedures etc.*		☐Yes	☐No	☐N/A
Excavation depth LESS than 4 feet? *Note: Sides may be vertical and NOT benched or braced if ground is stable. Excavation should be inspected by a competent and experienced person prior to anyone entering the excavation. Accumulating water in the trench should be removed.* **Comments/Assessment:** Click or tap here to enter text.		☐Yes	☐No	☐N/A

Soil Disturbance Activity (SDA) – Request for Approval

Excavation depth GREATER than 4 feet? *Note: All sides of excavation to be as follows UNLESS specified in writing by a geotechnical engineer.* *Accumulating water in the trench should be removed.* Click or tap here to enter text.	**Benched - 1 vertical to 1 horizontal (1:1)**	☐**Yes**	☐**No**	☐**N/A**
	Battered - NOT to be more than 45 degrees from the horizontal	☐**Yes**	☐**No**	☐**N/A**
	Shored - using commercially manufactured shielding *(to be designed for the purpose by an engineer and erected as per the manufacturer's instructions)*	☐**Yes**	☐**No**	☐**N/A**
	Shored - using sheeting and timber (*to be assessed, designed and approved by a competent person and approved Hercules site management*)	☐**Yes**	☐**No**	☐**N/A**
Work Method Statement prepared? *Note: Mandatory for excavations > 4 feet deep. May ALSO be required for excavations <1.5 feet deep if project area is identified by data screening to have chemicals of potential concern above screening levels. Breathing zone may be required to be monitored. Respirators or trench ventilation may be required.*		☐**Yes**	☐**No**	☐**N/A**
Access required? *Note: Excavations GREATER than 4 feet in depth to have at least ONE ladder at intervals NO greater than 25 feet apart when occupied.* **Number of ladders required:** Click or tap here to enter text.		☐**Yes**	☐**No**	☐**N/A**
Stand-by person required? *Note: Excavations greater than 4 feet in depth require a lookout/stand-by person to be available while the excavation is occupied.*		☐**Yes**	☐**No**	☐**N/A**
Plant machinery/equipment in use? Click or tap here to enter text.	**Plant and machinery to be kept well back (minimum two feel) from the edge of excavations to prevent collapse.**	☐**Yes**	☐**No**	☐**N/A**
	Air quality/monitoring procedures for fuel powered plant to be developed as per Pinova standards to prevent explosive/toxic fume/gas buildup.	☐**Yes**	☐**No**	☐**N/A**
Containers available for water storage, excess excavated soil, or other materials? *Note: Pipes, roll off boxes, frac tanks, excavated soil etc. are to be kept well back from the edge of the excavations to prevent collapse.*		☐**Yes**	☐**No**	☐**N/A**
Barricading erected? *Note: Barricading, fencing, hoardings (minimum height 3 feet) are to be erected around all sides of excavations at a minimum distance of 6 feel out from the edge of the excavation.*		☐**Yes**	☐**No**	☐**N/A**

PERSON IN CONTROL OF EXCAVATION

Signature:	**Name (please print):**	**Date:**
	Click or tap here to enter text.	Click or tap here to enter text.

HERCULES LLC REPRESENTATIVE:

Signature:	**Name (please print):**	**Date:**
	Click or tap here to enter text.	Click or tap here to enter text.

APPENDIX B

Underground Utility Checklist

Utility Clearance (UC) Checklist

GENERAL INFORMATION			
Project Name Click or tap here to enter text.		**Facility Project Manager** Click or tap here to enter text.	
Project Address, City, State, Zip: Click or tap here to enter text.			
Consultant Project Manager Click or tap here to enter text.		**Competent UC Person Completing Checklist** Click or tap here to enter text.	
PROJECT PLANNING			
Written Scope of Work and Figure Completed		☐Yes	☐No
Scope of Work and Figure Approved by Project Manager?		☐Yes	☐No
Has a site walk been performed to identify potential underground and aboveground utilities and obstructions?		☐Yes	☐No
Have aboveground utilities or obstructions been identified within 20 feet of the location of the proposed work?		☐Yes	☐No
If Yes, can the work location be moved to avoid the hazard? If not, follow the appropriate federal regulations regarding safe working distances from electrical lines.		☐Yes	☐No
Have utility maps been requested of site personnel?		☐Yes	☐No
Do utility drawings exist for location? Click or tap here to enter text.		☐Yes	☐No
If Yes, have they been acquired and reviewed? Check here if Not Applicable ☐		☐Yes	☐No
Does the HASP or other relevant document specifically address the course of action following contact with a utility?		☐Yes	☐No
Additional Comments *(Provide any relevant notes from site walk and drawing review)* Click or tap here to enter text.			
PUBLIC UTILITY MARKOUT			
Date of Public One-Call: Click or tap here to enter text.		**Ticket Number(s)**: Click or tap here to enter text.	
Date of Public Markout Completed: Click or tap here to enter text.		**Date That Public Utility Markings Expire:** Click or tap here to enter text.	
List the Contacted Utilities: Click or tap here to enter text.			

PRIVATE UTILITY MARKOUT		
Is the boring location on private property? *If YES, then private utility markout is REQUIRED – prior GRP survey performed in this area – included.* ***Signature of PM waiving this requirement** _____	☐Yes	☐No
Method of UUC utilized: Click or tap here to enter text.		
Company providing Private UUC: Click or tap here to enter text. **Date Private UUC completed:** Click or tap here to enter text.		
Was the UUC contractor provided all existing utility figures prior to the markout?	☐Yes	☐No
Did the Private UUC contractor provide a detailed sketch/drawing/figure of the identified utilities?	☐Yes	☐No
Are any borings located within the Critical Zone (Area 5 feet vertically or horizontally of a located or suspected utility? *If NO, then manual clearance (e.g. hand auger) to 4 feet below ground surface is required.* Click or tap here to enter text. *If YES, then manual clearance to a minimum depth of 6 feet below ground surface and minimum width of 120% of the boring diameter is REQUIRED.* ***Signature of Facility PM waiving this requirement:** _____	☐Yes	☐No
***Signature of consultant health and safety manager waiving this requirement:** _____		

Please note that the above clearances are the Minimum. The farther the distance from a utility the better.

INTRUSIVE WORK		
Has a visual site inspection of all locations been completed and private and public utility markings been reviewed? Click or tap here to enter text.	☐Yes	☐No
Is manual vertical clearance required?Click or tap here to enter text..	☐Yes	☐No
Has the competent on-site UC person shared any documented results of the Private UUC with the person completing the intrusive work?	☐Yes	☐No
Method of manual clearance utilized: Click or tap here to enter text.		
Company providing manual clearance: Click or tap here to enter text. **Date manual clearance completed: planned** Click or tap here to enter text.		

EXPLANATION FOR ANY WAIVED REQUIREMENT(S) – REQUIRED
Click or tap here to enter text.

Signature of Person Completing Checklist:_____

Date of Completion: Click or tap here to enter text.