MEMORANDUM

SUBJECT: Colonial Terminals, Inc.
Air Compliance Inspection QAPP
Savannah, Georgia

FROM: Rosalyn Hughes, Environmental Engineer
Sharron Porter, Environmental Engineer
Denis Kler, Environmental Engineer
Nikki Radford, Environmental Scientist NRR 12/5/2016

TO: Dick DuBose
North Air Enforcement & Toxics Section
Todd Russo TDR 12/6/16
South Air Enforcement & Toxics Section

Attached is the Quality Assurance Project Plan (QAPP) for the Air Compliance inspection that will be conducted at Colonial Terminals, Inc. (Colonial) located in Savannah, Georgia, on December 7, 2016.

I. PROJECT INFORMATION

1. PROJECT LOCATION

Colonial Terminals, Inc.
101 N. Lathrop Ave
Savannah, Georgia 31402

2. DISTRIBUTION

A copy of this QAPP is distributed to the following list below:

Rosalyn Hughes
Denis Kler
Sharron Porter
Nikki Radford
Todd Russo
Dick Dubose

3. OBJECTIVES AND BACKGROUND

Colonial stores and distributes large volumes of gasoline and other petroleum products as well as non-gasoline volatile organic liquid compounds (VOLs) and non-volatile liquid products. All products are stored in storage tanks and loaded into rail cars, tank trunks, and/or barges for

distribution. The facility stores and throughputs liquid bulk and dry bulk products such as, but not limited to, gasoline, diesel fuel, fuel oil, kaolin, and mulcoa. Colonial operates 24 hours a day, 7 days per week, and 365 days per year.

All of the gasoline storage tanks and the gasoline-loading terminals are located at Plant # 1. Other VOLs are stored and loaded into tank trucks and rail cars at both locations. Only dry bulk materials are handled at Plant # 2.

The primary activity of Colonial Chemic Solutions (CCS) is wholesale distribution. It receives, warehouses, and distributes drums and totes of chemicals and petroleum products. It also receives bulk chemicals and petroleum products via tanker truck and unloads the tankers directly into drums and totes for distribution to customers.

4. PROJECT DESCRIPTION

EPA will conduct a partial compliance evaluation of the facility as a part of the Air Toxics Tanks Initiative. EPA will specifically focus on any tanks subject to NSPS K, Ka and Kb and MACT R. The inspectors will use the TVA 2020, GF306 FLIR Camera, and QRAE personal monitors.

5. FIELD STUDY DATES

December 6, 2016.

II. DATA GENERATION AND ACQUISITION

1. INSTRUMENT/EQUIPMENT CALIBRATION

TVA 2020, 4 Gas personal monitors

2. DATA MANAGEMENT

All data generated for this field investigation will be stored, managed and maintained in the official EPA air compliance source file for the facility.

III. HEALTH AND SAFETY PLAN

Project Title:	Colonial Terminals Air Compliance Evaluation
Location:	Colonial Terminals, Inc. 101 N. Lathrop Ave Savannah, Georgia 31402

Description of Field Activities: Partial Compliance Evaluation

Date of Field Activity: December 6, 2016.

Field Personnel: Rosalyn Hughes, Denis Kler, Sharron Porter and Nikki Radford

Hospital: Candler Hospital
5353 Reynolds St,
Savannah, GA 31405
(912) 819-6000

Police Department: Savannah Chattem Metropolitan Police Department
102 E. Lathrop Ave
Savannah, GA 31415
Non-emergency: (912) 651-6990

Fire Department: Savannah Fire Station 4
2401 Augusta Ave
Savannah, GA 31415
Non-emergency: (912) 234-8590

Emergency Number: 911

Tasks and Hazards:

Task	Hazard	Protection and Control Measures
Inspection	General Safety	Level D PPE and any facility-specific PPE. Level C PPE will be used by Nikki Radford when conducting Method 21.
	Cold	Inspectors will appropriate winter attire.
Method 21	HAP exposure	Inspectors will wear respirators (Level C PPE) and flame retardant clothing when conducting Method 21. Nikki Radford will be the only inspector conducting Method 21. All Inspectors will wear personal safety monitors at all times.
FLIR Camera	Device not intrinsically safe	When required by the facility, inspectors using the FLIR will get a hotwork permit. Inspectors will wear personal safety monitors at all times.

JOB HAZARD ANALYSIS

Hazard Types (HT)

1. Toxic Chemicals
2. Flammable Chemicals
3. Corrosive Chemicals
4. Environmental
5. Explosion (Chemical Reaction)
6. Explosion (Over pressurization)
7. Mechanical/Vibration
8. Electrical (Shock, Short Circuit)
9. Electrical (Fire)
10. Electrical (Static, ESD)
11. Electrical (Loss of Power)
12. Ergonomic (Overexertion)
13. Ergonomic (Human Error)
14. Vibration
15. Fall (Slips/Trips)
16. Fall (To a Different Level)
17. Excavation (Collapse)
18. Fire, Heat, Thermal, Cold
19. Noise
20. Radiation (Ionizing/Non-Ionizing)
21. Visibility
22. Weather
23. Caught (In, On, Between)
24. Struck (By, Against)
25. Driving
26. Confined Space
27. Other

Job Task: General Industrial Air Inspections

Job Frequency/ Duration: 20/year; 1-5 days/site; may conduct several site inspections during one trip

Tools Used:
Digital Camera
FLIR Camera
Portable VOC Detector
Cell Phone
Portable Toxic Vapor Analyzer (borrowed from 6SF)

Chemicals Used:
Span gases for calibration – 10 lb or smaller compressed gas cylinders

CRITICAL TO SAFETY (CTS)

Risk Estimation Matrix

Probability of Occurrence of Harm	SEVERITY OF HARM			
	Catastrophic	Serious	Moderate	Minor
VERY LIKELY	Extreme	High	High	Medium
LIKELY	High	High	Medium	Low
UNLIKELY	Medium	Medium	Low	Negligible
REMOTE	Low	Low	Negligible	Negligible

* High = CTS tasks should receive engineering controls prior to assigning administrative or PPE controls.

FLIR = Forward Looking Infrared
VOC = Volatile organic compound
PPE = Personal protective equipment
MSDS = Material Safety Data Sheet

Job Description: Personnel conduct site inspections at various industrial facilities to determine compliance with federal emission standards, Title V Operating Permits, or Synthetic Minor Operating Permits. Personnel may scan various units using the FLIR camera to determine if leaks/plumes are present. If leaks are observed, personnel approach the unit from upwind to limit potential inhalation exposures. VOC detectors and toxic vapor analyzers may be utilized to confirm presence of certain types of emissions at the source. VOC detectors and vapor analyzers require periodic calibration using standard gases which come in small compressed gas cylinders. Inspections encompass indoor and outdoor site conditions, and include visual observations of operating and non-operating industrial machinery and equipment.

Step #	Procedures (LOP Procedure Step)	Potential Hazards	HT	Check CTS	Recommended Safe Practice	PPE
1	Pre-inspection: Collect and review available site information and records, coordinate travel, and develop site safety plan.	None	NA	NA	Consider anticipated weather conditions and potential hazards, and determine appropriate attire	NA
2	Deployment: Organize personnel/equipment/supplies; Conduct pre-inspection meeting at Regional Office (RO); Deploy to location either by car or airplane (personnel drive the majority of times).	Ergonomics, Driving, Weather	13, 15, 21, 22, 24, 25, 27	Medium	Careful lifting techniques; situational awareness of wet or uneven ground; secure grip; packing at desk level or higher; drive defensivly; do not text while driving; do not use phone while driving (passenger makes calls or move off road and stop)	Other Body Protection
3	Calibrate Instruments: Prior to site entry, personnel calibrate portable or hand-held VOC detector or toxic vapor analyzer, if such are to be used (conducted off-site to avoid cross contamination). If no portable detectors or analyzers will be used, proceed to step 4.	Pressurized gas cylinders	2, 27	Low	Follow instrument manual instructions and calibration gas MSDSs for proper handling of span gases during detector calibration	NA
4	Site Entry and Observation: Personnel may be requested to complete a short (<30 minutes) on-site facility-specific safety briefing before conducting an opening meeting. In the opening meeting, site-specific documentation, facility layout drawings, diagrams, reports, records and other data are requested for cursory review. Personnel then observe and inspect facility operations following the process flow throughout the site, both inside and outside. Special attention is given to process equipment, tanks, pollution control equipment, piping, drains,	Poisonous insects or plants, chemicals, thermal/cold stress, noise, vibration, slips/trips/falls, severe weather, operational and/or moving heavy equipment and vehicles, pressurized/cryogenic	1-4, 6, 7, 14, 15, 18, 19, 20, 21, 22, 27	High	Reference PPE Recommendations table and PPE Hazard Assessment Form	

Step #	Procedures (LOP Procedure Step)	Potential Hazards	HT	Check CTS	Recommended Safe Practice	PPE
	storage areas, and treatment systems. Personnel may scan vessels, piping, or tanks with the FLIR camera from a distance and move closer from an upwind direction. If unauthorized emissions are noted, personnel document the deficiencies using the FLIR camera, a digital camera, and the VOC detector or toxic gas analyzer. At the conclusion of the site inspection, personnel conduct a closing meeting to communicate deficiencies, identify additional information needs, or request follow up actions.	bulk gas storage vessels, hazardous material storage vessels, high pressure liquid or gas piping systems, non-ionizing radiation from industrial lasers, dust and smoke, noxious odors				
5	Deployment to Next Location: If applicable, personnel drive to next industrial facility and repeat steps 3 & 4 above. If not, personnel proceed to step 6.	Reference Steps 3 & 4				
6	Post-Inspection Return: Upon completion of inspection visit(s), return to RO and proceed with post inspection activities (administrative in nature).	Ergonomics, Driving, Weather	13, 15, 21, 22, 24, 25, 27	Medium	Careful lifting techniques; situational awareness of wet or uneven ground; secure grip; packing at desk level or higher; drive defensively; do not text while driving; do not use phone while driving (passenger makes calls or move off road and stop)	Other Body Protection

HAZARDS –NOTE ALL POTENTIAL HAZARDS ASSOCIATED WITH THE JOB (CHECK ALL THAT APPLY)

Physical

General	☒	thermal stress	☒	cold	☒	noise
	☒	explosion	☒	fire	☒	weather
	☐	fatigue	☐	violence	☒	illness/injury
Radiation	☐	ionizing	☐	microwave	☐	light
Vehicles	☒	traffic	☒	heavy equip	☒	forklift
	☐	helicopter	☐	small aircraft	☐	boat
Boat Ops	☐	sediment sampling	☐	rapid water	☐	open water
	☐	diving	☐	electrofish		
Industrial	☒	comp gas	☒	electricity	☐	confined space
	☒	equip	☒	moving parts		
Overhead	☐	obstruction	☒	falling objects		
Elevation	☒	roof	☒	scaffold	☒	ladder
	☒	stairs	☒	catwalk		
Slips/trips	☒	terrain	☒	debris	☒	slippery
	☐	trench	☒	pits/holes		
Other physical hazards:			☒	Noxious odors, pressurized vessels, vibration, non-ionizing radiation (lasers)		

Biological

Agriculture	☐	CAFO	☐	fish	☐	farm animals
Animals	☒	dogs	☒	feral animals	☒	snakes
Insects	☒	spiders	☒	mosquitoes	☒	wasp/hornet
	☒	bees				
Pathogens	☐	bloodborne	☐	sewage	☐	med/lab
Other Biological:	☒	scorpions, poisonous plants				

Chemical

Containers	☒	ammonia	☒	chlorine	☒	other
VOCs	☒	solvents	☒	fuel	☒	oils
Wastes and other materials	☐	sewer	☐	landfill	☒	smoke/dust/fume
	☒	metals	☐	PCBs	☒	paints/surfacing
Particulates	☒	fibers	☒	diesel	☐	asbestos
Sampling	☐	acids	☐	bases		
Other Chemicals:	☒	benzene, toluene, ethylbenzene, xylene, sulfides, CO_2, liquid natural gas, methane, ethane, amine solutions, inert/ cryogenic bulk gases, inorganic acids and alkalis, chlorofluorocarbons, organic corrosives, etc				

PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIRED (CHECK ALL THAT APPLY)

Feet:	☐	safety boots	☒	steel-toe boots	☐	shank
	☐	rubber boots	☐	waders		
Gloves:	☒	leather	☐	cotton	☐	cut-resistant
	☐	chemical resist	☐	disposable		
Body:	☐	safety vest	☐	pfd	☐	harness
	☐	Tyvek	☒	Nomex	☐	coveralls
Eyes:	☒	safety glasses	☒	sunglasses	☐	goggles
Head:	☒	hard hat	☒	hearing protection	☒	respirator

OTHER REQUIRED SAFETY EQUIPMENT/TRAINING

☐	dosimetry	☒	communication	☐	decontamination
☒	first aid kit	☐	fire extinguish	☐	flares
☐	chains/studs	☒	eye wash/shower		

☐	24 hr HAZWOPER	☒	40 hr HAZWOPER	☒	HAZWOPER Annual Refresher
☐	TLD Program	☒	RPP Program	☒	Medical Surveillance
☒	1st Aid/CPR	☒	Other: Defensive Driving Training		

COMMENTS:

Personnel may be potentially exposed to various chemicals while inspecting process equipment, piping, storage areas, pollution control devices, tanks, and treatment systems. Chemicals may include, but are not limited to: organic chlorinated and non-chlorinated solvents; bulk flammable, combustible, toxic/corrosive, or inert/cryogenic gases; petroleum fuels; petroleum and non-petroleum oil substances; chlorofluorocarbons, inorganic acid and alkaline liquids; metallic and non-metallic mineral solids; and, organic corrosives. Air sampling data is usually not available to document potential inhalation exposures, so personnel should minimize time spent in areas where hazardous materials are stored or used. Physical hazards may include loud noise, dust, smoke, and vibration from heavy equipment and machinery, noxious odors, forklift and other vehicular traffic, and occasionally, non-ionizing radiation from industrial lasers. Personnel may be exposed to hazardous noise levels at or above 85 dBA, and are required to wear ear plugs and/or muffs while observing or inspecting areas with hazardous noise. Sources of hazardous noise may also generate noticeable vibration. Such sources include heavy equipment and machinery, and large motors, compressors and pumps which may be located in semi-enclosed structures. Personnel may be exposed to smoke, dust and fumes from material stockpiles, moving and handling equipment, and process equipment. When such conditions are anticipated, personnel are advised to stay upwind of these sources. Outdoor inspections may occur during all types of weather conditions, including extreme heat, cold, or high wind. Thermal stress is the most serious potential hazard; therefore, personnel must ensure adequate hydration and wear appropriate attire and field gear when conducting outdoor site inspections. Inspection acitivies may be conducted on various terrains and in remote locations where pits, holes, and trenches may be encountered. Poisonous insects, plants, and snakes may be present. Personnel should be aware of their surroundings and take evasive actions to avoid contact with such hazards. For inspections where air monitoring is conducted, personnel are required to wear full-face respirators when in close proximity to air emission sources. Although personnel approach these sources from upwind, the wind direction could change at any time and potential inhalation hazards may be present. **REFER TO PPE HAZARD ASSESSMENT FORM FOR SPECIFIC EXPLANATION OF HAZARDS ASSOCIATED WITH THIS JOB HAZARD ANALYSIS.**

CERTIFICATION OF HAZARD ASSESSMENT

SUPERVISOR:	DATE:	SAFETY/HEALTH REPRESENTATIVE:	DATE:

Personal Protective Equipment (PPE) Recommendations

Where engineering and administrative controls are not feasible or sufficient for controlling hazards, PPE must be used to protect workers. The following PPE are recommended for the noted tasks above:

Eye and Face Protection			
X	Safety glasses with side shields		Reflective goggles/face shield
	Chemical splash goggles	X	Cutting/brazing/welding eye protection
	Face shield	X	Other: Sunglasses
Head Protection			
X	Hard hat, bump cap		Helmet, cowl, hood
	Welding helmet/mask		Other:
Foot Protection			
X	Safety shoes/boots		Other:
X	Chemical-resistant boots		
Body Protection			
	Apron (splash, work)		Head-reflective garments
X	Lab coat		Sleeves (cut-resistant)
X	Coveralls (work, chemical-resistant) Hazard Type: Fire Type coverall: Nomex (if required by facility)	X	Other: Appropriate field gear for the weather (thermal/cold stress), long sleeves and other protective clothing if poisonous insects/snakes/plants may be encountered
Respiratory Protection			
X	Respirator (situational dependant)	X	Type of respirator: Full-Face with GMC-H cartridges
Hand Protection			
	Rubber insulating gloves		Rubber insulating sleeves
	Rubber insulating hoods		Other:

Other: Ear plugs and/or muffs, sunscreen, insect repellent, and site-specific PPE as directed by industrial site. All site-specific PPE will be provided by the industrial facility.

Personnel are not authorized to wear contact lenses during inspections due to potential reaction with chemical vapors. Prescription safety glasses are available through the Health & Safety Office.

PPE Hazard Assessment Form

HEALTH AND SAFETY HAZARDS		
Chemical Hazards		
X	Vapors/gases	Personnel may be potentially exposed to various chemicals while inspecting process equipment, piping, storage areas, pollution control devices, tanks, and treatment systems. Chemicals may include, but are not limited to: organic chlorinated and non-chlorinated solvents; bulk flammable, combustible, toxic/corrosive, or inert/cryogenic gases; petroleum fuels; petroleum and non-petroleum oil substances; inorganic acid and alkaline liquids; metallic and non-metallic mineral solids; and, organic
X	Dusts/mists/fumes	Personnel may be exposed to smoke, dust and fumes from material stockpiles, moving and handling equipment, and process equipment.
X	Liquid splash	Same as for vapor/gases
X	Other	Physical hazards may include loud noise, dust, smoke, and vibration from heavy equipment and machinery, noxious odors, forklift and other vehicular traffic, and occasionally, non-ionizing radiation from industrial lasers.
Comments: (potential hazards associated with air monitoring)		Personnel may scan emission sources using the FLIR camera to determine if leaks/plumes are present. If leaks are observed, personnel approach the unit from upwind to limit potential inhalation exposures. VOC detectors and toxic vapor analyzers may be utilized to document the emissions at the source. Personal air sampling data is not available to document potential inhalation exposures. Personnel are required to wear full-face respirators when in close proximity to air emission sources during monitoring. Escape respirators may be required, dependent upon the site-specific situation. Although personnel approach these sources from upwind, the wind direction could change at any time and potential inhalation hazards may be present.
Physical Hazards		
X	Ergonomics	Personnel may experience repetitive motion or prolonged awkward positions during observations. Additional tasks during monitoring may include infrequent lifting, pushing, pulling, or carrying of heavy objects. Vibration, heat or cold may add risk to these work conditions. The level of risk depends on the intensity, frequency, and duration of the exposure to these conditions. Breaks at regular intervals, careful lifting techniques, secure grip on equipment items, and packing at desk level or higher will reduce potential exposure risk.
X	Heat — sparks, molten splash, high temperatures	Employees engage in field activities during all types of weather conditions, including extreme heat. Thermal stress is the most prevalent potential hazard. Personnel must ensure adequate hydration and wear appropriate field gear while engaging in outdoor inspection activities. Other potential sources of heat hazards include areas where welding, metal fabrication, or metal melting occurs, heated storage vessels, steam lines, and combustion exhausts ducts.
X	Cold — cryogens, cold temperatures	Employees engage in field activities during all types of weather conditions, including extreme cold. Although inspections are typically performed in termperate climates, exposure to freezing cold may be a potential hazard. Appropriate field gear must be worn.
X	Fire	Due to the nature of industrial facilities, potential fire or explosions hazards are possible. Personnel should follow site-specific fire safety and emergency response procedures for evacuation as the situation dictates. In addition, EPA staff should always accompanied by site personnel.
X	Electricity	Industrial sites have various electrical systems. Employees may be exposed to potential electrical hazards during inspection activities, depending upon the type of facility equipment and processes. Personnel should adhere to site-specific safety measures to avoid electrical hazards as the situation dictates. In addition, EPA staff should always accompanied by site personnel.
X	Radiation — ionizing, non-ionizing	Personnel may occasionally inspect facilities where potentially hazardous industrial lasers are used for specific purposes, such as thickness gauging, distance measurement, cutting, or penetration. Such devices typically are shielded and have warning symbols posted. Damage to eyes or local skin burns are the potential hazards. Personnel should maintain adequate distance from industrial lasers in accordance with site specific safety procedures and direction by site personnel.
X	Noise and vibration	Personnel may be routinely exposed to hazardous noise levels above 85 dB during site inspections. Sources of hazardous noise may also generate noticeable vibration. Such sources include heavy equipment and machinery, and large motors, compressors and pumps which may be located in semi-enclosed structures. Employees are required to wear ear plugs and/or muffs when conducting inspection activities around hazardous noise sources. Employees should minimize time spent in areas with high vibration levels to avoid symptoms of motion sickness or dizziness.
X	Slips/Trips/Falls	Slips/trips/falls are always likely when walking walking through an industrial plant. In addition, many of the field acitivies are conducted outside where pits, holes, and various terrains are encountered. Personnel need to be cognizant of their surroundings and take evasive actions to avoid contact with such hazards.
X	Elevation - Falls	Personnel may climb stairways or enter catwalks to access tanks, vessels and equipment higher than ground level to observe and inspect the condition of such sources. Personnel should exercise caution when climbing ladders or stairways, and ensure that these are equipped with approriate handrails and other safeguards. Personnel must inspect stairways/walkways to ensure structural integrity and/or question site personnel regarding structural stability prior to climbing. Personnel are not to climb ladders.
X	Other	Vehicle accidents and traffic are potential hazards encountered while driving to and from, and walking within, large industrial facilities. Personnel are required to take Defensive Driving Training, and should be cognizant of internal and external vehicle traffic (e.g. forklikfts, golf carts, earth-movers, 18-wheek trucks etc) when moving throughout an industrial site during inspections.

PPE Hazard Assessment Form

HEALTH AND SAFETY HAZARDS		
Biological Hazards		
X	Animals/Insects	Employees may encounter poisonous insects and snakes in outdoor locations during site inspections. Personnel need to be cognizant of their surroundings and take evasive actions to avoid contact with such hazards. Wearing long sleeves and other protective clothing is recommended when such outdoor conditions are anticipated to reduce potential exposures.
X	Other	Employees conducting inspections in outdoor locations may encounter poison ivy and other poisonous plants. Personnel must be trained to recognize common poisonous plants. In the field, employees should be aware of their surroundings, and evade areas which may have poisonous plants to prevent injury/illness. Cut-resistant gloves, long sleeves and other protective clothing are recommended when such outdoor conditions are anticipated to reduce potential exposures.

Completed by: **Date:**

SHEMP Review_____ **Date:** _____