VOLUNTARY REMEDIATION PLAN
SEMI-ANNUAL PROGRESS REPORT #4

SOUTHERN STATES, LLC
30 GEORGIA AVENUE
HAMPTON, GEORGIA

HSI No. 10141

APRIL 15, 2017

Prepared for

SOUTHERN STATES, LLC
30 Georgia Avenue
Hampton, Georgia

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CERTIFICATION OF GROUNDWATER REPORT

I certify that I am a qualified ground-water scientist who has received a baccalaureate or post-graduate degree in the natural sciences or engineering, and have sufficient training and experience in ground-water hydrology and related fields, as demonstrated by state registration and completion of accredited university courses, that enable me to make sound professional judgments regarding ground-water monitoring and contaminant fate and transport. I further certify that this report was prepared by me or by a subordinate working under my direction.

John O. Schwaller
Printed Name (GA Professional Geologist 1617)

Signature (Professional Geologist)

1.0 PROJECT SUMMARY

On behalf of Southern States, LLC (SSL), Environmental Management Associates, LLC (EMA) is submitting this Voluntary Remediation Plan – Semi-Annual Progress Report #4 (Progress Report) to the Georgia Environmental Protection Division for SSI's manufacturing facility located at 30 Georgia Avenue, Hampton, Georgia. This Progress Report has been prepared to meet the requirements contained in the Georgia Voluntary Remediation Program Act and covers the activities conducted since the submittal of Progress Report #3 dated October 15, 2016.

The SSL site (Site) is located at 30 Georgia Avenue, Hampton, Henry County, Georgia. The surrounding properties are predominantly residential. A topographic map (Property Location Map) of the surrounding area is included as Figure 1. A Site Plan is presented as Figure 2.

SSL began manufacturing operations at the Hampton, GA location in 1940. SSL manufactures high-voltage electrical switches and fuses at its 30-acre manufacturing facility located in Hampton, Georgia. In 1986, SSL conducted a focused groundwater investigation to determine the impact from an existing wastewater sludge impoundment. The results of this and subsequent investigations identified a release of select VOCs had occurred at the Property. In December 1989, SSL and the Georgia Environmental Protection Division (EPD) entered into a Consent Order (Order), No. EPD-HW-529. The Property was listed on the Hazardous Site Inventory on June 30, 1997 as Site No. 10141.

Since 1986, the Property has been the subject of a number of investigations which identified the presence of volatile organic compounds in the soil and groundwater.

EMA prepared the VRPAP and submitted to EPD on October 30, 2014. EPD approved the VRPAP with conditions and comments in two letters dated April 10, 2015.

EMA conducted two formal injections (June 2015 and January 2016 as proposed) of an in-situ chemical oxidation (ISCO) reagent (PeroxyChem's (formerly FMC Corporation) Klozur® sodium persulfate mixed with an alkaline activator (sodium hydroxide) to form sulfate and hydroxyl radicals) to reduce the existing groundwater contamination to levels at or below the Type 4 RRS proposed in the VRP. ISCO application was performed at three specific areas identified on Figure 3 with the following rationale:

Treatment Area	*Rationale*
Zone A – MW-39	suspected source zone (~ 200,000 µg/L TCE);
Zone B – TP-1 / TP-2	lateral impact area (~ 2,000 µg/L TCE); and
Zone C – MW-18	pilot study to determine saprolite/shallow bedrock treatment effectiveness on MW-32.

In June 2015, EMA's subcontractors, REM-CON, LLC and Geo Lab Probing Services, installed temporary injection points at each of the three treatment zones. The injection points include open screened areas targeting the contaminant zones from 12 feet (ft) below ground surface (bgs) to 35 ft bgs. The sodium persulfate reagent was injected throughout the overburden aquifer. ISCO injections occurred in June 2015 and January 2016. Only Treatment Zone A was utilized during Round #2 completed in January 2016.

This Semi-annual VRP Progress Report No. 4 was prepared in accordance with the VRP and covers the activities conducted since the Semi-Annual Progress Report No. 3 submittal and covers the period October 15, 2016 through April 15, 2017. These activities included a quarterly groundwater monitoring event, and initiating a screening level ecological risk assessment.

2.0 ACTIONS TAKEN SINCE LAST SUBMITTAL

2.1 GROUNDWATER PERFORMANCE MONITORING

Groundwater performance monitoring was performed in November 2016. The following select monitoring wells were utilized for the groundwater performance monitoring to determine the effectiveness following the January 2016 injection event:

Overburden Wells

- MW-9;
- MW-13;
- MW-18;
- MW-21;
- MW-39;
- MW-40;
- MW-41;
- TP-1;
- TP-2; and
- TP-3.

Groundwater samples were collected on November 2, 2016 using low-flow purging and sampling technique referenced in USEPA Region IV's SESD Operating Procedures - Groundwater Sampling dated March 6, 2013. Peristaltic pumps using disposable Teflon tubing was used for the purging and sampling. Static groundwater level measurements were recorded at each monitoring well on November 2, 2016. The measurements were made with a pre-cleaned "Slope" electronic water level detector and were reported to the nearest 0.01-foot based on a fixed point on the top of the well casing. A potentiometric contour map for the shallow water table was prepared based on the groundwater elevations presented in Table 1 and is provided as Figure 4. The groundwater flow direction is consistent with historic monitoring events.

During the low-flow purging procedure, field measurements of reduction oxidation potential (redox), dissolved oxygen (D.O.), turbidity, pH, conductivity, and temperature were recorded. Once the field measurements stabilized for three consecutive readings, samples were collected directly into the pre-preserved laboratory supplied containers. Monitoring well purge records are presented in Appendix A.

The groundwater samples were delivered under standard chain-of-custody (COC) protocols to Analytical Environmental Services, Inc. (AES) located in Atlanta, Georgia. AES is an accredited laboratory under the National Environmental Laboratory Accreditation Program (NELAC) (Accreditation ID: E87582). The groundwater samples were submitted for select target compound list (TCL) volatile organic compounds (VOCs) including 1,4-dioxane by SW-846 Method 8260B. In addition, the groundwater sample collected from monitoring well MW-13 was also analyzed for total and dissolved lead and turbidity. Historically, turbidity less than 10 NTU in MW-13 has not been achieved in samples resulting in elevated lead result which are not representative of the groundwater.

The detected compounds observed during the quarterly events since the baseline event of June 2015 through the November 2016 quarterly performance event are summarized in Table 2. Figure 5 presents the most recent total VOC iso-concentration contours. Figure 6 presents the most recent trichloroethylene (TCE) iso-concentration contours. The analytical reports are included in Appendix A.

2.2 DISCUSSION AND CONCLUSIONS

Review of the groundwater data presented in Table indicates favorable results in all three treatment zones even though some rebound has occurred. The following summarizes the reductions observed at representative monitoring wells within each Treatment Zone using the baseline data collected in June 2015 as a reference:

Treatment Zone A
MW-39: 214,900 µg/L to 9,800 µg/L (approximately 95% reduction);
MW-40: 5,438 µg/L to 1,369 µg/L (approximately 75% reduction); and
MW-41: 4,170 µg/L to 2,114 µg/L (approximately 49% reduction).

Treatment Zone B
TP-1: 2,300 µg/L to 1,030 µg/L (approximately 55% reduction); and
TP-2: 856 µg/L to 781 µg/L (approximately 8% reduction).

Treatment Zone C
MW-18: 106 µg/L to 163 µg/L (reduction to non-detect followed by rebound of cis-1,2 DCE).

For monitoring well MW-13, total lead was detected at 0.0577 mg/L with a turbidity of 93 NTU. The associated dissolved lead concentration was non-detect at the associated reporting limit of 0.01 mg/L indicating that the detected total lead was due to the elevated turbidity within this sample.

Table 2 presents the summary of analytical data collected since the baseline monitoring event of June 2015. Appendix B presents total VOC and select chlorinated contaminant trend graphs for each of the performance monitoring wells.

The reduction of contaminant concentrations from within Treatment Zone A has been significant to this point resulting in approximately 95% removal from monitoring well MW-39. This monitoring well has historically exhibited the highest contaminant concentrations on the Site. Continued semi-annual monitoring will be required to track any rebound.

2.3 SURFACE WATER SAMPLING

In correspondence from EPD (Brownlee to Shelley, May 25, 2016), EPD requested surface water samples be collected within Little Bear Creek to monitor the effects of the ISCO injections within surface water. Surface water samples (S-1 and S-2) were collected from the locations identified on Figure 2. The locations are to the north of treatment Zone A (MW-39 area) where the majority of the treatment injections occurred. The groundwater samples were delivered under standard chain-of-custody (COC) protocols to Analytical Environmental Services, Inc. (AES) located in Atlanta, Georgia. AES is an accredited laboratory under the National Environmental Laboratory Accreditation Program (NELAC) (Accreditation ID: E87582). The surface water samples were submitted for select target compound list (TCL) volatile organic compounds (VOCs) including 1,4-dioxane by SW-846 Method 8260B.

No analytes were detected above the respective detection limits. The laboratory report is presented in Appendix A.

2.4 SCREENING LEVEL ECOLOGICAL RISK ASSESSMENT

A Screening Level Ecological Risk Assessment (SLERA) has been initiated by Dr. Chris Saranko of Geosyntec Consultants. The SLERA will be performed following ecological risk assessment guidance from the United States Environmental Protection Agency (USEPA), including the following documents: *Ecological Risk Assessment for Superfund* (1997), *Guidelines for Ecological Risk Assessment* (1998), and *Region 4 Ecological Risk Assessment Supplemental Guidance* (2015). The results of the SLERA will be presented in the VRP Progress Report #5 that will be submitted in October 2017.

3.0 UPDATED CONCEPTUAL SITE MODEL

The preliminary Conceptual Site Model (CSM) was intended to establish a common knowledge base about the Property and its environmental condition, to facilitate the development of basic remedial action objectives appropriate for the Property, and to allow an informed decision regarding possible remedial action measures for the Property. This section updates the CSM and discusses the potential receptors and exposure pathways associated with the COC.

A preliminary CSM was developed based on the available Property information. A discussion of the updated CSM components is presented below, and the CSM is presented as Figure 7.

3.1 POTENTIAL EXPOSURE PATHWAYS

The potential exposure pathways were determined for the Property. These pathways include:

- Potential exposure to VOC COC in the soil via ingestion, inhalation, or direct contact.
- Potential exposure to VOC COC in groundwater via ingestion, dermal contact, or vapor intrusion.
- COC in the groundwater migrating to surface water and/or surface soil migrating to surface water and/or sediment (erosion).

It was concluded that the following exposure pathways are currently incomplete on the Property:

- Exposure to COC in soil to industrial workers and trespassers.
- Vapor intrusion from the COC is considered incomplete as there are no enclosed structures over the groundwater contaminant plume or in the downgradient groundwater flow direction (west).

Each of these pathways is evaluated in the following subsections. Based on the current and anticipated future land use, the Property will remain industrial.

3.1.1 Soil Ingestion, Inhalation, or Direct Contact

The soil exposure pathway to industrial workers and trespassers is potentially incomplete for VOC COC since all surface and subsurface soil VOC COC concentrations across the Property are below the applicable Type 1 RRS and

therefore do not pose a risk to human health by these pathways. The soil exposure pathway to industrial workers and trespassers is potentially complete for surface and subsurface soil PCB COC. However, this exposure pathway is minimal since only two historic soil sampling locations (SL-3 and SB-07 – see Figure 2) exhibited PCB COC concentrations above the applicable Type 1 RRS.

3.1.2 Groundwater Ingestion, Inhalation, Direct Contact, or Vapor Intrusion

The on-site groundwater exposure pathway for future direct contact by construction workers during on-site excavation activities is potentially complete. The off-site groundwater exposure pathway is currently incomplete since the VOC COC are limited to the Property and no drinking water or irrigation wells exist on the property; however, future off-site migration could potentially complete this pathway so this pathway has been defined as potentially complete. Vapor intrusion from the VOC COC is considered incomplete as there are no enclosed structures over the groundwater contaminant plume or in the downgradient groundwater flow direction (west). Based on the soil vapor survey completed by CRA in 1997, all soil vapor survey points at or near the Property buildings were non-detect for organic vapors.

SSL will ensure that the UEC includes vapor intrusion evaluation and/or mitigation language in the event the future land use changes.

3.1.3 Future Contaminant Migration to Sediment and/or Surface Water

Historical impacts to surface water and sediment within Little Bear Creek were noted in the early assessments for COC. However, numerous investigation results indicate that surface soils across the Property do not contain levels of VOC COC above HSRA reporting limits and therefore do not pose a current or future risk to surface water or sediment. PCB COC were however detected in the sediment within Little Bear Creek located on the Property. In addition, select surface soil samples in the landfill, the former Beaver Pond, and adjacent to the Little Bear Creek are impacted with PCB COC that exceed the Type 1 RRS for this parameter and therefore the pathway for future impact to the sediment via potential erosion should be considered potentially complete.

3.2 HUMAN RECEPTORS

The current and future use of the Property is industrial. Therefore, current and future on-Site receptors to impacted soils and groundwater are industrial and construction workers. In addition, potential future receptors include off-site residents that might contact impacted groundwater if off-site migration occurs.

It is important to recognize that the current edge of the contaminant plume is 1,475 feet upgradient from the SSL property boundary and the plume is stable and not migrating. Based on the drinking water survey completed by EPD in 1988, the use of all previously impacted City of Hampton drinking water supply wells have been discontinued (It should be noted that it was not confirmed that SSL was the source of this contamination based on groundwater flow direction). All surrounding residents obtain potable water from Henry County. Additionally, there is local zoning which prohibits the installation of wells without prior approval from the city of Hampton. This ordinance was enacted in 1993. Since that period, no water well permits have been filed and approved by the City of Hampton.

3.3 ECOLOGICAL RECEPTORS

Sediment within the first 300 feet of Little Bear Creek that is located on the Property was reported with levels of PCB COC above the Freshwater Sediment Screening Benchmark concentrations; however, the PCB COC sediment contamination does not extend off-Site. An ecological risk assessment is currently being performed to determine if remediation is required to protect this receptor.

The PCB COC detected in the surface soils of the landfill, in the areas within the former Beaver Pond, and adjacent to Little Bear Creek may migrate via erosion to the sediment and surface water in Little Bear Creek. However, impact would be expected to be minimal since the PCB COC concentrations are predominantly below the Type 1 RRS. No VOCs were identified in the surface soils based on recent investigations and therefore do not pose a risk to the ecological receptors.

3.4 FATE AND TRANSPORT MODELING

Fate and transport modeling will be conducted to support a HSRA Type 5 for select groundwater VOC COC that exceed the Type 4 RRS. The HSRA Type I RRS's will be the off-site standards for groundwater VOC COC at the point of exposure (POE). All downgradient properties within 1,000 feet of the delineated extent of contamination are owned and under the control of SSL. Further downgradient properties are on public water; therefore, the POE has artificially been set to a point 1,000 feet downgradient from the edge of the contaminant plume identified by monitoring well MW-18. The point of demonstration (POD) well will be existing on-site monitoring well MW-17 for the overburden and for the bedrock, existing monitoring well MW-36.

Fate and transport of the VOC COC exceeding the HSRA Type 1 RRS in the overburden groundwater unit will be conducted using an USEPA accepted fate and transport model. The model will incorporate all existing and newly collected Property information concerning hydrogeological and contaminant information. Data will be used to construct a calibration model from which the following models would be run:

- a model to determine the maximum distance the plume is expected to travel;
- a model to determine when the plume begins to retreat; and
- a model to determine the maximum groundwater VOC COC concentrations at the source at which the HSRA Type I RRS is not exceeded at the POE (downgradient property line).

3.5 CLEANUP STANDARDS

The groundwater cleanup standards for the VOC COC will be a combination of HSRA Type 1, 3, 4 RRS, or if not practical, the HSRA Type 5 RRS. The final groundwater cleanup standards will be defined in the October 2017 Progress Report.

The soil cleanup standards for the PCB COC will be the HSRA Type 1 RRS for everywhere except for the former landfill which will be capped and therefore fall under a HSRA Type 5 RRS classification.

The sediment cleanup standards will be determined by the results of the screening level or baseline Ecological Risk Assessment (SLERA or BERA) which will be defined in the October 2017 Progress Report.

All RRS will be implemented in accordance with the VRP timeline.

4.0 PROPOSED REMEDIATION PLAN

It is SSL's objective to implement this VRP to satisfy the requirements of the Georgia Voluntary Remediation Program Act for the preparation of a VRP Compliance Status Report.

4.1 REMEDIAL OPTIONS

EMA is proposing a combination of the following remedial actions to meet the objective for the Property:

Soil

- Removal of soil exceeding the Type 1 RRS for PCBs at locations SED-3 and SED-4 and confirmatory sampling; and
- Completion of the capping of the former landfill.

Groundwater

- Limited in-situ chemical oxidation (ISCO);
- Monitored natural attenuation/Groundwater Monitoring; and
- Future land use and groundwater restriction covenants.

Sediment

- Ecological risk assessment to determine remedial options for the exposed portion of Little Bear Creek

4.1.1 Removal of Soil

The soil exceeding the Type 1 RRS for PCB COC at location SED-3 and SED-4 identified on Figure 2 will be excavated and confirmatory soil samples will be collected to confirm that existing soil meets the Type 1 RRS. The soil will be disposed off-site in an approved TSD facility.

4.1.2 Installation of a Cap over the Existing Former Landfill

To prevent future surface soil migration of PCB COC contamination, industrial worker or trespasser contact with these soils, and minimize VOC COC migration within the groundwater, a permanent cap is proposed for portions of the former landfill area adjacent to Little Bear Creek. The objective of the cap would be to minimize rainfall infiltration and run-off. The permanent cap design will be

submitted to EPD at a later date but it may incorporate a combination of reinforced concrete slab, asphalt, or geotextile membrane and vegetated soil.

The concrete area of the cap will be physically constructed to serve the dual purpose of site cap and lay down yard for SSL. The cap will be designed to provide adequate surface water run-off drainage and minimize erosion. Vegetative soil would be placed on the sloped areas not conducive to physical use. A HSRA Type 5 RRS for PCBs in soil COC would be met for this area.

4.1.3 Limited ISCO Groundwater Treatment

The use of in-situ chemical oxidation (ISCO) reagents was implemented at select suspected overburden groundwater source area locations to reduce the VOC COC concentrations. Treatment in select areas where groundwater currently exceeds the Type 4 RRS was performed throughout the area surrounding monitoring well locations MW-39, TP-1/TP-2, and MW-18. Performance monitoring was evaluated through quarterly groundwater sampling events and determined to be highly effective with an approximate 95% reduction in the MW-39 area. The treatment of the overburden significantly reduces the source that is impacting the bedrock groundwater zone.

4.1.4 Monitored Natural Attenuation / Groundwater Monitoring

Subsequent to the ISCO injections, select groundwater monitoring wells were sampled. Continued long term monitoring will be implemented as a continued remedial option which will include monitored natural attenuation parameters as well as the groundwater COC to validate the fate and transport model predictions. A summary of the proposed monitoring program details is as follows:

Overburden Wells	Bedrock Wells
MW-9, MW-13, MW-17, MW-18, MW-21, MW-35, MW-39, MW-40, MW-41, TP-1, and TP-2	MW-19, MW-20, MW-28, MW-31, MW-32, and MW-36

The MNA parameters will include ferrous iron, sulfide, sulfate, nitrate, alkalinity, chloride, carbon, dioxide, and dissolved methane and ethane/ethane, VOC analysis, and field parameters which will include pH, conductivity, ORP, D.O., and temperature.

4.1.5 Future Land Use and Groundwater Restriction Covenants

Based on the limited exposure pathways present on the Property, institutional controls will be utilized at the Property to eliminate future exposure pathways for on-site exposure. Where institutional controls are implemented, the environmental covenants will conform with the Uniform Environmental Covenants Act (O.C.G.A. § 44-16-1). The City of Hampton currently has a zoning prohibition (Ord. No. 77, § 2.01, 10-12-93) requiring approval prior to digging, drilling, or boring a well for water which was enacted in 1993. The City of Hampton has not approved a well since the inception of the ordinance.

In addition, SSL will implement a site specific UEC to include a site specific groundwater use restriction as part of the site limitations.

4.1.6 Ecological Risk Assessment

A screening-level ecological risk assessment (SLERA) is being performed along Little Bear Creek. The objective of the assessment is to determine if remediation is required. The results of the SLERA will be presented in the October 2017 VRP Progress Report #5.

5.0 SCHEDULE AND FUTURE SUBMITTALS

A semi-annual groundwater sampling event including additional monitoring wells and monitored natural attenuation parameters is scheduled for June 2017.

Removal of impacted soil from the SED-4 location will be performed followed by the finalization of the SLERA.

Groundwater fate and transport modeling will be performed using the POD and POE described in this report to pursue development of groundwater ACLs where appropriate to demonstrate that any off-site receptor will not be adversely impacted. Long term groundwater monitoring with MNA will be performed to confirm model results.

Once a groundwater ACL has been agreed upon, a partial cap and re-vegetation to cover exposed areas of the former landfill will be initiated to prevent further surface water infiltration and potential movement of any subsurface contaminants.

A Projected Milestone Schedule, showing timelines for the above items, is included in Appendix C.

Semiannual progress reports will continue to be submitted updating the progress and implementation of the VRPAP throughout the program. Additionally the Projected Milestone Schedule will be updated to show progress on the VRP objectives. The VRP Progress Report #5 will be submitted by October 15, 2017.

6.0 PROFESSIONAL GEOLOGIST CERTIFICATION STATEMENT

"I certify under penalty of law that this report and all attachments were prepared by me or under my direct supervision in accordance with the Voluntary Remediation Program Act (O.C.G.A. Section 12-8-101, et seq.). I am a professional engineer/professional geologist who is registered with the Georgia State Board of Registration for Professional Engineers and Land Surveyors/Georgia State Board for Professional Geologists and I have the necessary experience and am in charge of the investigation and remediation of this release of regulated substances.

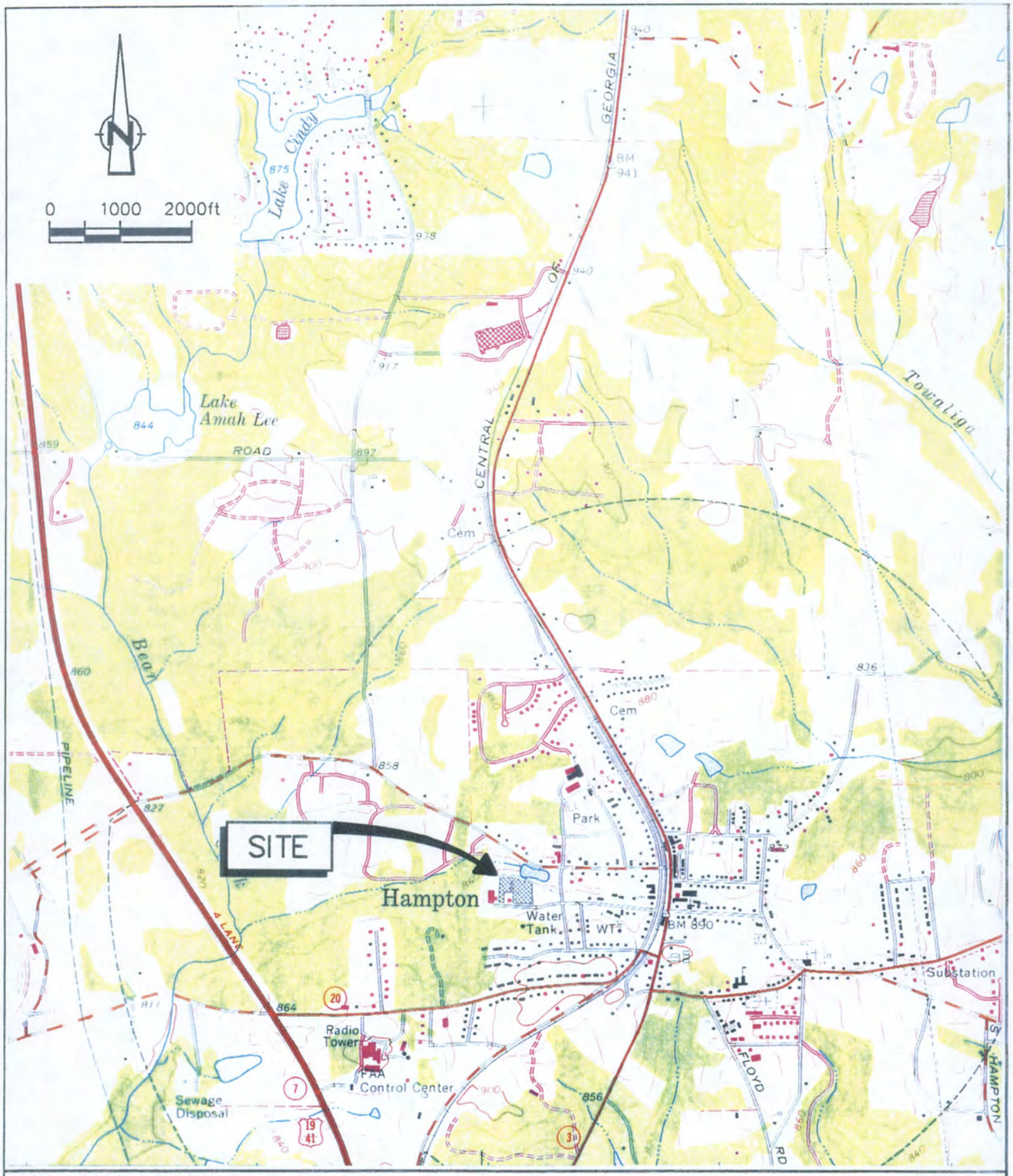
Furthermore, to document my direct oversight of the Voluntary Remediation Plan development, implementation of corrective action, and log term monitoring, I have attached a monthly summary of hours invoiced and description of services provided by me to the Voluntary Remediation Program participant since the previous submittal to the Georgia Environmental Protection Division.

The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. "

Mr. John O. Schwaller, P.G.
Georgia Registration No. 1617

Signature/Stamp

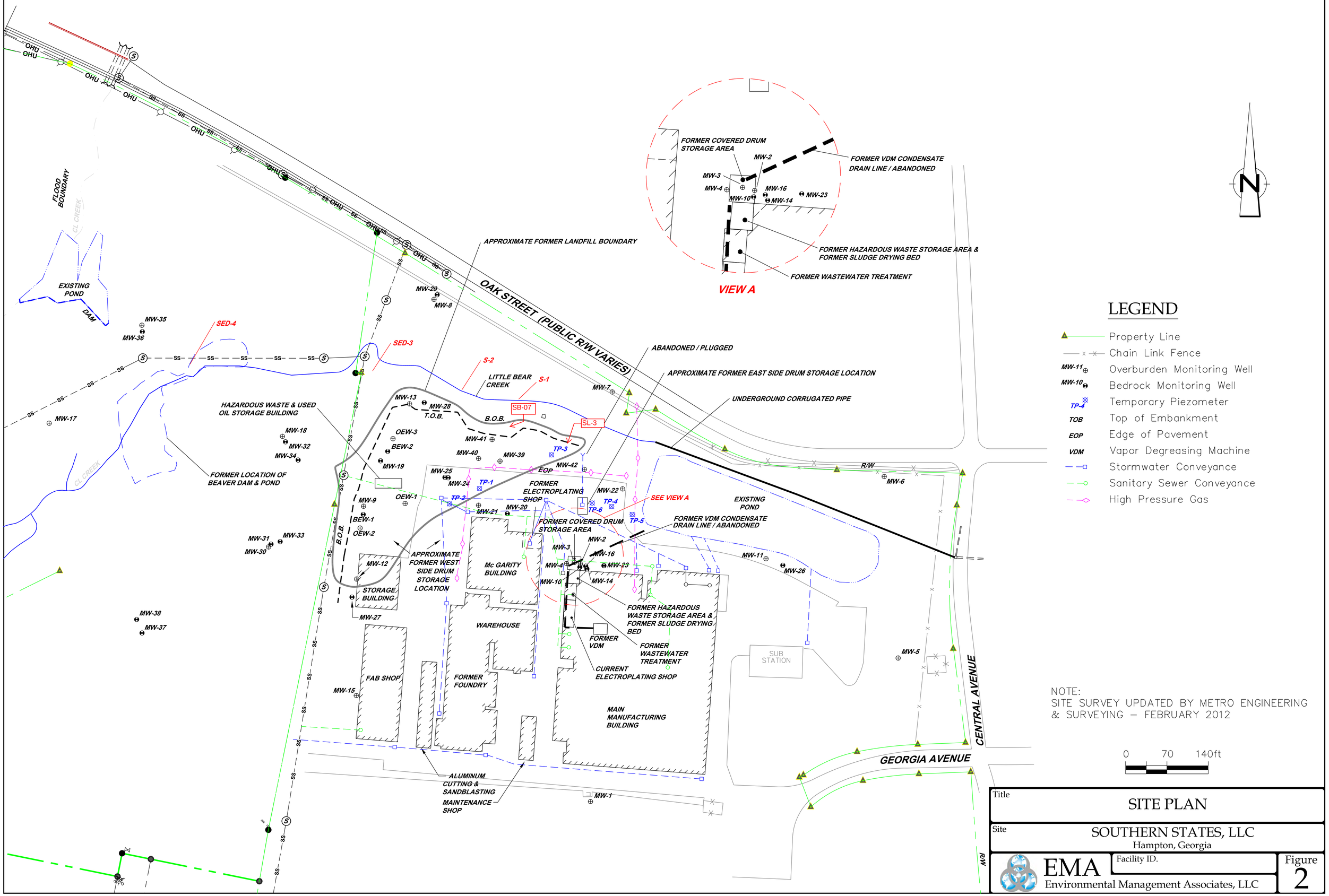
FIGURES



SOURCE: USGS QUADRANGLE;
HAMPTON, GEORGIA

figure 1

LOCATION MAP
SOUTHERN STATES SITE
Hampton, Georgia



LEGEND

- Property Line
- Chain Link Fence
- MW-11 Overburden Monitoring Well
- MW-10 Bedrock Monitoring Well
- TP-4 Temporary Piezometer
- TOB Top of Embankment
- EOP Edge of Pavement
- VDM Vapor Degreasing Machine
- Stormwater Conveyance
- Sanitary Sewer Conveyance
- High Pressure Gas

NOTE:
SITE SURVEY UPDATED BY METRO ENGINEERING & SURVEYING – FEBRUARY 2012

0 70 140ft

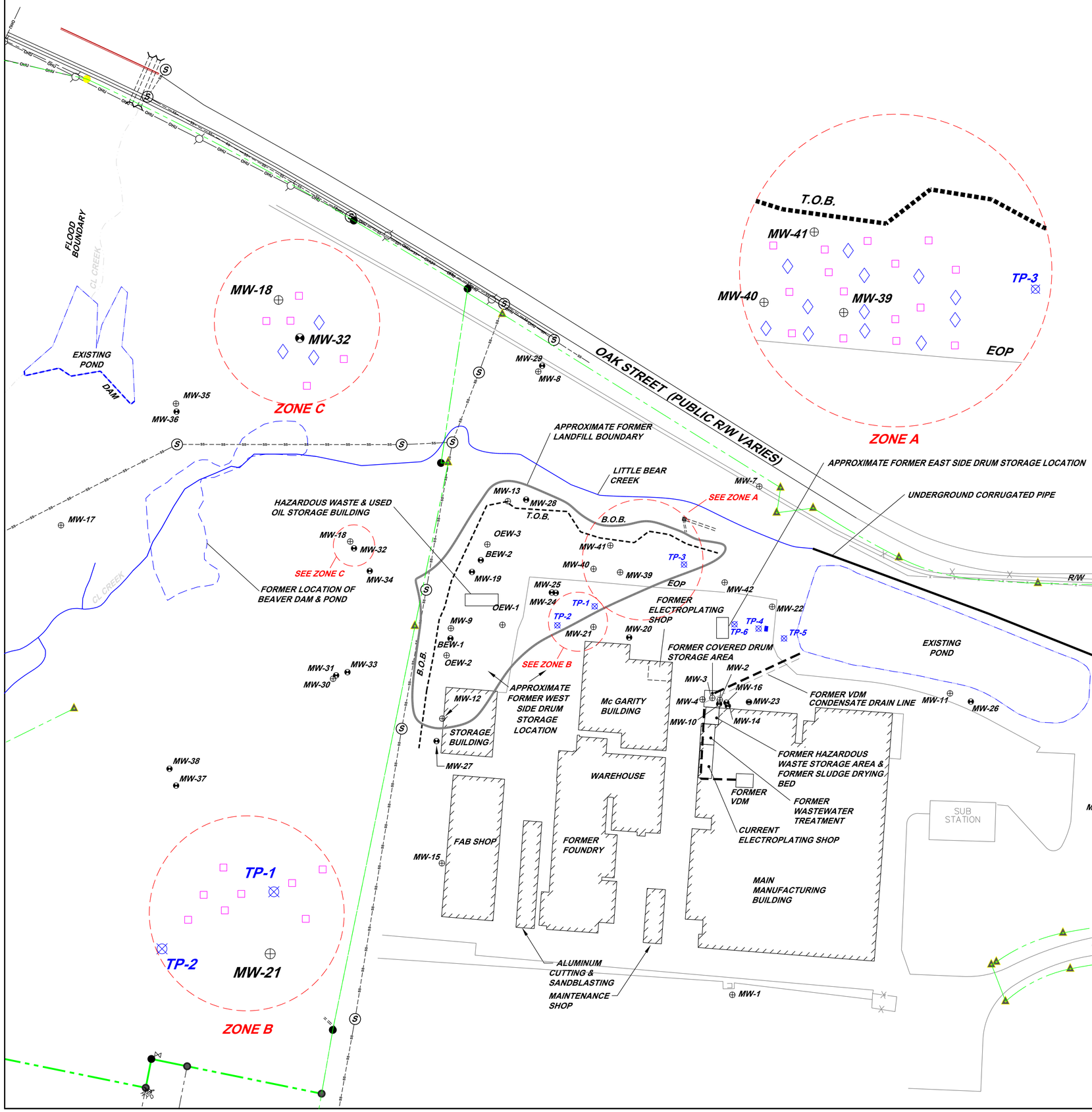
Title: SITE PLAN

Site: SOUTHERN STATES, LLC
Hampton, Georgia

EMA Environmental Management Associates, LLC

Facility ID.

Figure 2



LEGEND

- Property Line
- Chain Link Fence
- MW-11 Overburden Monitoring Well
- MW-10 Bedrock Monitoring Well
- TP-4 Temporary Piezometer
- TOB Top of Embankment
- EOP Edge of Pavement
- (105) Total VOC's, ug/L
- Deep Injection Point
- Shallow Injections Point

NOTE:
1,) SITE SURVEY UPDATED BY METRO ENGINEERING & SURVEYING – FEBRUARY 2012

2.) NO INJECTION PERFORMED IN ZONE B&C

0 70 140ft

Title: TREATMENT ZONE LOCATION MAP

Site: SOUTHERN STATES, LLC
Hampton, Georgia

EMA Environmental Management Associates, LLC

Facility ID.

Figure 3

OAK STREET (PUBLIC R/W VARIES)

OHU
SS
S

FLOOD BOUNDARY
CL CREEK
EXISTING POND
DAM
MW-35
MW-36
MW-17
MW-18 (832.95)
MW-32
MW-34
FORMER LOCATION OF BEAVER DAM & POND
HAZARDOUS WASTE & USED OIL STORAGE BUILDING
MW-31
MW-33
MW-30
MW-38
MW-37
MW-15
FAB SHOP
MW-12
STORAGE BUILDING
MW-27
APPROXIMATE FORMER WEST SIDE DRUM STORAGE LOCATION
BEW-1
OEW-2 (NM)
B.O.B.
BEW-2
OEW-3
MW-9 (837.73)
OEW-1 (NM)
MW-19 (NM)
MW-13 (837.06)
MW-28 (NM)
T.O.B.
MW-29
MW-8
APPROXIMATE FORMER LANDFILL BOUNDARY
LITTLE BEAR CREEK
MW-41 (836.40)
MW-40 (836.74)
MW-39 (836.87)
TP-3 (836.98)
MW-25
MW-24
TP-1 (838.29)
TP-2 (838.76)
MW-21 (838.96)
MW-20
EOP
FORMER ELECTROPLATING SHOP
MW-42
MW-7
APPROXIMATE FORMER EAST SIDE DRUM STORAGE LOCATION
UNDERGROUND CORRUGATED PIPE
MW-22
TP-4 (842.11)
TP-6 (NM)
TP-5
SEE VIEW A
FORMER COVERED DRUM STORAGE AREA
MW-2
MW-3
MW-4
MW-10
MW-16
MW-14
MW-23
FORMER VDM CONDENSATE DRAIN LINE
FORMER HAZARDOUS WASTE STORAGE AREA & FORMER SLUDGE DRYING BED
FORMER WASTEWATER TREATMENT
VIEW A
Mc GARITY BUILDING
WAREHOUSE
FORMER FOUNDRY
FORMER VDM
CURRENT ELECTROPLATING SHOP
FORMER HAZARDOUS WASTE STORAGE AREA FORMER SLUDGE DRYING BED
FORMER WASTEWATER TREATMENT
MW-11 (845.16)
MW-26
MW-5
SUB STATION
EXISTING POND
R/W
MW-6
CENTRAL AVENUE
GEORGIA AVENUE
ALUMINUM CUTTING & SANDBLASTING MAINTENANCE SHOP
MW-1 (848.43)
MAIN MANUFACTURING BUILDING
835
840
845
850

N

LEGEND

- Property Line
- Chain Link Fence
- MW-11 Overburden Monitoring Well
- MW-10 Bedrock Monitoring Well
- TP-4 Temporary Piezometer
- TOB Top of Embankment
- EOP Edge of Pavement
- (848.10) Groundwater Elevation, ft.
- 850 Groundwater Elevation Contour, ft.
- Groundwater Flow Direction

NOTE:
SITE SURVEY UPDATED BY METRO ENGINEERING & SURVEYING – FEBRUARY 2012

0 70 140ft

Title: GROUNDWATER ELEVATION MAP OVERBURDEN - NOVEMBER 2, 2016

Site: SOUTHERN STATES, LLC
Hampton, Georgia

EMA Environmental Management Associates, LLC

Facility ID.

Figure 4

OAK STREET (PUBLIC R/W VARIES)

835

OHU

SS

S

FLOOD BOUNDARY

CL CREEK

EXISTING POND

DAM

MW-35

MW-36

MW-17

MW-18 (163)

MW-32 (117)

MW-34

MW-29

MW-8

MW-13 (59)

MW-28 T.O.B.

B.O.B.

LITTLE BEAR CREEK

APPROXIMATE FORMER LANDFILL BOUNDARY

HAZARDOUS WASTE & USED OIL STORAGE BUILDING

FORMER LOCATION OF BEAVER DAM & POND

OEW-3

BEW-2

MW-19

MW-9 (892)

BEW-1

OEW-1 (NM)

OEW-2 (NM)

MW-31

MW-33

MW-30

MW-12

STORAGE BUILDING

MW-27

MW-38

MW-37

MW-15

FAB SHOP

FORMER FOUNDRY

WAREHOUSE

Mc GARITY BUILDING

APPROXIMATE FORMER WEST SIDE DRUM STORAGE LOCATION

MW-25

MW-24

MW-21 (279)

TP-2 (781)

TP-1 (1,030)

MW-20

MW-40 (1,369)

MW-41 (2,114)

MW-39 (9,800)

TP-3 (5,023)

MW-42

MW-22

FORMER ELECTROPLATING SHOP

FORMER COVERED DRUM STORAGE AREA

MW-2

MW-3

MW-4

MW-16

MW-23

MW-10

MW-14

FORMER VDM CONDENSATE DRAIN LINE

FORMER HAZARDOUS WASTE STORAGE AREA & FORMER SLUDGE DRYING BED

FORMER WASTEWATER TREATMENT

FORMER VDM

CURRENT ELECTROPLATING SHOP

MAIN MANUFACTURING BUILDING

ALUMINUM CUTTING & SANDBLASTING MAINTENANCE SHOP

MW-1

APPROXIMATE FORMER EAST SIDE DRUM STORAGE LOCATION

UNDERGROUND CORRUGATED PIPE

MW-7

R/W

MW-6

SEE VIEW A

TP-4

TP-5

TP-6

EXISTING POND

MW-11

MW-26

MW-5

SUB STATION

CENTRAL AVENUE

GEORGIA AVENUE

100

10,000

1,000

VIEW A

N

LEGEND

- Property Line
- Chain Link Fence
- MW-11 Overburden Monitoring Well
- MW-10 Bedrock Monitoring Well
- TP-4 Temporary Piezometer
- TOB Top of Embankment
- EOP Edge of Pavement
- (91) TOTAL VOC CONCENTRATION
- 100 TOTAL VOC CONCENTRATION CONTOUR

NOTE:
1.) SITE SURVEY UPDATED BY METRO ENGINEERING & SURVEYING – FEBRUARY 2012

2.) MW–32 IS BEDROCK WELL.

0 70 140FT

Title: POST INJECTION TOTAL VOC ISO-CONCENTRATION CONTOURS - NOV 2016

Site: SOUTHERN STATES, LLC
Hampton, Georgia

EMA
Environmental Management Associates, LLC

Facility ID.

Figure 5

OAK STREET (PUBLIC R/W VARIES)

835

OHU

SS

S

FLOOD BOUNDARY

CL CREEK

EXISTING POND

DAM

MW-35

MW-36

MW-17

MW-29

MW-8

APPROXIMATE FORMER LANDFILL BOUNDARY

MW-13 (ND(5))

LITTLE BEAR CREEK

MW-28

T.O.B.

B.O.B.

HAZARDOUS WASTE & USED OIL STORAGE BUILDING

MW-18 (28)

MW-32 (110)

MW-34

OEW-3

BEW-2

10

100

1,000

10,000

MW-41 (1,900)

MW-39 (9,800)

MW-40 (900)

TP-3 (1,100)

MW-42

MW-7

APPROXIMATE FORMER EAST SIDE DRUM STORAGE LOCATION

UNDERGROUND CORRUGATED PIPE

R/W

MW-6

FORMER LOCATION OF BEAVER DAM & POND

MW-9 (840)

MW-25

MW-24

TP-2 (660)

EOP

FORMER ELECTROPLATING SHOP

MW-22

TP-4

TP-6

TP-5

SEE VIEW A

BEW-1

OEW-1 (NM)

OEW-2 (NM)

MW-21 (250)

TP-1 (870)

FORMER COVERED DRUM STORAGE AREA

MW-2

MW-3

MW-16

MW-4

MW-23

MW-10

MW-14

FORMER VDM CONDENSATE DRAIN LINE

MW-11

MW-26

EXISTING POND

MW-31

MW-33

MW-30

APPROXIMATE FORMER WEST SIDE DRUM STORAGE LOCATION

MW-12

Mc GARITY BUILDING

STORAGE BUILDING

MW-27

FORMER HAZARDOUS WASTE STORAGE AREA & FORMER SLUDGE DRYING BED

WAREHOUSE

FORMER VDM

FORMER WASTEWATER TREATMENT

CURRENT ELECTROPLATING SHOP

SUB STATION

MW-5

MW-38

MW-37

FAB SHOP

MW-15

FORMER FOUNDRY

MAIN MANUFACTURING BUILDING

CENTRAL AVENUE

GEORGIA AVENUE

ALUMINUM CUTTING & SANDBLASTING MAINTENANCE SHOP

MW-1

VIEW A

FORMER COVERED DRUM STORAGE AREA

MW-2

FORMER VDM CONDENSATE DRAIN LINE

MW-3

MW-4

MW-16

MW-23

MW-10

MW-14

FORMER HAZARDOUS WASTE STORAGE AREA & FORMER SLUDGE DRYING BED

FORMER WASTEWATER TREATMENT

N

LEGEND

- Property Line
- Chain Link Fence
- MW-11 Overburden Monitoring Well
- MW-10 Bedrock Monitoring Well
- TP-4 Temporary Piezometer
- TOB Top of Embankment
- EOP Edge of Pavement
- (848.10) TCE ISO-CONCENTRATION
- 100 TCE ISO-CONCENTRATION CONTOUR

NOTE:
1.) SITE SURVEY UPDATED BY METRO ENGINEERING & SURVEYING – FEBRUARY 2012

2.) MW-32 IS BEDROCK WELL.

0 35 70FT

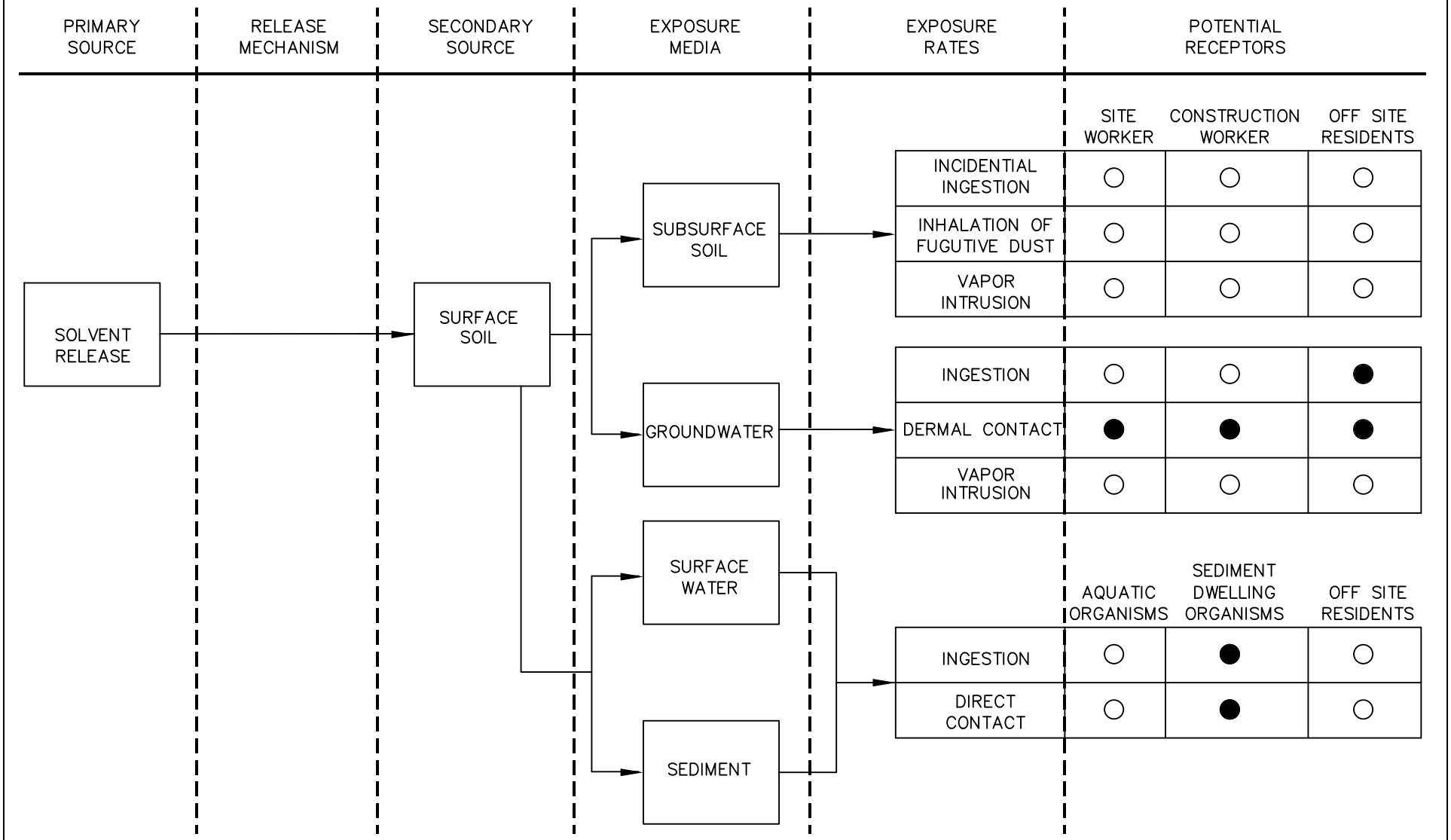
Title: POST INJECTION TCE ISO-CONCENTRATION CONTOURS - NOV 2016

Site: SOUTHERN STATES, LLC
Hampton, Georgia

EMA
Environmental Management Associates, LLC

Facility ID.

Figure 6



LEGEND:

● POTENTIALLY COMPLETE PATHWAY

○ POTENTIALLY INCOMPLETE PATHWAY

Title: CONCEPTUAL SITE MODEL

Site: SOUTHERN STATES, LLC
Hampton, Georgia

EMA
Environmental Management Associates, LLC

Facility ID.

Figure 7

TABLES

TABLE 1

SUMMARY OF GROUNDWATER ELEVATIONS
PERFORMANCE EVALUATION MONITORING WELLS
POST-INJECTION PERFORMANCE MONITORING ROUND #5*
SOUTHERN STATES, LLC.
NOVEMBER 2, 2016

Monitoring Well	*Reference Elevation (ft.)* [1]	*Depth to Groundwater (ft.)* [2]	*Groundwater Elevation (ft.)*
MW-9	856.50	18.77	837.73
MW-13	850.30	13.24	837.06
MW-18	838.03	5.08	832.95
MW-19 [3]	850.81	NM	
MW-21	851.32	12.36	838.96
MW-28 [3]	847.20	NM	
MW-32 [3]	838.86	5.65	833.21
MW-39	848.47	11.60	836.87
MW-40	851.86	15.12	836.74
MW-41	851.38	14.98	836.40
OEW-1	855.66	NM	
OEW-2	856.90	NM	
TP-1	850.44	12.15	838.29
TP-2	851.36	12.6	838.76
TP-3	848.34	11.36	836.98
TP-4	848.96	NM	
TP-6	849.43	NM	

Notes:

* - This monitoring event is the fifth sampling event since the intital injection of June 2015
[1] North Atlantic Vertical Datum in feet
[2] Feet below top of casing
[3] Bedrock Well
NM - Monitoring wells were not evaluated during this sample round
MW-1 - 848.43
MW-11 - 845.16

TABLE 2
SUMMARY OF DETECTED COMPOUNDS - PERFORMANCE MONITORING WELLS
SOUTHERN STATES, LLC.
HAMPTON, GEORGIA

Location ID:			*MW-9*	*MW-9*	*MW-9*	*MW-9*	*MW-9*	*MW-9*	*MW-9*	*MW-13*	*MW-13*	*MW-13*	*MW-13*	*MW-13*	*MW-13*	*MW-13*
Sample Name:			*MW-9*	*MW-9*	*MW-9*	*MW-9*	*MW-9*	*MW-9*	*MW-9*	*MW-13*	*MW-13*	*MW-13*	*MW-13*	*MW-13*	*MW-13*	*MW-13*
Sample Date:			*7/1/14*	*6/18/15*	*9/3/15*	*12/16/15*	*3/31/16*	*7/7/16*	*11/2/16*	*7/2/14*	*6/18/15*	*9/3/15*	*12/16/15*	*3/31/16*	*7/7/16*	*11/2/16*
			Historic	*Baseline*	*Post-Injection #1*	*Pre-injection #2*	*Post-injection #2*	*Post-injection*	*Post-injection*	*Historic*	*Baseline*	*Post-Injection #1*	*Pre-injection #2*	*Post-injection #2*	*Post-injection*	*Post-injection*
Parameters	***Units***	***Type 4 RRS***														
Volatile Organic Compounds																
1,1,1-Trichloroethane	ug/L	13600	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS	NS	5.0 U	5.0 U	5.0 U
1,1,2-Trichloroethane	ug/L	5	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS	NS	5.0 U	5.0 U	5.0 U
1,1-Dichloroethane	ug/L	4000	8.5	7.2	NS	6.4	5.5	5.6	7.4	11	8.1	NS	NS	7.6	5.6	5.0 U
1,1-Dichloroethene	ug/L	524	6.3	7.2	NS	6.4	5.7	5.0 U	7.1	36	24	NS	NS	21	13	7.5
1,4-Dioxane	ug/L	-	-	150 U	NS	150 U	150 U	150 U	150 U		150 U	NS	NS	150 U	150 U	150 U
Acetone	ug/L	45620	50 U	50 U	NS	50 U	50 U	50 U	50 U	50 U	50 U	NS	NS	50 U	50 U	50 U
Carbon tetrachloride	ug/L	10.2	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS	NS	5.0 U	5.0 U	5.0 U
Chloroethane	ug/L	29200	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	NS	NS	10 U	10 U	10 U
Chloroform (Trichloromethane)	ug/L	80	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS	NS	5.0 U	5.0 U	5.0 U
cis-1,2-Dichloroethene	ug/L	204	38	35	NS	29	24	30	37	170	84	NS	NS	62	66	46
Methyl tert butyl ether (MTBE)	ug/L	263	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS	NS	5.0 U	5.0 U	5.0 U
Toluene	ug/L	5241	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS	NS	5.0 U	5.0 U	5.0 U
trans-1,2-Dichloroethene	ug/L	2044	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS	NS	5.0 U	5.0 U	5.0 U
Trichloroethene	ug/L	5.24	**690**	**740**	NS	**810**	**720**	**810**	**840**	**40**	**23**	NS	NS	**61**	**24**	5.0 U
Vinyl chloride	ug/L	3.27	2.0 U	2.0 U	NS	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	4	NS	NS	**4**	**3.7**	**5.5**
Tetrachloroethane	ug/L	98	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0U	NS	NS	5.0U	5.0U	5.0U
					NS							NS	NS			
Total chlorinated VOCs	ug/L	NC	743	789	NS	852	755	846	892	262	143	NS	NS	156	112	59
Metals																
			2/1/12							3/30/12*						
Arsenic	mg/L	0.01	NS					0.05 U		NS					0.05 U	
Barium	mg/L	2	NS					0.0978		NS					0.196	
Cadmium	mg/L	0.005	0.005 U					0.005 U		0.005 U					0.005 U	
Chromium	mg/L	0.1	0.01 U					0.01 U		0.01 U					0.01 U	
Hexavalent chromium	mg/L	NC	NS					0.01 U		NS					0.01 U	
Copper	mg/L	1.3	0.01 U					NS		0.102					NS	
Lead	mg/L	0.015	0.01 U					0.01 U		0.0667*					0.0349**	0.0577***
Mercury	mg/L	0.002	0.0002 U					0.0002 U		NS					0.0002 U	
Nickel	mg/L	0.1	0.0325					NS		0.002 U					NS	
Selenium	mg/L	0.05	0.02 U					NS		0.02 U					NS	
Silver	mg/L	0.1	0.01 U					0.01 U		0.01 U					0.01 U	
Zinc	mg/L	2	0.02 U					NS		0.631					NS	

Notes:
ug/L - micrograms per liter
mg/L - milligrams per liter
NC - No established criteria (remediation goal)
5.0 U - not detected at associated method reporting limit
100 UJ - estimated result reported below associated reporting limit
"--" Not analyzed
ND - not detected
230 - Above the Type 4 RRS
NS - Not sampled
* - Turbidity of <10 could not be achieved March 30, 2012 Turbidity + 370. Dissolved lead is 0.01 mg/L
** - Turbidity of <10 could not be achieved July 7, 2016 Turbidity + 140. Dissolved lead is 0.01 mg/L
** - Turbidity of <10 could not be achieved November 2, 2016 Turbidity + 93. Dissolved lead is 0.01 mg/L

TABLE 2
SUMMARY OF DETECTED COMPOUNDS - PERFORMANCE MONITORING WELLS
SOUTHERN STATES, LLC.
HAMPTON, GEORGIA

Location ID:			*MW-18*	*MW-18*	*MW-18*	*MW-18*	*MW-18*	*MW-18*	*MW-18*	*MW-19*	*MW-19*	*MW-21*	*MW-21*	*MW-21*	*MW-21*	*MW-21*	*MW-21*	*MW-21*
Sample Name:			*MW-18*	*MW-18*	*MW-18*	*MW-18*	*MW-18*	*MW-18*	*MW-18*	*MW-19*	*MW-19*	*MW-21*	*MW-21*	*MW-21*	*MW-21*	*MW-21*	*MW-21*	*MW-21*
Sample Date:			*7/2/14*	*6/18/15*	*9/3/15*	*12/16/15*	*3/31/16*	*7/7/16*	*11/2/16*	*7/2/14*	*6/18/15*	*7/1/14*	*6/18/15*	*9/3/15*	*12/16/15*	*3/31/16*	*7/7/16*	*11/2/16*
			Historic	*Baseline*	*Post-Injection #1*	*Pre-injection #2*	*Post-injection #2*	*Post-injection*	*Post-injection*	*Historic*	*Baseline*	*Historic*	*Baseline*	*Post-Injection #1*	*Pre-injection #2*	*Post-injection #2*	*Post-injection*	*Post-injection*
Parameters	***Units***	***Type 4 RRS***																
Volatile Organic Compounds																		
1,1,1-Trichloroethane	ug/L	13600	5.0 U	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2-Trichloroethane	ug/L	5	5.0 U	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U
1,1-Dichloroethane	ug/L	4000	5.0 U	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U
1,1-Dichloroethene	ug/L	524	5.0 U	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	9.2	NS	6.8	12	5.4	22
1,4-Dioxane	ug/L	-		150 U	150 U	NS	150 U	150 U	150 U		150 U		150 U	NS	150 U	150 U	150 U	150 U
Acetone	ug/L	45620	50 U	50 U	50 U	NS	50 U	50 U	50 U	50 U	50 U	50 U	50 U	NS	50 U	50 U	50 U	50 U
Carbon tetrachloride	ug/L	10.2	5.0 U	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U
Chloroethane	ug/L	29200	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U	10 U	10 U	10 U	NS	10 U	10 U	10 U	10 U
Chloroform (Trichloromethane)	ug/L	80	5.0 U	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.4	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U
cis-1,2-Dichloroethene	ug/L	204	120	72	77	NS	5.7	54	130	5.0 U	5.0 U	16	8.9	NS	6.7	5.0 U	5.0 U	7.2
Methyl tert butyl ether (MTBE)	ug/L	263	5.0 U	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U
Toluene	ug/L	5241	5.0 U	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U
trans-1,2-Dichloroethene	ug/L	2044	5.0 U	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U
Trichloroethene	ug/L	5.24	**26**	**22**	**14**	NS	5.0 U	**21**	**28**	**14**	**14**	**340**	**210**	NS	**160**	**210**	**100**	**250**
Vinyl chloride	ug/L	3.27	**20**	**12**	**14**	NS	5.0 U	**7**	**5.3**	2.0 U	2.0 U	2.0 U	2.0 U	NS	2.0 U	2.0 U	2.0 U	2.0 U
Tetrachloroethane	ug/L	98	5.0 U	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS	5.0U	5.0U	5.0U	5.0U
						NS								NS				
Total chlorinated VOCs	ug/L	NC	166	106	105	NS	5.7	82	163	14	14	379	228	NS	174	232	105	279
Metals																		
Arsenic	mg/L	0.01						0.05 U									0.05 U	
Barium	mg/L	2						0.0299									0.199	
Cadmium	mg/L	0.005						0.005 U									0.005 U	
Chromium	mg/L	0.1						0.01 U									0.01 U	
Hexavalent chromium	mg/L	NC						0.01 U									0.01 U	
Copper	mg/L	1.3						NS									NS	
Lead	mg/L	0.015						0.01 U									0.01 U	
Mercury	mg/L	0.002						0.0002 U									0.0002 U	
Nickel	mg/L	0.1						NS									NS	
Selenium	mg/L	0.05						NS									NS	
Silver	mg/L	0.1						0.01 U									0.01 U	
Zinc	mg/L	2						NS									NS	

Notes:
ug/L - micrograms per liter
mg/L - milligrams per liter
NC - No established criteria (remediation goal)
5.0 U - not detected at associated method reporting limit
100 UJ - estimated result reported below associated reportin
"--" Not analyzed
ND - not detected
230 - Above the Type 4 RRS
NS - Not sampled
* - Turbidity of <10 could not be achieved March 30, 2012 Tu
** - Turbidity of <10 could not be achieved July 7, 2016 Turb
** - Turbidity of <10 could not be achieved November 2, 201

TABLE 2
SUMMARY OF DETECTED COMPOUNDS - PERFORMANCE MONITORING WELLS
SOUTHERN STATES, LLC.
HAMPTON, GEORGIA

Location ID:			*MW-28*	*MW-28*	*MW-32*	*MW-32*	*MW-32*	*MW-32*	*MW-32*	*MW-39*	*MW-39*	*MW-39*	*MW-39*	*MW-39*	*MW-39*	*MW-39*
Sample Name:			*MW-28*	*MW-28*	*MW-32*	*MW-32*	*MW-32*	*MW-32*	*MW-32*	*MW-39*	*MW-39*	*MW-39*	*MW-39*	*MW-39*	*MW-39*	*MW-39*
Sample Date:			*7/1/14*	*6/18/15*	*7/2/14*	*6/18/15*	*9/3/15*	*7/7/16*	*11/2/16*	*7/2/14*	*6/18/15*	*9/3/15*	*12/16/15*	*3/31/16*	*7/7/16*	*11/2/16*
			Historic	*Baseline*	*Historic*	*Baseline*	*Post-Injection #1*	*Post-Injection*	*Post-Injection*	*Historic*	*Baseline*	*Post-Injection #1*	*Pre-injection #2*	*Post-injection #2*	*Post-injection*	*Post-injection*
Parameters	***Units***	***Type 4 RRS***														
Volatile Organic Compounds																
1,1,1-Trichloroethane	ug/L	13600	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	25000 U	2500 U	25000 U	5000 U	500 U	500 U	500 U
1,1,2-Trichloroethane	ug/L	5	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	25000 U	2500 U	25000 U	5000 U	500 U	500 U	500 U
1,1-Dichloroethane	ug/L	4000	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	25000 U	2500 U	25000 U	5000 U	500 U	500 U	500 U
1,1-Dichloroethene	ug/L	524	5.0 U	5.0 U	5.8	5.0 U	5.0 U	5.0 U	5.0 U	25000 U	**4900**	25000 U	5000 U	500 U	500 U	500 U
1,4-Dioxane	ug/L	-		150 U		150 U	150 U	150 U	150 U		75000 U	750000 U	150000 U	15000 U	15000 U	15000 U
Acetone	ug/L	45620	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50000 U	25000 U	50000 U	50000 U	5000 U	5000 U	5000 U
Carbon tetrachloride	ug/L	10.2	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	25000 U	2500 U	25000 U	5000 U	500 U	500 U	500 U
Chloroethane	ug/L	29200	10 U	10 U	10 U	10 U	10 U	10 U	10 U	25000 U	2500 U	25000 U	10000 U	1000 U	1000 U	1000 U
Chloroform (Trichloromethane)	ug/L	80	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	25000 U	2500 U	25000 U	5000 U	500 U	500 U	500 U
cis-1,2-Dichloroethene	ug/L	204	5.0 U	5.0 U	10	7.4	7.9	6.4	7.1	25000 U	2500 U	25000 U	5000 U	500 U	500 U	500 U
Methyl tert butyl ether (MTBE)	ug/L	263	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	25000 U	2500 U	25000 U	5000 U	500 U	500 U	500 U
Toluene	ug/L	5241	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	25000 U	2500 U	25000 U	5000 U	500 U	500 U	500 U
trans-1,2-Dichloroethene	ug/L	2044	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	25000 U	2500 U	25000 U	5000 U	500 U	500 U	500 U
Trichloroethene	ug/L	5.24	**16**	**15**	**110**	**110**	**120**	**85**	**110**	**200,000**	**210000**	**100,000**	**110000**	**19,000**	**8600**	**9800**
Vinyl chloride	ug/L	3.27	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	10000 U	1000 U	10000 U	5000 U	500 U	500 U	500 U
Tetrachloroethane	ug/L	98	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	25000 U	2500 U	25000 U	5000 U	500 U	500 U	500 U
Total chlorinated VOCs	ug/L	NC	16	15	126	118	128	91	117	200,000	214,900	100,000	110,000	19,000	8600	9800
Metals																
Arsenic	mg/L	0.01								NS					0.05 U	
Barium	mg/L	2								NS					0.0713	
Cadmium	mg/L	0.005								0.005 U					0.005 U	
Chromium	mg/L	0.1								0.01 U					0.01 U	
Hexavalent chromium	mg/L	NC						0.0104		NS					0.01 U	
Copper	mg/L	1.3								0.01 U					NS	
Lead	mg/L	0.015								0.01 U					0.01 U	
Mercury	mg/L	0.002								0.0002 U					0.0002 U	
Nickel	mg/L	0.1								0.02 U					NS	
Selenium	mg/L	0.05								0.02 U					NS	
Silver	mg/L	0.1								0.01 U					0.01 U	
Zinc	mg/L	2								0.02 U					NS	

Notes:
ug/L - micrograms per liter
mg/L - milligrams per liter
NC - No established criteria (remediation goal)
5.0 U - not detected at associated method reporting limit
100 UJ - estimated result reported below associated reportin
"--" Not analyzed
ND - not detected
230 - Above the Type 4 RRS
NS - Not sampled
* - Turbidity of <10 could not be achieved March 30, 2012 Tu
** - Turbidity of <10 could not be achieved July 7, 2016 Turb
** - Turbidity of <10 could not be achieved November 2, 201

TABLE 2
SUMMARY OF DETECTED COMPOUNDS - PERFORMANCE MONITORING WELLS
SOUTHERN STATES, LLC.
HAMPTON, GEORGIA

Location ID:			*MW-40*	*MW-40*	*MW-40*	*MW-40*	*MW-40*	*MW-40*	*MW-40*	*MW-41*	*MW-41*	*MW-41*	*MW-41*	*MW-41*	*MW-41*	*MW-41*
Sample Name:			*MW-40*	*MW-40*	*MW-40*	*MW-40*	*MW-40*	*MW-40*	*MW-40*	*MW-41*	*MW-41*	*MW-41*	*MW-41*	*MW-41*	*MW-41*	*MW-41*
Sample Date:			*7/1/14*	*6/18/15*	*9/3/15*	*12/16/15*	*3/31/16*	*7/7/16*	*11/2/16*	*7/1/14*	*6/18/15*	*9/3/15*	*12/16/15*	*3/31/16*	*7/7/16*	*11/2/16*
			Historic	*Baseline*	*Post-Injection #1*	*Pre-injection #2*	*Post-injection #2*	*Post-injection*	*Post-injection*	*Historic*	*Baseline*	*Post-Injection #1*	*Pre-injection #2*	*Post-injection #2*	*Post-injection*	*Post-injection*
Parameters	***Units***	***Type 4 RRS***														
Volatile Organic Compounds																
1,1,1-Trichloroethane	ug/L	13600	5.0 U	5.0 U	250 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	250 U	250 U	NS	5.0 U	5.0 U	5.0 U
1,1,2-Trichloroethane	ug/L	5	**16**	**23**	250 U	**6.1**	**14**	**7.1**	**8.4**	5.0 U	250 U	250 U	NS	5.0 U	5.0 U	5.0 U
1,1-Dichloroethane	ug/L	4000	36	44	250 U	28	14	12	15	23	250 U	250 U	NS	16	9.7	13
1,1-Dichloroethene	ug/L	524	42	61	250 U	38	61	5.0 U	5.1	24	250 U	250 U	NS	24	10	17
1,4-Dioxane	ug/L	-		150 U	7500 U	150 U	150 U	150 U	150 U		7500 U	7500 U	NS	150 U	150 U	150 U
Acetone	ug/L	45620	50 U	50 U	2500 U	50 U	50 U	50 U	50 U	50 U	250 U	2500 U	NS	50 U	50 U	50 U
Carbon tetrachloride	ug/L	10.2	5.0 U	5.0 U	250 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	250 U	250 U	NS	5.0 U	5.0 U	5.0 U
Chloroethane	ug/L	29200	10 U	10 U	500 U	10 U	10 U	10 U	10 U	10 U	250 U	500 U	NS	10 U	10 U	10 U
Chloroform (Trichloromethane)	ug/L	80	5.0 U	5.0 U	250 U	5.0 U	5.3	5.0 U	5.0 U	5.0 U	250 U	250 U	NS	5.0 U	5.0 U	5.0 U
cis-1,2-Dichloroethene	ug/L	204	**1500**	**1700**	**1600**	**720**	**250**	**230**	**330**	**880**	**670**	**690**	NS	200	170	180
Methyl tert butyl ether (MTBE)	ug/L	263	5.0 U	5.0 U	250 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	250 U	5.0 U	NS	5.0 U	5.0 U	5.0 U
Toluene	ug/L	5241	5.0 U	5.0 U	250 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	250 U	5.0 U	NS	5.0 U	5.0 U	5.0 U
trans-1,2-Dichloroethene	ug/L	2044	5.0 U	5.0 U	250 U	6.9	5.0 U	5.0 U	5.0 U	5.0 U	250 U	5.0 U	NS	5.0 U	5.0 U	5.0 U
Trichloroethene	ug/L	5.24	**2100**	**3500**	**3200**	**5200**	**1500**	**950**	**900**	**2800**	**3500**	**4400**	NS	**2800**	**1800**	**1900**
Vinyl chloride	ug/L	3.27	**100**	**110**	**140**	**8.8**	**120**	**66**	**110**	**6.8**	100 U	100 U	NS	**4.2**	**3.8**	**4.4**
Tetrachloroethane	ug/L	98	5.0 U	5.0 U	250 U	14	5.0 U	5.0 U	5.0 U	7.3	250 U	250 U	NS	6.3	5.0 U	5.0 U
													NS			
Total chlorinated VOCs	ug/L	NC	3794	5438	4940	6001	1964	1265	1369	3741	4170	5090	NS	3051	1994	2114
Metals																
Arsenic	mg/L	0.01						0.05 U							0.05 U	
Barium	mg/L	2						0.0544							0.0234	
Cadmium	mg/L	0.005						0.005 U							0.005 U	
Chromium	mg/L	0.1						0.01 U							0.0355	
Hexavalent chromium	mg/L	NC						0.01 U							0.0218	
Copper	mg/L	1.3						NS							NS	
Lead	mg/L	0.015						0.01 U							0.01 U	
Mercury	mg/L	0.002						0.0002 U							0.0002 U	
Nickel	mg/L	0.1						NS							NS	
Selenium	mg/L	0.05						NS							NS	
Silver	mg/L	0.1						0.01 U							0.01 U	
Zinc	mg/L	2						NS							NS	

Notes:
ug/L - micrograms per liter
mg/L - milligrams per liter
NC - No established criteria (remediation goal)
5.0 U - not detected at associated method reporting limit
100 UJ - estimated result reported below associated reportin
"--" Not analyzed
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TABLE 2
SUMMARY OF DETECTED COMPOUNDS - PERFORMANCE MONITORING WELLS
SOUTHERN STATES, LLC.
HAMPTON, GEORGIA

Location ID:			***OEW-1***	***OEW-1***	***OEW-1***	***OEW-1***	***OEW-2***	***OEW-2***	***OEW-2***	***TP-1***	***TP-1***	***TP-1***	***TP-1***	***TP-1***	***TP-1***	***TP-1***
Sample Name:			***OEW-1***	***OEW-1***	***OEW-1***	***OEW-1***	***OEW-2***	***OEW-2***	***OEW-2***	***TP-1***	***TP-1***	***TP-1***	***TP-1***	***TP-1***	***TP-1***	***TP-1***
Sample Date:			***7/2/14***	***6/18/15***	***9/3/15***	***7/7/16***	***7/1/14***	***6/18/15***	***9/3/15***	***7/1/14***	***6/18/15***	***9/3/15***	***12/16/15***	***3/31/16***	***7/7/16***	***11/2/16***
			Historic	***Baseline***	***Post-Injection #1***	***Post-Injection***	***Historic***	***Baseline***	***Post-Injection #1***	***Historic***	***Baseline***	***Post-Injection #1***	***Pre-injection #2***	***Post-injection #2***	***Post-injection***	***Post-injection***
Parameters	***Units***	***Type 4 RRS***														
Volatile Organic Compounds																
1,1,1-Trichloroethane	ug/L	13600	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	NS	5.0 U	250 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
1,1,2-Trichloroethane	ug/L	5	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	NS	**19**	250 U	**18**	**12**	**5.5**	**5.2**	**5.6**
1,1-Dichloroethane	ug/L	4000	5.0 U	5.0 U	NS	5.0 U	5.2	5.5	NS	7.5	250 U	7.8	6	5.3	5.0 U	5.0 U
1,1-Dichloroethene	ug/L	524	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	NS	5.0 U	250 U	6.1	6.1	5.0 U	5.0 U	5.0 U
1,4-Dioxane	ug/L	-		150 U	NS	150 U		150 U	NS		7500 U	150 U	150 U	150 U	150 U	150 U
Acetone	ug/L	45620	50 U	50 U	NS	50 U	50 U	50 U	NS	50 U	250 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Carbon tetrachloride	ug/L	10.2	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	NS	5.0 U	250 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Chloroethane	ug/L	29200	10 U	10 U	NS	10 U	10 U	10 U	NS	10 U	250 U	10 U	10 U	10 U	10 U	10 U
Chloroform (Trichloromethane)	ug/L	80	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	NS	26	250 U	24	17	15	9.2	6
cis-1,2-Dichloroethene	ug/L	204	110	120	NS	84	200	**220**	NS	110	250 U	110	87	69	55	140
Methyl tert butyl ether (MTBE)	ug/L	263	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	NS	5.0 U	250 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Toluene	ug/L	5241	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	NS	5.0 U	250 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
trans-1,2-Dichloroethene	ug/L	2044	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	NS	5.0 U	250 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Trichloroethene	ug/L	5.24	**6.3**	**7.3**	NS	5.1	**300**	**220**	NS	**2400**	**2300**	**2300**	**1800**	**1000**	**1100**	**870**
Vinyl chloride	ug/L	3.27	**28**	**31**	NS	**20**	**15**	**17**	NS	**3.8**	250 U	**3.3**	2.0 U	2.0 U	2.0 U	**8.8**
Tetrachloroethane	ug/L	98	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	NS	5.0 U	250 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
					NS				NS							
Total chlorinated VOCs	ug/L	NC	152	158	NS	109	520	457	NS	2566	2300	2469	1928	1095	1169	1030
Metals																
Arsenic	mg/L	0.01													0.05 U	
Barium	mg/L	2													0.162	
Cadmium	mg/L	0.005													0.005 U	
Chromium	mg/L	0.1													0.0142	
Hexavalent chromium	mg/L	NC				0.01 U									0.01 U	
Copper	mg/L	1.3													NS	
Lead	mg/L	0.015													0.01 U	
Mercury	mg/L	0.002													0.0002 U	
Nickel	mg/L	0.1													NS	
Selenium	mg/L	0.05													NS	
Silver	mg/L	0.1													0.01 U	
Zinc	mg/L	2													NS	

Notes:
ug/L - micrograms per liter
mg/L - milligrams per liter
NC - No established criteria (remediation goal)
5.0 U - not detected at associated method reporting limit
100 UJ - estimated result reported below associated reportin
"--" Not analyzed
ND - not detected
230 - Above the Type 4 RRS
NS - Not sampled
* - Turbidity of <10 could not be achieved March 30, 2012 Tu
** - Turbidity of <10 could not be achieved July 7, 2016 Turb
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TABLE 2
SUMMARY OF DETECTED COMPOUNDS - PERFORMANCE MONITORING WELLS
SOUTHERN STATES, LLC.
HAMPTON, GEORGIA

Location ID:			*TP-2*	*TP-2*	*TP-2*	*TP-2*	*TP-2*	*TP-2*	*TP-2*	*TP-3*	*TP-3*	*TP-3*	*TP-3*	*TP-3*	*TP-3*	*TP-3*
Sample Name:			*TP-2*	*TP-2*	*TP-2*	*TP-2*	*TP-2*	*TP-2*	*TP-2*	*TP-3*	*TP-3*	*TP-3*	*TP-3*	*TP-3*	*TP-3*	*TP-3*
Sample Date:			*7/1/14*	*6/18/15*	*9/3/15*	*12/16/15*	*3/31/16*	*7/7/16*	*11/2/16*	*7/2/14*	*6/18/15*	*9/3/15*	*12/16/15*	*3/31/16*	*7/7/16*	*11/2/16*
			Historic	*Baseline*	*Post-Injection #1*	*Pre-injection #2*	*Post-injection #2*	*Post-injection*	*Post-injection*	*Historic*	*Baseline*	*Post-Injection #1*	*Pre-injection #2*	*Post-injection #2*	*Post-injection*	*Post-injection*
Parameters	***Units***	***Type 4 RRS***														
Volatile Organic Compounds																
1,1,1-Trichloroethane	ug/L	13600	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	540	510	NS	830	760	720	840
1,1,2-Trichloroethane	ug/L	5	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U
1,1-Dichloroethane	ug/L	4000	16	16	13	12	11	10	14	470	660	NS	780	840	900	1200
1,1-Dichloroethene	ug/L	524	79	68	47	40	32	32	66	**1000**	**1300**	NS	**1300**	**1300**	**1200**	**1700**
1,4-Dioxane	ug/L	-		150U	150 U	150 U	150 U	150 U	150 U		150 U	NS	150 U	150 U	150 U	150 U
Acetone	ug/L	45620	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	50 U	NS	50 U	50 U	50 U	50 U
Carbon tetrachloride	ug/L	10.2	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U
Chloroethane	ug/L	29200	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11	11	NS	15	18	18	32
Chloroform (Trichloromethane)	ug/L	80	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U
cis-1,2-Dichloroethene	ug/L	204	43	46	48	41	37	39	36	55	63	NS	56	46	57	110
Methyl tert butyl ether (MTBE)	ug/L	263	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U
Toluene	ug/L	5241	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U
trans-1,2-Dichloroethene	ug/L	2044	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U
Trichloroethene	ug/L	5.24	**900**	**720**	**500**	**500**	**530**	**590**	**660**	**590**	**760**	NS	**730**	**730**	**860**	**1100**
Vinyl chloride	ug/L	3.27	**6.3**	**5.7**	**9.8**	**4.8**	**5.0**	3.2	**5.0**	**13**	**13**	NS	**15**	**16**	**14**	**41**
Tetrachloroethane	ug/L	98	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	NS	5.0 U	5.0 U	5.0 U	5.0 U
												NS				
Total chlorinated VOCs	ug/L	NC	1044	856	618	598	615	674	781	2679	3317	NS	3726	3710	3712	5023
Metals																
Arsenic	mg/L	0.01						0.05 U							0.05 U	
Barium	mg/L	2						0.0834							0.116	
Cadmium	mg/L	0.005						0.005 U							0.005 U	
Chromium	mg/L	0.1						0.0142							0.0142	
Hexavalent chromium	mg/L	NC						0.01 U							0.01 U	
Copper	mg/L	1.3						NS							NS	
Lead	mg/L	0.015						0.01 U							0.01 U	
Mercury	mg/L	0.002						0.0002 U							0.0002 U	
Nickel	mg/L	0.1						NS							NS	
Selenium	mg/L	0.05						NS							NS	
Silver	mg/L	0.1						0.01 U							0.01 U	
Zinc	mg/L	2						NS							NS	

Notes:
ug/L - micrograms per liter
mg/L - milligrams per liter
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5.0 U - not detected at associated method reporting limit
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TABLE 2
SUMMARY OF DETECTED COMPOUNDS - PERFORMANCE MONITORING WELLS
SOUTHERN STATES, LLC.
HAMPTON, GEORGIA

Location ID:			***TP-4***	***TP-4***	***TP-6***	***TP-6***
Sample Name:			***TP-4***	***TP-4***	***TP-6***	***TP-6***
Sample Date:			***7/2/14***	***6/18/15***	***7/2/14***	***6/18/15***
			Historic	***Baseline***	***Historic***	***Baseline***
Parameters	***Units***	***Type 4 RRS***				
Volatile Organic Compounds						
1,1,1-Trichloroethane	ug/L	13600	1900	2800	670	3400
1,1,2-Trichloroethane	ug/L	5	5 U	250 U	5.0 U	500 U
1,1-Dichloroethane	ug/L	4000	650	770	470	2100
1,1-Dichloroethene	ug/L	524	260	390	370	1200
1,4-Dioxane	ug/L	-		150 U		150 U
Acetone	ug/L	45620	50 U	2500 U	5.0 U	5000 U
Carbon tetrachloride	ug/L	10.2	5.0 U	250 U	5.0 U	500 U
Chloroethane	ug/L	29200	10 U	500 U	30	1000 U
Chloroform (Trichloromethane)	ug/L	80	30	250 U	5.0 U	500 U
cis-1,2-Dichloroethene	ug/L	204	5.0 U	250 U	5.0 U	500 U
Methyl tert butyl ether (MTBE)	ug/L	263	5.0 U	250 U	5.0 U	500 U
Toluene	ug/L	5241	5.0 U	250 U	5.0 U	500 U
trans-1,2-Dichloroethene	ug/L	2044	5.0 U	250 U	5.0 U	500 U
Trichloroethene	ug/L	5.24	5.0 U	250 U	5.0 U	500 U
Vinyl chloride	ug/L	3.27	**3.5**	100 U	**8.1**	200 U
Tetrachloroethane	ug/L	98	5.0 U	250 U	5.0 U	500 U
Total chlorinated VOCs	ug/L	NC	3113	3960	1548	6700
Metals						
Arsenic	mg/L	0.01				
Barium	mg/L	2				
Cadmium	mg/L	0.005				
Chromium	mg/L	0.1				
Hexavalent chromium	mg/L	NC				
Copper	mg/L	1.3				
Lead	mg/L	0.015				
Mercury	mg/L	0.002				
Nickel	mg/L	0.1				
Selenium	mg/L	0.05				
Silver	mg/L	0.1				
Zinc	mg/L	2				

Notes:
ug/L - micrograms per liter
mg/L - milligrams per liter
NC - No established criteria (remediation goal)
5.0 U - not detected at associated method reporting limit
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* - Turbidity of <10 could not be achieved March 30, 2012 T
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APPENDIX A

GROUNDWATER PURGE FORMS

&

ANALYTICAL LABORATORY REPORTS

MONITORING WELL RECORD FOR LOW-FLOW PURGING

Project Data:

Project Name: Southern States LLC
Ref. No.:
Date: 11/2/12
Personnel: JS

Monitoring Well Data:

Well No.: MW-9
Measurement Point: TOC
Constructed Well Depth (ft): 35.00
Measured Well Depth (ft): 35.00
Depth of Sediment (ft): N/A
Screen Length (ft):
Depth to Pump Intake (ft)[1]: 30
Well Diameter, D (in): 2
Well Screen Volume, V_s (mL):
Initial Depth to Water (ft): 18.77

Time	Pumping Rate (mL/min)	Depth to Water (ft)	Drawdown from Initial Water Level [2] (ft)	pH	Temperature °C	Conductivity [3] (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)
			Precision Required [5]:	±0.1 unit	±3%	±0.005 or 0.01	±10 mV	±10%	±10%
0930				~~22.35~~	5				
0930	50	18.77		5.51	23.35	0.169	282	0.02	3.29
0938		18.83		5.60	23.33	0.168	280	0.02	2.60
0946		18.95		5.63	23.32	0.167	270	0.03	2.05
0951		18.90		5.65	23.30	0.169	268	0.03	2.02
0955		18.93		5.65	23.34	0.167	269	0.02	1.84
Sample ID:	MW-9								
	VOCs								

Notes:

(1) The pump intake was placed at the well mid-screen or 2 ft above any sediment accumulated at the well bottom.
(2) The drawdown from the initial water level should not exceed 0.33 ft. The pumping rate should not exceed 600 mL/min.
(3) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.
Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing)

MONITORING WELL RECORD FOR LOW-FLOW PURGING

Project Data:

Project Name: Southern States LLC
Ref. No.: 619

Date: 11/2/16
Personnel: JS

Monitoring Well Data:

Well No.: MW-13
Measurement Point: TOC
Constructed Well Depth (ft): 20.10
Measured Well Depth (ft): 20.10
Depth of Sediment (ft): N/A

Screen Length (ft):
Depth to Pump Intake (ft)[1]: 15
Well Diameter, D (in): 2
Well Screen Volume, V_s (mL):
Initial Depth to Water (ft): 13.24

Time	*Pumping Rate (mL/min)*	*Depth to Water (ft)*	*Drawdown from Initial Water Level* [2] *(ft)*	*pH*	*Temperature* ^{o}C	*Conductivity* [3] *(mS/cm)*	*ORP (mV)*	*DO (mg/L)*	*Turbidity (NTU)*
			Precision Required [5]:	*±0.1 Yvito*	*±3%*	*±0.005 or 0.01*	*±10 mV*	*±10%*	*±10%*
1340	50	13.24		7.81	25.02	2.02	96	1.04	240
1350	↓	13.40		7.73	24.40	1.80	+16	0.58	120
1356		13.45		7.70	24.28	1.25	−104	0.10	140
1404		13.46		7.65	24.30	1.17	−130	0.04	108
1415		13.40		7.63	24.20	1.17	−128	0.02	116
1420		13.45		7.63	24.24	1.16	−125	0.02	110
1430	✓	13.40		7.63	24.21	1.17	−131	0.02	101
Sample ID:	MW-13								
	VOCs * - Iron bacteria??								

Notes:

(1) The pump intake was placed at the well mid-screen or 2 ft above any sediment accumulated at the well bottom.
(2) The drawdown from the initial water level should not exceed 0.33 ft. The pumping rate should not exceed 600 mL/min.
(3) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.
Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing)

MONITORING WELL RECORD FOR LOW-FLOW PURGING

Project Data:

Project Name: Southern States LLC
Ref. No.:

Date: 11/2/16
Personnel: J. Schwaller

Monitoring Well Data:

Well No.: MW-18
Measurement Point: TOC
Constructed Well Depth (ft): 15.00
Measured Well Depth (ft): 15.00
Depth of Sediment (ft): N/A

Screen Length (ft):
Depth to Pump Intake (ft)[1]: 10
Well Diameter, D (in): 2
Well Screen Volume, V_s (mL):
Initial Depth to Water (ft): 5.08

Time	*Pumping Rate (mL/min)*	*Depth to Water (ft)*	*Drawdown from Initial Water Level (ft)* [2]	*pH*	*Temperature °C*	*Conductivity (mS/cm)* [3]	*ORP (mV)*	*DO (mg/L)*	*Turbidity (NTU)*
			Precision Required:	*±0.1 Yvitσ*	*±3%*	*±0.005 or 0.01*	*±10 mV*	*±10%*	*±10%*
1555	50	5.08							
1558	↓	5.11							
1604		5.15							
1608		5.20							
1612		5.18							
1615	↓	5.20							
Sample ID: MW-18									
	VOCs								

Notes:

(1) The pump intake was placed at the well screen mid-point or 2 ft above any sediment accumulated at the well bottom.
(2) The drawdown from the initial water level should not exceed 0.33 ft. The pumping rate should not exceed 600 mL/min.
(3) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.
Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing)

MONITORING WELL RECORD FOR LOW-FLOW PURGING

Project Data:

Project Name: Southern States LLC
Ref. No.:

Date: 11/2/16
Personnel: B. ~~Cortelloni~~ JS

Monitoring Well Data:

Well No.: MW-21
Measurement Point: TOC
Constructed Well Depth (ft): 23.80
Measured Well Depth (ft): 23.80
Depth of Sediment (ft): N/A

Screen Length (ft):
Depth to Pump Intake (ft)[1]: 21
Well Diameter, D (in): 2
Well Screen Volume, V_s (mL):
Initial Depth to Water (ft): 12.36

Time	*Pumping Rate* (mL/min)	*Depth to Water* (ft)	*Drawdown from Initial Water Level* [2] (ft)	*pH*	*Temperature* °C	*Conductivity* [3] (mS/cm)	*ORP* (mV)	*DO* (mg/L)	*Turbidity* (NTU)
			Precision Required:	*±0.1 Yvitσ*	*±3%*	*±0.005 or 0.01*	*±10 mV*	*±10%*	*±10%*
1038	50	12.36		5.52	25.16	0.227	254	0.04	10.4
1043		12.48		5.50	25.02	0.224	270	0.04	6.2
1050		12.38		5.50	25.10	0.220	268	0.04	3.10
1058		12.40		5.49	25.04	0.218	260	0.03	3.04
1104		12.44		5.49	24.90	0.218	260	0.02	2.85
1106	↓	12.48		5.49	24.94	0.218	261	0.02	3.62
Sample ID:	MW-21								
	VOCs								

Notes:

(1) The pump intake was placed at the well mid-screen or approx. 2 ft above any sediment accumulated at the well bottom.
(2) The drawdown from the initial water level should not exceed 0.33 ft. The pumping rate should not exceed 600 mL/min.
(3) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.
Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing)

MONITORING WELL RECORD FOR LOW-FLOW PURGING

Project Data:

Project Name: Southern States LLC
Ref. No.: _____

Date: 11/12/12
Personnel: J. Schwaller

Monitoring Well Data:

Well No.: MW-32
Measurement Point: TOC
Constructed Well Depth (ft): 57.00
Measured Well Depth (ft): 57.00
Depth of Sediment (ft): N/A

Screen Length (ft): _____
Depth to Pump Intake (ft)[1]: 52
Well Diameter, D (in): 2
Well Screen Volume, V_s (mL): _____
Initial Depth to Water (ft): 5.65

Time	*Pumping Rate (mL/min)*	*Depth to Water (ft)*	*Drawdown from Initial Water Level (ft)* [2]	*pH*	*Temperature °C*	*Conductivity (mS/cm)* [3]	*ORP (mV)*	*DO (mg/L)*	*Turbidity (NTU)*
			Precision Required:	*±0.1 Units*	*±3%*	*±0.005 or 0.01*	*±10 mV*	*±10%*	*±10%*
1520	50	5.65		6.29	21.45	0.190	167	1.10	8.8
1525	↓	5.80		6.02	20.57	0.188	170	1.02	4.40
1531		5.93		5.98	20.50	0.188	173	0.94	5.04
1538		5.88		5.95	20.60	0.188	178	0.60	4.30
1543		5.90		5.95	20.58	0.188	175	0.68	4.23
1548	↓	5.85		5.95	20.54	0.188	179	0.62	4.40
Sample ID:	MW-32								
	VOCs								

Notes:

(1) The pump intake was placed at the well mid-screen or 2 ft above any sediment accumulated at the well bottom.

(2) The drawdown from the initial water level should not exceed 0.33 ft. The pumping rate should not exceed 600 mL/min.

(3) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.
Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing)

MONITORING WELL RECORD FOR LOW-FLOW PURGING

Project Data:

Project Name: Southern States LLC
Ref. No.:

Date: 11/2/16
Personnel: ~~B. Cortelloni~~ JS

Monitoring Well Data:

Well No.: MW-39
Measurement Point: TOC
Constructed Well Depth (ft): 32.00
Measured Well Depth (ft): 32.00
Depth of Sediment (ft): N/A

Screen Length (ft):
Depth to Pump Intake (ft)[1]: 22
Well Diameter, D (in): 2
Well Screen Volume, V_s (mL):
Initial Depth to Water (ft): 11.60

Time	Pumping Rate (mL/min)	Depth to Water (ft)	Drawdown from Initial Water Level [2] (ft)	pH	Temperature °C	Conductivity [3] (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)
			Precision Required:	±0.1 Units	±3%	±0.005 or 0.01	±10 mV	±10%	±10%
1250	50	11.60		3.76	26.06	0.432	444	2.01	11.7
1256		11.65		3.76	25.08	0.430	446	1.58	6.25
1308		11.70		3.74	26.10	0.435	448	2.01	6.08
1312		11.79		3.70	25.54	0.432	445	2.00	5.16
1318		11.80		3.73	26.10	0.432	446	1.55	5.10
1321	↓	11.83		3.73	26.05	0.432	447	1.99	5.15
Sample ID:	MW-39								
	VOCs								

Notes:

(1) The pump intake was placed at the well screen mid-point or at approx. 2 ft above any sediment accumulated at the well bottom.
(2) The drawdown from the initial water level should not exceed 0.33 ft. The pumping rate should not exceed 600 mL/min.
(3) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.
Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing)

MONITORING WELL RECORD FOR LOW-FLOW PURGING

Project Data:

Project Name: Southern States LLC
Ref. No.:

Date: 11/2/16
Personnel: ~~B. Cortellini~~ JS

Monitoring Well Data:

Well No.: MW-40
Measurement Point: TOC
Constructed Well Depth (ft): 32.00
Measured Well Depth (ft): 32.00
Depth of Sediment (ft): N/A

Screen Length (ft):
Depth to Pump Intake (ft)[1]: 22
Well Diameter, D (in): 2
Well Screen Volume, V_s (mL):
Initial Depth to Water (ft): 15.12

Time	*Pumping Rate* (mL/min)	*Depth to Water* (ft)	*Drawdown from Initial Water Level* [2] (ft)	*pH*	*Temperature* °C	*Conductivity* [3] (mS/cm)	*ORP* (mV)	*DO* (mg/L)	*Turbidity* (NTU)
			Precision Required:	*±0.1 Units*	*±3%*	*±0.005 or 0.01*	*±10 mV*	*±10%*	*±10%*
1140	50	15.12		5.54	24.94	0.355	206	6.88	6.90
1145		15.20		5.56	25.06	0.354	210	5.91	6.21
1148		15.28		5.55	24.93	0.351	228	5.60	6.18
1150		15.30		5.57	24.90	0.351	270	5.40	6.11
1156		15.33		5.58	25.10	0.351	285	5.30	5.61
1203		15.36		5.56	25.02	0.351	291	5.40	5.54
1205	↓	15.38		5.56	24.99	0.351	290	5.37	5.71
Sample ID:	MW-40								
	VOCs								

Notes:

(1) The pump intake was placed at the well screen mid-point or at approx. 2 ft above any sediment accumulated at the well bottom.
(2) The drawdown from the initial water level should not exceed 0.33 ft. The pumping rate should not exceed 600 mL/min.
(3) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.
Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing)

MONITORING WELL RECORD FOR LOW-FLOW PURGING

Project Data:

Project Name: Southern States LLC
Ref. No.:

Date: 11/2/16
Personnel: B. Cortelloni
JS

Monitoring Well Data:

Well No.: MW-41
Measurement Point: TOC
Constructed Well Depth (ft): 32.00
Measured Well Depth (ft): 32.00
Depth of Sediment (ft): N/A

Screen Length (ft):
Depth to Pump Intake (ft)[1]: 22
Well Diameter, D (in): 2
Well Screen Volume, V_s (mL):
Initial Depth to Water (ft): 14.98

Time	Pumping Rate (mL/min)	Depth to Water (ft)	Drawdown from Initial Water Level [2] (ft)	pH	Temperature °C	Conductivity [3] (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)
			Precision Required:	±0.1 Units	±3%	±0.005 or 0.01	±10 mV	±10%	±10%
1212	50	14.98		6.02	25.55	0.812	260	2.54	11.2
1215		15.06		5.94	26.02	0.943	255	4.10	6.4
1220		15.10		5.80	25.80	0.972	248	4.65	8.4
1226		15.14		5.81	25.84	0.972	241	4.60	5.6
1230		15.18		5.81	25.86	0.972	230	4.65	5.8
1239	↓	15.16		5.81	25.89	0.972	235	4.67	5.4
Sample ID:	MW-41								
	VOCs								

Notes:

(1) The pump intake was placed at the well screen mid-point or at approx. 2 ft above any sediment accumulated at the well bottom.
(2) The drawdown from the initial water level should not exceed 0.33 ft. The pumping rate should not exceed 600 mL/min.
(3) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.
Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing)

MONITORING WELL RECORD FOR LOW-FLOW PURGING

Project Data:

Project Name: Southern States LLC
Ref. No.: _____

Date: 11/2/16
Personnel: B. ~~Cortelloni~~ JS

Monitoring Well Data:

Well No.: TP-1
Measurement Point: TOC
Constructed Well Depth (ft): 22.40
Measured Well Depth (ft): _____
Depth of Sediment (ft): N/A

Screen Length (ft): _____
Depth to Pump Intake (ft)[1]: 20
Well Diameter, D (in): 1
Well Screen Volume, V_s (mL): _____
Initial Depth to Water (ft): 12.15

Time	*Pumping Rate* (mL/min)	*Depth to Water* (ft)	*Drawdown from Initial Water Level* [2] (ft)	*pH* ±0.1 Units	*Temperature* °C ±3%	*Conductivity* [3] (mS/cm) ±0.005 or 0.01	*ORP* (mV) ±10 mV	*DO* (mg/L) ±10%	*Turbidity* (NTU) ±10%
Precision Required:									
1110	50	12.15		4.85	25.20	0.326	212	1.04	8.6
1115		12.19		4.74	25.30	0.354	238	0.96	5.2
1118		12.24		4.60	25.26	0.399	254	0.04	9.3
1122		12.18		4.28	25.24	0.518	278	0.03	10.4
1126		12.20		4.23	25.23	0.516	280	0.02	7.6
1130		12.25		4.25	25.20	0.517	250	0.05	8.8
1132		12.28		4.25	25.25	0.517	254	0.02	7.4
Sample ID:	TP-1								
	VOCs	DUP							

Notes:

(1) The pump intake was placed at the well mid-screen at approx.2 ft above any sediment accumulated at the well bottom.
(2) The drawdown from the initial water level should not exceed 0.33 ft. The pumping rate should not exceed 600 mL/min.
(3) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.
Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing)

MONITORING WELL RECORD FOR LOW-FLOW PURGING

Project Data:

Project Name: Southern States LLC
Ref. No.:

Date: 11/2/16
Personnel: ~~B. Cortelloni~~ TS

Monitoring Well Data:

Well No.: TP-2
Measurement Point: TOC
Constructed Well Depth (ft): 30.00
Measured Well Depth (ft): 30.00
Depth of Sediment (ft): N/A

Screen Length (ft):
Depth to Pump Intake (ft)[1]: 25
Well Diameter, D (in): 2
Well Screen Volume, V_s (mL):
Initial Depth to Water (ft): 12.60

Time	*Pumping Rate* (mL/min)	*Depth to Water* (ft)	*Drawdown from Initial Water Level* [2] (ft)	*pH*	*Temperature* ^{o}C	*Conductivity* [3] (mS/cm)	*ORP* (mV)	*DO* (mg/L)	*Turbidity* (NTU)
Precision Required:				*±0.1 Units*	*±3%*	*±0.005 or 0.01*	*±10 mV*	*±10%*	*±10%*
1008		12.60		5.28	26.70	0.173	316	6.16	5.65
1011		12.70		5.27	24.50	0.163	325	6.43	3.12
1016		12.73		5.26	24.71	0.160	320	6.50	1.65
1019		12.81		5.24	24.80	0.165	312	6.64	1.80
1023		12.86		5.23	25.02	0.165	310	6.70	1.70
1029		12.85		5.23	24.61	0.165	314	~~6.89~~ 6.77	1.84
Sample ID:	TP-2								
	VOCs								

Notes:

(1) The pump intake was placed at the well mid-screen or 2 ft above any sediment accumulated at the well bottom.
(2) The drawdown from the initial water level should not exceed 0.33 ft. The pumping rate should not exceed 600 mL/min.
(3) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.
Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing)

MONITORING WELL RECORD FOR LOW-FLOW PURGING

Project Data:

Project Name: Southern States LLC
Ref. No.:

Date: 11/2/16
Personnel: B. Cortelloni
~~JS~~

Monitoring Well Data:

Well No.: TP-3
Measurement Point: TOC
Constructed Well Depth (ft): 30.00
Measured Well Depth (ft): 30.00
Depth of Sediment (ft): N/A

Screen Length (ft):
Depth to Pump Intake (ft)[1]: 24
Well Diameter, D (in): 2
Well Screen Volume, V_s (mL):
Initial Depth to Water (ft): 11.36

Time	Pumping Rate (mL/min)	Depth to Water (ft)	Drawdown from Initial Water Level [2] (ft)	pH	Temperature °C	Conductivity [3] (mS/cm)	ORP (mV)	DO (mg/L)	Turbidity (NTU)
			Precision Required:	±0.1 Units	±3%	±0.005 or 0.01	±10 mV	±10%	±10%
1440	50	11.36		6.14	24.43	0.316	116	0.43	14.4
1443		11.40		6.10	24.21	0.310	93	0.10	8.10
1448		11.43		6.07	23.60	0.294	81	0.02	8.13
1452		11.51		6.07	24.10	0.294	74	0.02	7.61
1500		11.40		6.08	24.50	0.294	70	0.02	7.14
1505	↓	11.45		6.07	23.46	0.294	76	0.02	7.88
Sample ID: TP-3									
	VOCs								

Notes:

(1) The pump intake was placed at the well mid-screen or 2 ft above any sediment accumulated at the well bottom.
(2) The drawdown from the initial water level should not exceed 0.33 ft. The pumping rate should not exceed 600 mL/min.
(3) For conductivity, the average value of three readings <1 mS/cm ±0.005 mS/cm or where conductivity >1 mS/cm ±0.01 mS/cm.
Purging will continue until stabilization is achieved or until 20 well screen volumes have been purged (unless purge water remains visually turbid and appears to be clearing, or unless stabilization parameters are varying slightly outside of the stabilization criteria and appear to be stabilizing)

AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC.

November 10, 2016

John Schwaller
Environmental Management Associates, LLC
5262 Belle Wood Ct.
Buford GA 30518

TEL: (770) 271-4628
FAX: (770) 271-8944

RE: Southern States

Dear John Schwaller: Order No: 1611262

Analytical Environmental Services, Inc. received 13 samples on 11/3/2016 9:07:00 AM for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.
AES's accreditations are as follows:
-NELAC/Florida State Laboratory ID E87582 for analysis of Non-Potable Water, Solid & Chemical Materials, and Drinking Water Microbiology, effective 07/01/16-06/30/17.
-NELAC/Louisiana Agency Interest No. 100818 for or analysis of Non-Potable Water and Solid & Chemical Materials, effective 07/01/16-06/30/17.
-NELAC/Texas Certificate No. T104704509-16-6 for or analysis of Non-Potable Water and Solid & Chemical Materials, effective 03/01/16-02/28/17.
-AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Metals, PCM Asbestos, Gravimetric), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 09/01/17.

Mirzeta Kararic

Mirzeta Kararic
Project Manager

ANALYTICAL ENVIRONMENTAL SERVICES, INC
3080 Presidential Drive, Atlanta GA 30340-3704
TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: 1611262

Date: _____ Page 1 of 1

COMPANY: EMA/JS

ADDRESS:

PHONE:

FAX:

SAMPLED BY: J. SCHWALLER

SIGNATURE:

ANALYSIS REQUESTED

Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.

#	SAMPLE ID	SAMPLED DATE	SAMPLED TIME	Grab	Composite	Matrix (See codes)	TCL VOC's	PRESERVATION (See codes) H	REMARKS	No # of Containers
1	MW-9	11/2	0955	X		GW	X			
2	MW-13		1430							
3	MW-18		1615						INCLUDE	
4	MW-21		1106						1,4-DIOXANE	
5	MW-32		1548							
6	MW-39		1321						HIGH	
7	MW-40		1205						HIGH 10,000-300	
8	MW-41		1239						HIGH BPL	
9	TP-1		1132							
10	TP-2		1029							
11	TP-3		1505							
12	TRIP BLANK									
13	DUP		—	X		GW	X			
14										

RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:	DATE/TIME:
1:	11/3/11 0905	1: Jessica Schilling	11/3/11 9:07 am
2:		2:	
3:		3:	

SPECIAL INSTRUCTIONS/COMMENTS:

SHIPMENT METHOD:
OUT / / VIA:
IN / / VIA:
CLIENT FedEx UPS MAIL COURIER
GREYHOUND OTHER_____

PROJECT INFORMATION

PROJECT NAME: SAVANNAH STATES

PROJECT #:

SITE ADDRESS:

SEND REPORT TO: SCHWALLER

INVOICE TO:
(IF DIFFERENT FROM ABOVE)

QUOTE #:_____ PO#:_____

RECEIPT

Total # of Containers

Turnaround Time Request
- [x] Standard 5 Business Days
- [ ] 2 Business Day Rush
- [ ] Next Business Day Rush
- [ ] Same Day Rush (auth req.)
- [ ] Other _____

STATE PROGRAM (if any): _____
E-mail? Fax?
DATA PACKAGE: I ○ II ○ III ○ IV ○

SAMPLES RECEIVED AFTER 3PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY. IF NO TAT IS MARKED ON COC AES WILL PROCEED AS STANDARD TAT.

SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water WW = Waste Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify)

PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

White Copy - Original; Yellow Copy - Client

Analytical Environmental Services, Inc

Date: 10-Nov-16

Client: Environmental Management Associates, LLC
Project: Southern States
Lab ID: 1611262

Case Narrative

Volatiles Organic Compounds Analysis by Method 8260B:

Due to sample matrix, sample 1611262-006 required dilution during preparation and/or analysis resulting in elevated reporting limits.

Analytical Environmental Services, Inc

Date: 10-Nov-16

Client:	Environmental Management Associates, LLC	**Client Sample ID:**	MW-9
Project Name:	Southern States	**Collection Date:**	11/2/2016 9:55:00 AM
Lab ID:	1611262-001	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260B				**(SW5030B)**				
1,1,1-Trichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
1,1,2-Trichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
1,1-Dichloroethane	7.4	5.0		ug/L	232524	1	11/08/2016 23:06	NP
1,1-Dichloroethene	7.1	5.0		ug/L	232524	1	11/08/2016 23:06	NP
1,2,4-Trichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
1,2-Dibromo-3-chloropropane	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
1,2-Dibromoethane	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
1,2-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
1,2-Dichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
1,2-Dichloropropane	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
1,3-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
1,4-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
1,4-Dioxane	BRL	150		ug/L	232524	1	11/08/2016 23:06	NP
2-Butanone	BRL	50		ug/L	232524	1	11/08/2016 23:06	NP
2-Hexanone	BRL	10		ug/L	232524	1	11/08/2016 23:06	NP
4-Methyl-2-pentanone	BRL	10		ug/L	232524	1	11/08/2016 23:06	NP
Acetone	BRL	50		ug/L	232524	1	11/08/2016 23:06	NP
Benzene	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
Bromodichloromethane	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
Bromoform	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
Bromomethane	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
Carbon disulfide	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
Carbon tetrachloride	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
Chlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
Chloroethane	BRL	10		ug/L	232524	1	11/08/2016 23:06	NP
Chloroform	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
Chloromethane	BRL	10		ug/L	232524	1	11/08/2016 23:06	NP
cis-1,2-Dichloroethene	37	5.0		ug/L	232524	1	11/08/2016 23:06	NP
cis-1,3-Dichloropropene	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
Cyclohexane	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
Dibromochloromethane	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
Dichlorodifluoromethane	BRL	10		ug/L	232524	1	11/08/2016 23:06	NP
Ethylbenzene	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
Freon-113	BRL	10		ug/L	232524	1	11/08/2016 23:06	NP
Isopropylbenzene	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
m,p-Xylene	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
Methyl acetate	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
Methyl tert-butyl ether	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
Methylcyclohexane	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
Methylene chloride	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 10-Nov-16

Client:	Environmental Management Associates, LLC	**Client Sample ID:**	MW-9
Project Name:	Southern States	**Collection Date:**	11/2/2016 9:55:00 AM
Lab ID:	1611262-001	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260B (SW5030B)								
o-Xylene	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
Styrene	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
Tetrachloroethene	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
Toluene	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
trans-1,3-Dichloropropene	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
Trichloroethene	840	50		ug/L	232524	10	11/08/2016 23:32	NP
Trichlorofluoromethane	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
Vinyl chloride	BRL	2.0		ug/L	232524	1	11/08/2016 23:06	NP
1,2-Dichloroethene, Total	37	5.0		ug/L	232524	1	11/08/2016 23:06	NP
Xylenes, Total	BRL	5.0		ug/L	232524	1	11/08/2016 23:06	NP
Surr: 4-Bromofluorobenzene	88.9	70.7-125		%REC	232524	1	11/08/2016 23:06	NP
Surr: 4-Bromofluorobenzene	91.2	70.7-125		%REC	232524	10	11/08/2016 23:32	NP
Surr: Dibromofluoromethane	110	82.2-120		%REC	232524	10	11/08/2016 23:32	NP
Surr: Dibromofluoromethane	115	82.2-120		%REC	232524	1	11/08/2016 23:06	NP
Surr: Toluene-d8	98.4	81.8-120		%REC	232524	10	11/08/2016 23:32	NP
Surr: Toluene-d8	102	81.8-120		%REC	232524	1	11/08/2016 23:06	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
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- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 10-Nov-16

Client:	Environmental Management Associates, LLC	**Client Sample ID:**	MW-13
Project Name:	Southern States	**Collection Date:**	11/2/2016 2:30:00 PM
Lab ID:	1611262-002	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260B				**(SW5030B)**				
1,1,1-Trichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
1,1,2-Trichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
1,1-Dichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
1,1-Dichloroethene	7.5	5.0		ug/L	232524	1	11/08/2016 21:22	NP
1,2,4-Trichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
1,2-Dibromo-3-chloropropane	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
1,2-Dibromoethane	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
1,2-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
1,2-Dichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
1,2-Dichloropropane	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
1,3-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
1,4-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
1,4-Dioxane	BRL	150		ug/L	232524	1	11/08/2016 21:22	NP
2-Butanone	BRL	50		ug/L	232524	1	11/08/2016 21:22	NP
2-Hexanone	BRL	10		ug/L	232524	1	11/08/2016 21:22	NP
4-Methyl-2-pentanone	BRL	10		ug/L	232524	1	11/08/2016 21:22	NP
Acetone	BRL	50		ug/L	232524	1	11/08/2016 21:22	NP
Benzene	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
Bromodichloromethane	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
Bromoform	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
Bromomethane	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
Carbon disulfide	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
Carbon tetrachloride	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
Chlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
Chloroethane	BRL	10		ug/L	232524	1	11/08/2016 21:22	NP
Chloroform	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
Chloromethane	BRL	10		ug/L	232524	1	11/08/2016 21:22	NP
cis-1,2-Dichloroethene	46	5.0		ug/L	232524	1	11/08/2016 21:22	NP
cis-1,3-Dichloropropene	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
Cyclohexane	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
Dibromochloromethane	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
Dichlorodifluoromethane	BRL	10		ug/L	232524	1	11/08/2016 21:22	NP
Ethylbenzene	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
Freon-113	BRL	10		ug/L	232524	1	11/08/2016 21:22	NP
Isopropylbenzene	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
m,p-Xylene	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
Methyl acetate	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
Methyl tert-butyl ether	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
Methylcyclohexane	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
Methylene chloride	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 10-Nov-16

Client:	Environmental Management Associates, LLC	**Client Sample ID:**	MW-13
Project Name:	Southern States	**Collection Date:**	11/2/2016 2:30:00 PM
Lab ID:	1611262-002	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260B (SW5030B)								
o-Xylene	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
Styrene	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
Tetrachloroethene	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
Toluene	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
trans-1,3-Dichloropropene	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
Trichloroethene	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
Trichlorofluoromethane	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
Vinyl chloride	5.5	2.0		ug/L	232524	1	11/08/2016 21:22	NP
1,2-Dichloroethene, Total	46	5.0		ug/L	232524	1	11/08/2016 21:22	NP
Xylenes, Total	BRL	5.0		ug/L	232524	1	11/08/2016 21:22	NP
Surr: 4-Bromofluorobenzene	86.9	70.7-125		%REC	232524	1	11/08/2016 21:22	NP
Surr: Dibromofluoromethane	110	82.2-120		%REC	232524	1	11/08/2016 21:22	NP
Surr: Toluene-d8	95.3	81.8-120		%REC	232524	1	11/08/2016 21:22	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 10-Nov-16

Client:	Environmental Management Associates, LLC	**Client Sample ID:**	MW-18
Project Name:	Southern States	**Collection Date:**	11/2/2016 4:15:00 PM
Lab ID:	1611262-003	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260B				**(SW5030B)**				
1,1,1-Trichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
1,1,2-Trichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
1,1-Dichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
1,1-Dichloroethene	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
1,2,4-Trichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
1,2-Dibromo-3-chloropropane	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
1,2-Dibromoethane	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
1,2-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
1,2-Dichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
1,2-Dichloropropane	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
1,3-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
1,4-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
1,4-Dioxane	BRL	150		ug/L	232524	1	11/08/2016 21:49	NP
2-Butanone	BRL	50		ug/L	232524	1	11/08/2016 21:49	NP
2-Hexanone	BRL	10		ug/L	232524	1	11/08/2016 21:49	NP
4-Methyl-2-pentanone	BRL	10		ug/L	232524	1	11/08/2016 21:49	NP
Acetone	BRL	50		ug/L	232524	1	11/08/2016 21:49	NP
Benzene	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
Bromodichloromethane	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
Bromoform	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
Bromomethane	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
Carbon disulfide	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
Carbon tetrachloride	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
Chlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
Chloroethane	BRL	10		ug/L	232524	1	11/08/2016 21:49	NP
Chloroform	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
Chloromethane	BRL	10		ug/L	232524	1	11/08/2016 21:49	NP
cis-1,2-Dichloroethene	130	5.0		ug/L	232524	1	11/08/2016 21:49	NP
cis-1,3-Dichloropropene	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
Cyclohexane	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
Dibromochloromethane	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
Dichlorodifluoromethane	BRL	10		ug/L	232524	1	11/08/2016 21:49	NP
Ethylbenzene	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
Freon-113	BRL	10		ug/L	232524	1	11/08/2016 21:49	NP
Isopropylbenzene	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
m,p-Xylene	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
Methyl acetate	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
Methyl tert-butyl ether	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
Methylcyclohexane	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
Methylene chloride	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 10-Nov-16

Client:	Environmental Management Associates, LLC	**Client Sample ID:**	MW-18
Project Name:	Southern States	**Collection Date:**	11/2/2016 4:15:00 PM
Lab ID:	1611262-003	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260B (SW5030B)								
o-Xylene	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
Styrene	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
Tetrachloroethene	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
Toluene	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
trans-1,3-Dichloropropene	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
Trichloroethene	28	5.0		ug/L	232524	1	11/08/2016 21:49	NP
Trichlorofluoromethane	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
Vinyl chloride	5.3	2.0		ug/L	232524	1	11/08/2016 21:49	NP
1,2-Dichloroethene, Total	130	5.0		ug/L	232524	1	11/08/2016 21:49	NP
Xylenes, Total	BRL	5.0		ug/L	232524	1	11/08/2016 21:49	NP
Surr: 4-Bromofluorobenzene	86.8	70.7-125		%REC	232524	1	11/08/2016 21:49	NP
Surr: Dibromofluoromethane	109	82.2-120		%REC	232524	1	11/08/2016 21:49	NP
Surr: Toluene-d8	99.8	81.8-120		%REC	232524	1	11/08/2016 21:49	NP

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 10-Nov-16

Client:	Environmental Management Associates, LLC	**Client Sample ID:**	MW-21
Project Name:	Southern States	**Collection Date:**	11/2/2016 11:06:00 AM
Lab ID:	1611262-004	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260B (SW5030B)								
1,1,1-Trichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
1,1,2-Trichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
1,1-Dichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
1,1-Dichloroethene	22	5.0		ug/L	232524	1	11/08/2016 22:15	NP
1,2,4-Trichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
1,2-Dibromo-3-chloropropane	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
1,2-Dibromoethane	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
1,2-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
1,2-Dichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
1,2-Dichloropropane	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
1,3-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
1,4-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
1,4-Dioxane	BRL	150		ug/L	232524	1	11/08/2016 22:15	NP
2-Butanone	BRL	50		ug/L	232524	1	11/08/2016 22:15	NP
2-Hexanone	BRL	10		ug/L	232524	1	11/08/2016 22:15	NP
4-Methyl-2-pentanone	BRL	10		ug/L	232524	1	11/08/2016 22:15	NP
Acetone	BRL	50		ug/L	232524	1	11/08/2016 22:15	NP
Benzene	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
Bromodichloromethane	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
Bromoform	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
Bromomethane	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
Carbon disulfide	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
Carbon tetrachloride	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
Chlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
Chloroethane	BRL	10		ug/L	232524	1	11/08/2016 22:15	NP
Chloroform	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
Chloromethane	BRL	10		ug/L	232524	1	11/08/2016 22:15	NP
cis-1,2-Dichloroethene	7.2	5.0		ug/L	232524	1	11/08/2016 22:15	NP
cis-1,3-Dichloropropene	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
Cyclohexane	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
Dibromochloromethane	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
Dichlorodifluoromethane	BRL	10		ug/L	232524	1	11/08/2016 22:15	NP
Ethylbenzene	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
Freon-113	BRL	10		ug/L	232524	1	11/08/2016 22:15	NP
Isopropylbenzene	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
m,p-Xylene	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
Methyl acetate	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
Methyl tert-butyl ether	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
Methylcyclohexane	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
Methylene chloride	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 10-Nov-16

Client:	Environmental Management Associates, LLC	**Client Sample ID:**	MW-21
Project Name:	Southern States	**Collection Date:**	11/2/2016 11:06:00 AM
Lab ID:	1611262-004	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260B (SW5030B)								
o-Xylene	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
Styrene	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
Tetrachloroethene	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
Toluene	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
trans-1,3-Dichloropropene	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
Trichloroethene	250	50		ug/L	232524	10	11/09/2016 15:17	NP
Trichlorofluoromethane	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
Vinyl chloride	BRL	2.0		ug/L	232524	1	11/08/2016 22:15	NP
1,2-Dichloroethene, Total	7.2	5.0		ug/L	232524	1	11/08/2016 22:15	NP
Xylenes, Total	BRL	5.0		ug/L	232524	1	11/08/2016 22:15	NP
Surr: 4-Bromofluorobenzene	84.9	70.7-125		%REC	232524	10	11/09/2016 15:17	NP
Surr: 4-Bromofluorobenzene	88.3	70.7-125		%REC	232524	1	11/08/2016 22:15	NP
Surr: Dibromofluoromethane	103	82.2-120		%REC	232524	10	11/09/2016 15:17	NP
Surr: Dibromofluoromethane	109	82.2-120		%REC	232524	1	11/08/2016 22:15	NP
Surr: Toluene-d8	93.5	81.8-120		%REC	232524	10	11/09/2016 15:17	NP
Surr: Toluene-d8	96.3	81.8-120		%REC	232524	1	11/08/2016 22:15	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 10-Nov-16

Client:	Environmental Management Associates, LLC	**Client Sample ID:**	MW-32
Project Name:	Southern States	**Collection Date:**	11/2/2016 3:48:00 PM
Lab ID:	1611262-005	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260B				**(SW5030B)**				
1,1,1-Trichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
1,1,2-Trichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
1,1-Dichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
1,1-Dichloroethene	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
1,2,4-Trichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
1,2-Dibromo-3-chloropropane	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
1,2-Dibromoethane	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
1,2-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
1,2-Dichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
1,2-Dichloropropane	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
1,3-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
1,4-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
1,4-Dioxane	BRL	150		ug/L	232524	1	11/08/2016 22:41	NP
2-Butanone	BRL	50		ug/L	232524	1	11/08/2016 22:41	NP
2-Hexanone	BRL	10		ug/L	232524	1	11/08/2016 22:41	NP
4-Methyl-2-pentanone	BRL	10		ug/L	232524	1	11/08/2016 22:41	NP
Acetone	BRL	50		ug/L	232524	1	11/08/2016 22:41	NP
Benzene	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
Bromodichloromethane	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
Bromoform	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
Bromomethane	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
Carbon disulfide	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
Carbon tetrachloride	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
Chlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
Chloroethane	BRL	10		ug/L	232524	1	11/08/2016 22:41	NP
Chloroform	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
Chloromethane	BRL	10		ug/L	232524	1	11/08/2016 22:41	NP
cis-1,2-Dichloroethene	7.1	5.0		ug/L	232524	1	11/08/2016 22:41	NP
cis-1,3-Dichloropropene	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
Cyclohexane	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
Dibromochloromethane	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
Dichlorodifluoromethane	BRL	10		ug/L	232524	1	11/08/2016 22:41	NP
Ethylbenzene	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
Freon-113	BRL	10		ug/L	232524	1	11/08/2016 22:41	NP
Isopropylbenzene	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
m,p-Xylene	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
Methyl acetate	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
Methyl tert-butyl ether	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
Methylcyclohexane	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
Methylene chloride	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 10-Nov-16

Client:	Environmental Management Associates, LLC	**Client Sample ID:**	MW-32
Project Name:	Southern States	**Collection Date:**	11/2/2016 3:48:00 PM
Lab ID:	1611262-005	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260B (SW5030B)								
o-Xylene	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
Styrene	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
Tetrachloroethene	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
Toluene	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
trans-1,3-Dichloropropene	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
Trichloroethene	110	5.0		ug/L	232524	1	11/08/2016 22:41	NP
Trichlorofluoromethane	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
Vinyl chloride	BRL	2.0		ug/L	232524	1	11/08/2016 22:41	NP
1,2-Dichloroethene, Total	7.1	5.0		ug/L	232524	1	11/08/2016 22:41	NP
Xylenes, Total	BRL	5.0		ug/L	232524	1	11/08/2016 22:41	NP
Surr: 4-Bromofluorobenzene	88.1	70.7-125		%REC	232524	1	11/08/2016 22:41	NP
Surr: Dibromofluoromethane	111	82.2-120		%REC	232524	1	11/08/2016 22:41	NP
Surr: Toluene-d8	98.1	81.8-120		%REC	232524	1	11/08/2016 22:41	NP

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 10-Nov-16

Client:	Environmental Management Associates, LLC	**Client Sample ID:**	MW-39
Project Name:	Southern States	**Collection Date:**	11/2/2016 1:21:00 PM
Lab ID:	1611262-006	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260B (SW5030B)								
1,1,1-Trichloroethane	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
1,1,2,2-Tetrachloroethane	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
1,1,2-Trichloroethane	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
1,1-Dichloroethane	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
1,1-Dichloroethene	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
1,2,4-Trichlorobenzene	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
1,2-Dibromo-3-chloropropane	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
1,2-Dibromoethane	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
1,2-Dichlorobenzene	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
1,2-Dichloroethane	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
1,2-Dichloropropane	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
1,3-Dichlorobenzene	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
1,4-Dichlorobenzene	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
1,4-Dioxane	BRL	15000		ug/L	232524	100	11/08/2016 20:56	NP
2-Butanone	BRL	5000		ug/L	232524	100	11/08/2016 20:56	NP
2-Hexanone	BRL	1000		ug/L	232524	100	11/08/2016 20:56	NP
4-Methyl-2-pentanone	BRL	1000		ug/L	232524	100	11/08/2016 20:56	NP
Acetone	BRL	5000		ug/L	232524	100	11/08/2016 20:56	NP
Benzene	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
Bromodichloromethane	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
Bromoform	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
Bromomethane	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
Carbon disulfide	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
Carbon tetrachloride	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
Chlorobenzene	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
Chloroethane	BRL	1000		ug/L	232524	100	11/08/2016 20:56	NP
Chloroform	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
Chloromethane	BRL	1000		ug/L	232524	100	11/08/2016 20:56	NP
cis-1,2-Dichloroethene	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
cis-1,3-Dichloropropene	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
Cyclohexane	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
Dibromochloromethane	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
Dichlorodifluoromethane	BRL	1000		ug/L	232524	100	11/08/2016 20:56	NP
Ethylbenzene	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
Freon-113	BRL	1000		ug/L	232524	100	11/08/2016 20:56	NP
Isopropylbenzene	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
m,p-Xylene	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
Methyl acetate	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
Methyl tert-butyl ether	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
Methylcyclohexane	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
Methylene chloride	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 10-Nov-16

Client:	Environmental Management Associates, LLC	**Client Sample ID:**	MW-39
Project Name:	Southern States	**Collection Date:**	11/2/2016 1:21:00 PM
Lab ID:	1611262-006	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260B (SW5030B)								
o-Xylene	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
Styrene	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
Tetrachloroethene	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
Toluene	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
trans-1,2-Dichloroethene	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
trans-1,3-Dichloropropene	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
Trichloroethene	9800	500		ug/L	232524	100	11/08/2016 20:56	NP
Trichlorofluoromethane	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
Vinyl chloride	BRL	200		ug/L	232524	100	11/08/2016 20:56	NP
1,2-Dichloroethene, Total	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
Xylenes, Total	BRL	500		ug/L	232524	100	11/08/2016 20:56	NP
Surr: 4-Bromofluorobenzene	90.8	70.7-125		%REC	232524	100	11/08/2016 20:56	NP
Surr: Dibromofluoromethane	110	82.2-120		%REC	232524	100	11/08/2016 20:56	NP
Surr: Toluene-d8	100	81.8-120		%REC	232524	100	11/08/2016 20:56	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 10-Nov-16

Client:	Environmental Management Associates, LLC	**Client Sample ID:**	MW-40
Project Name:	Southern States	**Collection Date:**	11/2/2016 12:05:00 PM
Lab ID:	1611262-007	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260B				**(SW5030B)**				
1,1,1-Trichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
1,1,2-Trichloroethane	8.4	5.0		ug/L	232524	1	11/08/2016 23:58	NP
1,1-Dichloroethane	15	5.0		ug/L	232524	1	11/08/2016 23:58	NP
1,1-Dichloroethene	5.1	5.0		ug/L	232524	1	11/08/2016 23:58	NP
1,2,4-Trichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
1,2-Dibromo-3-chloropropane	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
1,2-Dibromoethane	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
1,2-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
1,2-Dichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
1,2-Dichloropropane	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
1,3-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
1,4-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
1,4-Dioxane	BRL	150		ug/L	232524	1	11/08/2016 23:58	NP
2-Butanone	BRL	50		ug/L	232524	1	11/08/2016 23:58	NP
2-Hexanone	BRL	10		ug/L	232524	1	11/08/2016 23:58	NP
4-Methyl-2-pentanone	BRL	10		ug/L	232524	1	11/08/2016 23:58	NP
Acetone	BRL	50		ug/L	232524	1	11/08/2016 23:58	NP
Benzene	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
Bromodichloromethane	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
Bromoform	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
Bromomethane	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
Carbon disulfide	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
Carbon tetrachloride	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
Chlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
Chloroethane	BRL	10		ug/L	232524	1	11/08/2016 23:58	NP
Chloroform	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
Chloromethane	BRL	10		ug/L	232524	1	11/08/2016 23:58	NP
cis-1,2-Dichloroethene	330	50		ug/L	232524	10	11/09/2016 00:24	NP
cis-1,3-Dichloropropene	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
Cyclohexane	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
Dibromochloromethane	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
Dichlorodifluoromethane	BRL	10		ug/L	232524	1	11/08/2016 23:58	NP
Ethylbenzene	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
Freon-113	BRL	10		ug/L	232524	1	11/08/2016 23:58	NP
Isopropylbenzene	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
m,p-Xylene	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
Methyl acetate	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
Methyl tert-butyl ether	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
Methylcyclohexane	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
Methylene chloride	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 10-Nov-16

Client:	Environmental Management Associates, LLC	**Client Sample ID:**	MW-40
Project Name:	Southern States	**Collection Date:**	11/2/2016 12:05:00 PM
Lab ID:	1611262-007	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260B (SW5030B)								
o-Xylene	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
Styrene	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
Tetrachloroethene	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
Toluene	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
trans-1,3-Dichloropropene	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
Trichloroethene	900	50		ug/L	232524	10	11/09/2016 00:24	NP
Trichlorofluoromethane	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
Vinyl chloride	110	2.0		ug/L	232524	1	11/08/2016 23:58	NP
1,2-Dichloroethene, Total	330	50		ug/L	232524	10	11/09/2016 00:24	NP
Xylenes, Total	BRL	5.0		ug/L	232524	1	11/08/2016 23:58	NP
Surr: 4-Bromofluorobenzene	86.9	70.7-125		%REC	232524	1	11/08/2016 23:58	NP
Surr: 4-Bromofluorobenzene	90.3	70.7-125		%REC	232524	10	11/09/2016 00:24	NP
Surr: Dibromofluoromethane	105	82.2-120		%REC	232524	1	11/08/2016 23:58	NP
Surr: Dibromofluoromethane	108	82.2-120		%REC	232524	10	11/09/2016 00:24	NP
Surr: Toluene-d8	95.1	81.8-120		%REC	232524	1	11/08/2016 23:58	NP
Surr: Toluene-d8	97.4	81.8-120		%REC	232524	10	11/09/2016 00:24	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 10-Nov-16

Client:	Environmental Management Associates, LLC	**Client Sample ID:**	MW-41
Project Name:	Southern States	**Collection Date:**	11/2/2016 12:39:00 PM
Lab ID:	1611262-008	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260B (SW5030B)								
1,1,1-Trichloroethane	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
1,1,2-Trichloroethane	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
1,1-Dichloroethane	13	5.0		ug/L	232524	1	11/09/2016 00:50	NP
1,1-Dichloroethene	17	5.0		ug/L	232524	1	11/09/2016 00:50	NP
1,2,4-Trichlorobenzene	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
1,2-Dibromo-3-chloropropane	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
1,2-Dibromoethane	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
1,2-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
1,2-Dichloroethane	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
1,2-Dichloropropane	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
1,3-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
1,4-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
1,4-Dioxane	BRL	150		ug/L	232524	1	11/09/2016 00:50	NP
2-Butanone	BRL	50		ug/L	232524	1	11/09/2016 00:50	NP
2-Hexanone	BRL	10		ug/L	232524	1	11/09/2016 00:50	NP
4-Methyl-2-pentanone	BRL	10		ug/L	232524	1	11/09/2016 00:50	NP
Acetone	BRL	50		ug/L	232524	1	11/09/2016 00:50	NP
Benzene	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
Bromodichloromethane	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
Bromoform	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
Bromomethane	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
Carbon disulfide	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
Carbon tetrachloride	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
Chlorobenzene	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
Chloroethane	BRL	10		ug/L	232524	1	11/09/2016 00:50	NP
Chloroform	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
Chloromethane	BRL	10		ug/L	232524	1	11/09/2016 00:50	NP
cis-1,2-Dichloroethene	180	5.0		ug/L	232524	1	11/09/2016 00:50	NP
cis-1,3-Dichloropropene	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
Cyclohexane	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
Dibromochloromethane	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
Dichlorodifluoromethane	BRL	10		ug/L	232524	1	11/09/2016 00:50	NP
Ethylbenzene	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
Freon-113	BRL	10		ug/L	232524	1	11/09/2016 00:50	NP
Isopropylbenzene	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
m,p-Xylene	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
Methyl acetate	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
Methyl tert-butyl ether	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
Methylcyclohexane	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
Methylene chloride	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 10-Nov-16

Client:	Environmental Management Associates, LLC	**Client Sample ID:**	MW-41
Project Name:	Southern States	**Collection Date:**	11/2/2016 12:39:00 PM
Lab ID:	1611262-008	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260B (SW5030B)								
o-Xylene	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
Styrene	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
Tetrachloroethene	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
Toluene	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
trans-1,3-Dichloropropene	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
Trichloroethene	1900	50		ug/L	232524	10	11/09/2016 01:16	NP
Trichlorofluoromethane	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
Vinyl chloride	4.4	2.0		ug/L	232524	1	11/09/2016 00:50	NP
1,2-Dichloroethene, Total	180	5.0		ug/L	232524	1	11/09/2016 00:50	NP
Xylenes, Total	BRL	5.0		ug/L	232524	1	11/09/2016 00:50	NP
Surr: 4-Bromofluorobenzene	83.2	70.7-125		%REC	232524	1	11/09/2016 00:50	NP
Surr: 4-Bromofluorobenzene	88.8	70.7-125		%REC	232524	10	11/09/2016 01:16	NP
Surr: Dibromofluoromethane	110	82.2-120		%REC	232524	1	11/09/2016 00:50	NP
Surr: Dibromofluoromethane	114	82.2-120		%REC	232524	10	11/09/2016 01:16	NP
Surr: Toluene-d8	97.2	81.8-120		%REC	232524	1	11/09/2016 00:50	NP
Surr: Toluene-d8	98.9	81.8-120		%REC	232524	10	11/09/2016 01:16	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 10-Nov-16

Client:	Environmental Management Associates, LLC	**Client Sample ID:**	TP-1
Project Name:	Southern States	**Collection Date:**	11/2/2016 11:32:00 AM
Lab ID:	1611262-009	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260B				**(SW5030B)**				
1,1,1-Trichloroethane	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
1,1,2-Trichloroethane	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
1,1-Dichloroethane	5.6	5.0		ug/L	232524	1	11/09/2016 01:42	NP
1,1-Dichloroethene	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
1,2,4-Trichlorobenzene	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
1,2-Dibromo-3-chloropropane	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
1,2-Dibromoethane	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
1,2-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
1,2-Dichloroethane	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
1,2-Dichloropropane	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
1,3-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
1,4-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
1,4-Dioxane	BRL	150		ug/L	232524	1	11/09/2016 01:42	NP
2-Butanone	BRL	50		ug/L	232524	1	11/09/2016 01:42	NP
2-Hexanone	BRL	10		ug/L	232524	1	11/09/2016 01:42	NP
4-Methyl-2-pentanone	BRL	10		ug/L	232524	1	11/09/2016 01:42	NP
Acetone	BRL	50		ug/L	232524	1	11/09/2016 01:42	NP
Benzene	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
Bromodichloromethane	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
Bromoform	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
Bromomethane	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
Carbon disulfide	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
Carbon tetrachloride	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
Chlorobenzene	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
Chloroethane	BRL	10		ug/L	232524	1	11/09/2016 01:42	NP
Chloroform	6.0	5.0		ug/L	232524	1	11/09/2016 01:42	NP
Chloromethane	BRL	10		ug/L	232524	1	11/09/2016 01:42	NP
cis-1,2-Dichloroethene	140	5.0		ug/L	232524	1	11/09/2016 01:42	NP
cis-1,3-Dichloropropene	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
Cyclohexane	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
Dibromochloromethane	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
Dichlorodifluoromethane	BRL	10		ug/L	232524	1	11/09/2016 01:42	NP
Ethylbenzene	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
Freon-113	BRL	10		ug/L	232524	1	11/09/2016 01:42	NP
Isopropylbenzene	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
m,p-Xylene	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
Methyl acetate	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
Methyl tert-butyl ether	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
Methylcyclohexane	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
Methylene chloride	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 10-Nov-16

Client:	Environmental Management Associates, LLC	**Client Sample ID:**	TP-1
Project Name:	Southern States	**Collection Date:**	11/2/2016 11:32:00 AM
Lab ID:	1611262-009	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260B (SW5030B)								
o-Xylene	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
Styrene	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
Tetrachloroethene	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
Toluene	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
trans-1,3-Dichloropropene	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
Trichloroethene	870	50		ug/L	232524	10	11/09/2016 02:08	NP
Trichlorofluoromethane	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
Vinyl chloride	8.8	2.0		ug/L	232524	1	11/09/2016 01:42	NP
1,2-Dichloroethene, Total	140	5.0		ug/L	232524	1	11/09/2016 01:42	NP
Xylenes, Total	BRL	5.0		ug/L	232524	1	11/09/2016 01:42	NP
Surr: 4-Bromofluorobenzene	90	70.7-125		%REC	232524	1	11/09/2016 01:42	NP
Surr: 4-Bromofluorobenzene	92	70.7-125		%REC	232524	10	11/09/2016 02:08	NP
Surr: Dibromofluoromethane	106	82.2-120		%REC	232524	1	11/09/2016 01:42	NP
Surr: Dibromofluoromethane	110	82.2-120		%REC	232524	10	11/09/2016 02:08	NP
Surr: Toluene-d8	96.7	81.8-120		%REC	232524	1	11/09/2016 01:42	NP
Surr: Toluene-d8	99.7	81.8-120		%REC	232524	10	11/09/2016 02:08	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 10-Nov-16

Client:	Environmental Management Associates, LLC	**Client Sample ID:**	TP-2
Project Name:	Southern States	**Collection Date:**	11/2/2016 10:29:00 AM
Lab ID:	1611262-010	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260B (SW5030B)								
1,1,1-Trichloroethane	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
1,1,2-Trichloroethane	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
1,1-Dichloroethane	14	5.0		ug/L	232524	1	11/09/2016 02:34	NP
1,1-Dichloroethene	66	5.0		ug/L	232524	1	11/09/2016 02:34	NP
1,2,4-Trichlorobenzene	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
1,2-Dibromo-3-chloropropane	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
1,2-Dibromoethane	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
1,2-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
1,2-Dichloroethane	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
1,2-Dichloropropane	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
1,3-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
1,4-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
1,4-Dioxane	BRL	150		ug/L	232524	1	11/09/2016 02:34	NP
2-Butanone	BRL	50		ug/L	232524	1	11/09/2016 02:34	NP
2-Hexanone	BRL	10		ug/L	232524	1	11/09/2016 02:34	NP
4-Methyl-2-pentanone	BRL	10		ug/L	232524	1	11/09/2016 02:34	NP
Acetone	BRL	50		ug/L	232524	1	11/09/2016 02:34	NP
Benzene	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
Bromodichloromethane	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
Bromoform	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
Bromomethane	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
Carbon disulfide	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
Carbon tetrachloride	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
Chlorobenzene	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
Chloroethane	BRL	10		ug/L	232524	1	11/09/2016 02:34	NP
Chloroform	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
Chloromethane	BRL	10		ug/L	232524	1	11/09/2016 02:34	NP
cis-1,2-Dichloroethene	36	5.0		ug/L	232524	1	11/09/2016 02:34	NP
cis-1,3-Dichloropropene	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
Cyclohexane	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
Dibromochloromethane	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
Dichlorodifluoromethane	BRL	10		ug/L	232524	1	11/09/2016 02:34	NP
Ethylbenzene	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
Freon-113	BRL	10		ug/L	232524	1	11/09/2016 02:34	NP
Isopropylbenzene	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
m,p-Xylene	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
Methyl acetate	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
Methyl tert-butyl ether	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
Methylcyclohexane	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
Methylene chloride	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 10-Nov-16

Client:	Environmental Management Associates, LLC	**Client Sample ID:**	TP-2
Project Name:	Southern States	**Collection Date:**	11/2/2016 10:29:00 AM
Lab ID:	1611262-010	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260B (SW5030B)								
o-Xylene	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
Styrene	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
Tetrachloroethene	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
Toluene	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
trans-1,3-Dichloropropene	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
Trichloroethene	660	50		ug/L	232524	10	11/09/2016 03:00	NP
Trichlorofluoromethane	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
Vinyl chloride	5.0	2.0		ug/L	232524	1	11/09/2016 02:34	NP
1,2-Dichloroethene, Total	36	5.0		ug/L	232524	1	11/09/2016 02:34	NP
Xylenes, Total	BRL	5.0		ug/L	232524	1	11/09/2016 02:34	NP
Surr: 4-Bromofluorobenzene	86.3	70.7-125		%REC	232524	1	11/09/2016 02:34	NP
Surr: 4-Bromofluorobenzene	90.6	70.7-125		%REC	232524	10	11/09/2016 03:00	NP
Surr: Dibromofluoromethane	105	82.2-120		%REC	232524	10	11/09/2016 03:00	NP
Surr: Dibromofluoromethane	109	82.2-120		%REC	232524	1	11/09/2016 02:34	NP
Surr: Toluene-d8	99.1	81.8-120		%REC	232524	1	11/09/2016 02:34	NP
Surr: Toluene-d8	99.2	81.8-120		%REC	232524	10	11/09/2016 03:00	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 10-Nov-16

Client:	Environmental Management Associates, LLC	**Client Sample ID:**	TP-3
Project Name:	Southern States	**Collection Date:**	11/2/2016 3:05:00 PM
Lab ID:	1611262-011	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260B (SW5030B)								
1,1,1-Trichloroethane	840	50		ug/L	232524	10	11/09/2016 03:52	NP
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
1,1,2-Trichloroethane	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
1,1-Dichloroethane	1200	50		ug/L	232524	10	11/09/2016 03:52	NP
1,1-Dichloroethene	1700	50		ug/L	232524	10	11/09/2016 03:52	NP
1,2,4-Trichlorobenzene	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
1,2-Dibromo-3-chloropropane	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
1,2-Dibromoethane	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
1,2-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
1,2-Dichloroethane	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
1,2-Dichloropropane	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
1,3-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
1,4-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
1,4-Dioxane	BRL	150		ug/L	232524	1	11/09/2016 03:26	NP
2-Butanone	BRL	50		ug/L	232524	1	11/09/2016 03:26	NP
2-Hexanone	BRL	10		ug/L	232524	1	11/09/2016 03:26	NP
4-Methyl-2-pentanone	BRL	10		ug/L	232524	1	11/09/2016 03:26	NP
Acetone	BRL	50		ug/L	232524	1	11/09/2016 03:26	NP
Benzene	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
Bromodichloromethane	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
Bromoform	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
Bromomethane	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
Carbon disulfide	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
Carbon tetrachloride	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
Chlorobenzene	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
Chloroethane	32	10		ug/L	232524	1	11/09/2016 03:26	NP
Chloroform	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
Chloromethane	BRL	10		ug/L	232524	1	11/09/2016 03:26	NP
cis-1,2-Dichloroethene	110	5.0		ug/L	232524	1	11/09/2016 03:26	NP
cis-1,3-Dichloropropene	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
Cyclohexane	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
Dibromochloromethane	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
Dichlorodifluoromethane	BRL	10		ug/L	232524	1	11/09/2016 03:26	NP
Ethylbenzene	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
Freon-113	BRL	10		ug/L	232524	1	11/09/2016 03:26	NP
Isopropylbenzene	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
m,p-Xylene	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
Methyl acetate	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
Methyl tert-butyl ether	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
Methylcyclohexane	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
Methylene chloride	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 10-Nov-16

Client:	Environmental Management Associates, LLC	**Client Sample ID:**	TP-3
Project Name:	Southern States	**Collection Date:**	11/2/2016 3:05:00 PM
Lab ID:	1611262-011	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260B (SW5030B)								
o-Xylene	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
Styrene	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
Tetrachloroethene	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
Toluene	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
trans-1,3-Dichloropropene	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
Trichloroethene	1100	50		ug/L	232524	10	11/09/2016 03:52	NP
Trichlorofluoromethane	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
Vinyl chloride	41	2.0		ug/L	232524	1	11/09/2016 03:26	NP
1,2-Dichloroethene, Total	110	5.0		ug/L	232524	1	11/09/2016 03:26	NP
Xylenes, Total	BRL	5.0		ug/L	232524	1	11/09/2016 03:26	NP
Surr: 4-Bromofluorobenzene	89.9	70.7-125		%REC	232524	1	11/09/2016 03:26	NP
Surr: 4-Bromofluorobenzene	89.8	70.7-125		%REC	232524	10	11/09/2016 03:52	NP
Surr: Dibromofluoromethane	113	82.2-120		%REC	232524	10	11/09/2016 03:52	NP
Surr: Dibromofluoromethane	115	82.2-120		%REC	232524	1	11/09/2016 03:26	NP
Surr: Toluene-d8	96	81.8-120		%REC	232524	10	11/09/2016 03:52	NP
Surr: Toluene-d8	98.8	81.8-120		%REC	232524	1	11/09/2016 03:26	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 10-Nov-16

Client:	Environmental Management Associates, LLC	**Client Sample ID:**	TRIP BLANK
Project Name:	Southern States	**Collection Date:**	11/3/2016
Lab ID:	1611262-012	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260B				**(SW5030B)**				
1,1,1-Trichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
1,1,2-Trichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
1,1-Dichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
1,1-Dichloroethene	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
1,2,4-Trichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
1,2-Dibromo-3-chloropropane	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
1,2-Dibromoethane	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
1,2-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
1,2-Dichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
1,2-Dichloropropane	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
1,3-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
1,4-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
1,4-Dioxane	BRL	150		ug/L	232524	1	11/08/2016 20:30	NP
2-Butanone	BRL	50		ug/L	232524	1	11/08/2016 20:30	NP
2-Hexanone	BRL	10		ug/L	232524	1	11/08/2016 20:30	NP
4-Methyl-2-pentanone	BRL	10		ug/L	232524	1	11/08/2016 20:30	NP
Acetone	BRL	50		ug/L	232524	1	11/08/2016 20:30	NP
Benzene	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
Bromodichloromethane	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
Bromoform	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
Bromomethane	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
Carbon disulfide	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
Carbon tetrachloride	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
Chlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
Chloroethane	BRL	10		ug/L	232524	1	11/08/2016 20:30	NP
Chloroform	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
Chloromethane	BRL	10		ug/L	232524	1	11/08/2016 20:30	NP
cis-1,2-Dichloroethene	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
cis-1,3-Dichloropropene	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
Cyclohexane	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
Dibromochloromethane	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
Dichlorodifluoromethane	BRL	10		ug/L	232524	1	11/08/2016 20:30	NP
Ethylbenzene	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
Freon-113	BRL	10		ug/L	232524	1	11/08/2016 20:30	NP
Isopropylbenzene	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
m,p-Xylene	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
Methyl acetate	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
Methyl tert-butyl ether	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
Methylcyclohexane	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
Methylene chloride	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 10-Nov-16

Client:	Environmental Management Associates, LLC	**Client Sample ID:**	TRIP BLANK
Project Name:	Southern States	**Collection Date:**	11/3/2016
Lab ID:	1611262-012	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260B (SW5030B)								
o-Xylene	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
Styrene	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
Tetrachloroethene	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
Toluene	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
trans-1,3-Dichloropropene	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
Trichloroethene	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
Trichlorofluoromethane	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
Vinyl chloride	BRL	2.0		ug/L	232524	1	11/08/2016 20:30	NP
1,2-Dichloroethene, Total	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
Xylenes, Total	BRL	5.0		ug/L	232524	1	11/08/2016 20:30	NP
Surr: 4-Bromofluorobenzene	85.6	70.7-125		%REC	232524	1	11/08/2016 20:30	NP
Surr: Dibromofluoromethane	107	82.2-120		%REC	232524	1	11/08/2016 20:30	NP
Surr: Toluene-d8	96.7	81.8-120		%REC	232524	1	11/08/2016 20:30	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 10-Nov-16

Client:	Environmental Management Associates, LLC	**Client Sample ID:**	DUP
Project Name:	Southern States	**Collection Date:**	11/2/2016
Lab ID:	1611262-013	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260B (SW5030B)								
1,1,1-Trichloroethane	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
1,1,2-Trichloroethane	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
1,1-Dichloroethane	6.1	5.0		ug/L	232524	1	11/09/2016 04:17	NP
1,1-Dichloroethene	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
1,2,4-Trichlorobenzene	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
1,2-Dibromo-3-chloropropane	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
1,2-Dibromoethane	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
1,2-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
1,2-Dichloroethane	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
1,2-Dichloropropane	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
1,3-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
1,4-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
1,4-Dioxane	BRL	150		ug/L	232524	1	11/09/2016 04:17	NP
2-Butanone	BRL	50		ug/L	232524	1	11/09/2016 04:17	NP
2-Hexanone	BRL	10		ug/L	232524	1	11/09/2016 04:17	NP
4-Methyl-2-pentanone	BRL	10		ug/L	232524	1	11/09/2016 04:17	NP
Acetone	BRL	50		ug/L	232524	1	11/09/2016 04:17	NP
Benzene	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
Bromodichloromethane	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
Bromoform	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
Bromomethane	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
Carbon disulfide	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
Carbon tetrachloride	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
Chlorobenzene	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
Chloroethane	BRL	10		ug/L	232524	1	11/09/2016 04:17	NP
Chloroform	6.6	5.0		ug/L	232524	1	11/09/2016 04:17	NP
Chloromethane	BRL	10		ug/L	232524	1	11/09/2016 04:17	NP
cis-1,2-Dichloroethene	150	5.0		ug/L	232524	1	11/09/2016 04:17	NP
cis-1,3-Dichloropropene	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
Cyclohexane	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
Dibromochloromethane	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
Dichlorodifluoromethane	BRL	10		ug/L	232524	1	11/09/2016 04:17	NP
Ethylbenzene	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
Freon-113	BRL	10		ug/L	232524	1	11/09/2016 04:17	NP
Isopropylbenzene	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
m,p-Xylene	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
Methyl acetate	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
Methyl tert-butyl ether	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
Methylcyclohexane	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
Methylene chloride	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 10-Nov-16

Client:	Environmental Management Associates, LLC	**Client Sample ID:**	DUP
Project Name:	Southern States	**Collection Date:**	11/2/2016
Lab ID:	1611262-013	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260B (SW5030B)								
o-Xylene	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
Styrene	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
Tetrachloroethene	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
Toluene	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
trans-1,3-Dichloropropene	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
Trichloroethene	860	50		ug/L	232524	10	11/09/2016 04:43	NP
Trichlorofluoromethane	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
Vinyl chloride	11	2.0		ug/L	232524	1	11/09/2016 04:17	NP
1,2-Dichloroethene, Total	150	5.0		ug/L	232524	1	11/09/2016 04:17	NP
Xylenes, Total	BRL	5.0		ug/L	232524	1	11/09/2016 04:17	NP
Surr: 4-Bromofluorobenzene	88.2	70.7-125		%REC	232524	1	11/09/2016 04:17	NP
Surr: 4-Bromofluorobenzene	93.8	70.7-125		%REC	232524	10	11/09/2016 04:43	NP
Surr: Dibromofluoromethane	108	82.2-120		%REC	232524	1	11/09/2016 04:17	NP
Surr: Dibromofluoromethane	107	82.2-120		%REC	232524	10	11/09/2016 04:43	NP
Surr: Toluene-d8	98.3	81.8-120		%REC	232524	1	11/09/2016 04:17	NP
Surr: Toluene-d8	102	81.8-120		%REC	232524	10	11/09/2016 04:43	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client EMA/JS Work Order Number 1611262

Checklist completed by _____ 11/3/16
Signature Date

Carrier name: FedEx __ UPS __ Courier __ Client ✓ US Mail __ Other _____

Shipping container/cooler in good condition? Yes ✓ No __ Not Present __

Custody seals intact on shipping container/cooler? Yes __ No __ Not Present ✓

Custody seals intact on sample bottles? Yes __ No __ Not Present ✓

Container/Temp Blank temperature in compliance? (0°≤6°C)* Yes ✓ No __

Cooler #1 2.8 Cooler #2 _____ Cooler #3 _____ Cooler #4 _____ Cooler#5 _____ Cooler #6 _____

Chain of custody present? Yes ✓ No __

Chain of custody signed when relinquished and received? Yes ✓ No __

Chain of custody agrees with sample labels? Yes ✓ No __ TE 11/3/16

Samples in proper container/bottle? Yes ✓ No __

Sample containers intact? Yes ✓ No __

Sufficient sample volume for indicated test? Yes ✓ No __

All samples received within holding time? Yes ✓ No __

Was TAT marked on the COC? Yes ✓ No __

Proceed with Standard TAT as per project history? Yes __ No __ Not Applicable ✓

Water - VOA vials have zero headspace? No VOA vials submitted __ Yes ✓ No __

Water - pH acceptable upon receipt? Yes ✓ No __ Not Applicable __

Adjusted? _____ Checked by _____

Sample Condition: Good ✓ Other(Explain) _____

(For diffusive samples or AIHA lead) Is a known blank included? Yes __ No ✓

See Case Narrative for resolution of the Non-Conformance.

* Samples do not have to comply with the given range for certain parameters.

\\Aes_server\I\Sample Receipt\My Documents\COCs and pH Adjustment Sheet\Sample_Cooler_Recipt_Checklist_Rev1.rtf

Analytical Environmental Services, Inc

Date: 10-Nov-16

Client: Environmental Management Associates, LLC
Project Name: Southern States
Lab Order: 1611262

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1611262-001A	MW-9	11/2/2016 9:55:00AM	Groundwater	Volatile Organic Compounds by GC/MS		11/8/2016 10:34:00AM	11/08/2016
1611262-002A	MW-13	11/2/2016 2:30:00PM	Groundwater	Volatile Organic Compounds by GC/MS		11/8/2016 10:34:00AM	11/08/2016
1611262-003A	MW-18	11/2/2016 4:15:00PM	Groundwater	Volatile Organic Compounds by GC/MS		11/8/2016 10:34:00AM	11/08/2016
1611262-004A	MW-21	11/2/2016 11:06:00AM	Groundwater	Volatile Organic Compounds by GC/MS		11/8/2016 10:34:00AM	11/08/2016
1611262-004A	MW-21	11/2/2016 11:06:00AM	Groundwater	Volatile Organic Compounds by GC/MS		11/8/2016 10:34:00AM	11/09/2016
1611262-005A	MW-32	11/2/2016 3:48:00PM	Groundwater	Volatile Organic Compounds by GC/MS		11/8/2016 10:34:00AM	11/08/2016
1611262-006A	MW-39	11/2/2016 1:21:00PM	Groundwater	Volatile Organic Compounds by GC/MS		11/8/2016 10:34:00AM	11/08/2016
1611262-007A	MW-40	11/2/2016 12:05:00PM	Groundwater	Volatile Organic Compounds by GC/MS		11/8/2016 10:34:00AM	11/08/2016
1611262-007A	MW-40	11/2/2016 12:05:00PM	Groundwater	Volatile Organic Compounds by GC/MS		11/8/2016 10:34:00AM	11/09/2016
1611262-008A	MW-41	11/2/2016 12:39:00PM	Groundwater	Volatile Organic Compounds by GC/MS		11/8/2016 10:34:00AM	11/09/2016
1611262-009A	TP-1	11/2/2016 11:32:00AM	Groundwater	Volatile Organic Compounds by GC/MS		11/8/2016 10:34:00AM	11/09/2016
1611262-010A	TP-2	11/2/2016 10:29:00AM	Groundwater	Volatile Organic Compounds by GC/MS		11/8/2016 10:34:00AM	11/09/2016
1611262-011A	TP-3	11/2/2016 3:05:00PM	Groundwater	Volatile Organic Compounds by GC/MS		11/8/2016 10:34:00AM	11/09/2016
1611262-012A	TRIP BLANK	11/3/2016 12:00:00AM	Groundwater	Volatile Organic Compounds by GC/MS		11/8/2016 10:34:00AM	11/08/2016
1611262-013A	DUP	11/2/2016 12:00:00AM	Groundwater	Volatile Organic Compounds by GC/MS		11/8/2016 10:34:00AM	11/09/2016

Client: Environmental Management Associates, LLC
Project Name: Southern States
Workorder: 1611262

ANALYTICAL QC SUMMARY REPORT

BatchID: 232524

Sample ID: **MB-232524**	Client ID:		Units: **ug/L**	Prep Date: **11/08/2016**	Run No: **329348**
SampleType: **MBLK**	TestCode: **Volatile Organic Compounds by GC/MS SW8260B**		BatchID: **232524**	Analysis Date: **11/08/2016**	Seq No: **7153073**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	BRL	5.0									
1,1,2,2-Tetrachloroethane	BRL	5.0									
1,1,2-Trichloroethane	BRL	5.0									
1,1-Dichloroethane	BRL	5.0									
1,1-Dichloroethene	BRL	5.0									
1,2,4-Trichlorobenzene	BRL	5.0									
1,2-Dibromo-3-chloropropane	BRL	5.0									
1,2-Dibromoethane	BRL	5.0									
1,2-Dichlorobenzene	BRL	5.0									
1,2-Dichloroethane	BRL	5.0									
1,2-Dichloroethene, Total	BRL	5.0									
1,2-Dichloropropane	BRL	5.0									
1,3-Dichlorobenzene	BRL	5.0									
1,4-Dichlorobenzene	BRL	5.0									
1,4-Dioxane	BRL	150									
2-Butanone	BRL	50									
2-Hexanone	BRL	10									
4-Methyl-2-pentanone	BRL	10									
Acetone	BRL	50									
Benzene	BRL	5.0									
Bromodichloromethane	BRL	5.0									
Bromoform	BRL	5.0									
Bromomethane	BRL	5.0									
Carbon disulfide	BRL	5.0									
Carbon tetrachloride	BRL	5.0									
Chlorobenzene	BRL	5.0									
Chloroethane	BRL	10									

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Environmental Management Associates, LLC
Project Name: Southern States
Workorder: 1611262

ANALYTICAL QC SUMMARY REPORT

BatchID: 232524

Sample ID: **MB-232524** Client ID: Units: **ug/L** Prep Date: **11/08/2016** Run No: **329348**
SampleType: **MBLK** TestCode: **Volatile Organic Compounds by GC/MS SW8260B** BatchID: **232524** Analysis Date: **11/08/2016** Seq No: **7153073**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chloroform	BRL	5.0									
Chloromethane	BRL	10									
cis-1,2-Dichloroethene	BRL	5.0									
cis-1,3-Dichloropropene	BRL	5.0									
Cyclohexane	BRL	5.0									
Dibromochloromethane	BRL	5.0									
Dichlorodifluoromethane	BRL	10									
Ethylbenzene	BRL	5.0									
Freon-113	BRL	10									
Isopropylbenzene	BRL	5.0									
m,p-Xylene	BRL	5.0									
Methyl acetate	BRL	5.0									
Methyl tert-butyl ether	BRL	5.0									
Methylcyclohexane	BRL	5.0									
Methylene chloride	BRL	5.0									
o-Xylene	BRL	5.0									
Styrene	BRL	5.0									
Tetrachloroethene	BRL	5.0									
Toluene	BRL	5.0									
trans-1,2-Dichloroethene	BRL	5.0									
trans-1,3-Dichloropropene	BRL	5.0									
Trichloroethene	BRL	5.0									
Trichlorofluoromethane	BRL	5.0									
Vinyl chloride	BRL	2.0									
Xylenes, Total	BRL	5.0									
Surr: 4-Bromofluorobenzene	42.39	0	50.00		84.8	70.7	125				
Surr: Dibromofluoromethane	54.43	0	50.00		109	82.2	120				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Environmental Management Associates, LLC
Project Name: Southern States
Workorder: 1611262

ANALYTICAL QC SUMMARY REPORT

BatchID: 232524

Sample ID: **MB-232524**	Client ID:		Units: **ug/L**	Prep Date: **11/08/2016**	Run No: **329348**
SampleType: **MBLK**	TestCode: **Volatile Organic Compounds by GC/MS SW8260B**		BatchID: **232524**	Analysis Date: **11/08/2016**	Seq No: **7153073**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Surr: Toluene-d8	47.46	0	50.00		94.9	81.8	120				

Sample ID: **LCS-232524**	Client ID:		Units: **ug/L**	Prep Date: **11/08/2016**	Run No: **329348**
SampleType: **LCS**	TestCode: **Volatile Organic Compounds by GC/MS SW8260B**		BatchID: **232524**	Analysis Date: **11/08/2016**	Seq No: **7153072**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	52.83	5.0	50.00		106	65.3	137				
Benzene	50.69	5.0	50.00		101	74.9	123				
Chlorobenzene	47.93	5.0	50.00		95.9	73.9	124				
Toluene	51.16	5.0	50.00		102	75	124				
Trichloroethene	48.00	5.0	50.00		96.0	73.1	128				
Surr: 4-Bromofluorobenzene	45.04	0	50.00		90.1	70.7	125				
Surr: Dibromofluoromethane	52.08	0	50.00		104	82.2	120				
Surr: Toluene-d8	47.24	0	50.00		94.5	81.8	120				

Sample ID: **1611261-001AMS**	Client ID:		Units: **ug/L**	Prep Date: **11/08/2016**	Run No: **329348**
SampleType: **MS**	TestCode: **Volatile Organic Compounds by GC/MS SW8260B**		BatchID: **232524**	Analysis Date: **11/08/2016**	Seq No: **7154364**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	61.94	5.0	50.00		124	60	150				
Benzene	57.30	5.0	50.00		115	70.1	132				
Chlorobenzene	51.46	5.0	50.00		103	70.9	131				
Toluene	59.72	5.0	50.00	1.170	117	70.1	133				
Trichloroethene	55.06	5.0	50.00		110	70	136				
Surr: 4-Bromofluorobenzene	47.03	0	50.00		94.1	70.7	125				
Surr: Dibromofluoromethane	50.84	0	50.00		102	82.2	120				
Surr: Toluene-d8	48.80	0	50.00		97.6	81.8	120				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Environmental Management Associates, LLC
Project Name: Southern States
Workorder: 1611262

ANALYTICAL QC SUMMARY REPORT

BatchID: 232524

Sample ID: **1611261-001AMSD** Client ID:
SampleType: **MSD** TestCode: **Volatile Organic Compounds by GC/MS SW8260B**
Units: **ug/L** Prep Date: **11/08/2016** Run No: **329348**
BatchID: **232524** Analysis Date: **11/08/2016** Seq No: **7154365**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	65.21	5.0	50.00		130	60	150	61.94	5.14	17.7	
Benzene	57.23	5.0	50.00		114	70.1	132	57.30	0.122	20	
Chlorobenzene	50.27	5.0	50.00		101	70.9	131	51.46	2.34	20	
Toluene	59.26	5.0	50.00	1.170	116	70.1	133	59.72	0.773	20	
Trichloroethene	54.85	5.0	50.00		110	70	136	55.06	0.382	20	
Surr: 4-Bromofluorobenzene	43.68	0	50.00		87.4	70.7	125	47.03	0	0	
Surr: Dibromofluoromethane	52.67	0	50.00		105	82.2	120	50.84	0	0	
Surr: Toluene-d8	48.91	0	50.00		97.8	81.8	120	48.80	0	0	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC.

November 11, 2016

John Schwaller
Environmental Management Associates, LLC
5262 Belle Wood Ct.
Buford GA 30518

TEL: (770) 271-4628
FAX: (770) 271-8944

RE: Southern States

Dear John Schwaller: Order No: 1611260

Analytical Environmental Services, Inc. received 1 samples on 11/3/2016 9:07:00 AM for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.
AES's accreditations are as follows:
-NELAC/Florida State Laboratory ID E87582 for analysis of Non-Potable Water, Solid & Chemical Materials, and Drinking Water Microbiology, effective 07/01/16-06/30/17.
-NELAC/Louisiana Agency Interest No. 100818 for or analysis of Non-Potable Water and Solid & Chemical Materials, effective 07/01/16-06/30/17.
-NELAC/Texas Certificate No. T104704509-16-6 for or analysis of Non-Potable Water and Solid & Chemical Materials, effective 03/01/16-02/28/17.
-AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Metals, PCM Asbestos, Gravimetric), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 09/01/17.

Mirzeta Kararic

Mirzeta Kararic
Project Manager

ANALYTICAL ENVIRONMENTAL SERVICES, INC
3080 Presidential Drive, Atlanta GA 30340-3704
TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: 1611260

Date: _____ Page 1 of 1

COMPANY: EnA / JS

ADDRESS:

PHONE:

FAX:

SAMPLED BY: J. SCHWALLER

SIGNATURE:

ANALYSIS REQUESTED

#	SAMPLE ID	SAMPLED DATE	SAMPLED TIME	Grab	Composite	Matrix (See codes)	Total Lead	Diss. Lead	Turbidity										REMARKS	No # of Containers
	PRESERVATION (See codes)						N	I	I											
1	MW-13	11/2	1430	X		GW	X	X	X											
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				
11																				
12																				
13																				
14																				

Visit our website **www.aesatlanta.com** to check on the status of your results, place bottle orders, etc.

RELINQUISHED BY: DATE/TIME:
1: 11/3/16 0905
2:
3:

RECEIVED BY: DATE/TIME:
1: Jessica Whitney 11/3/16 9:07 am
2:
3:

PROJECT INFORMATION

PROJECT NAME: SOUTHERN STATES

PROJECT #:

SITE ADDRESS:

SEND REPORT TO: SCHWALLER

INVOICE TO:
(IF DIFFERENT FROM ABOVE)

QUOTE #: _____ PO#: _____

RECEIPT

Total # of Containers

Turnaround Time Request
- [X] Standard 5 Business Days
- [ ] 2 Business Day Rush
- [ ] Next Business Day Rush
- [ ] Same Day Rush (auth req.)
- [ ] Other _____

STATE PROGRAM (if any): _____

E-mail? Fax?

DATA PACKAGE: I ○ II ○ III ○ IV ○

SPECIAL INSTRUCTIONS/COMMENTS:

SHIPMENT METHOD:

OUT / / VIA:

IN / / VIA:

CLIENT FedEx UPS MAIL COURIER

GREYHOUND OTHER_____

SAMPLES RECEIVED AFTER 3PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY. IF NO TAT IS MARKED ON COC AES WILL PROCEED AS STANDARD TAT.

SAMPLES ARE DISPOSED OF 30 DAYS AFTER COMPLETION OF REPORT UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water WW = Waste Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify)

PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

White Copy - Original; Yellow Copy - Client

Analytical Environmental Services, Inc **Date:** 11-Nov-16

Client:	Environmental Management Associates, LLC	**Client Sample ID:**	MW-13
Project Name:	Southern States	**Collection Date:**	11/2/2016 2:30:00 PM
Lab ID:	1611260-001	**Matrix:**	Groundwater

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Turbidity E180.1								
Turbidity	93.4	5.00		NTU	R329162	5	11/03/2016 17:45	CG
METALS, DISSOLVED SW6010D					**(SW3005A)**			
Lead	BRL	0.0100		mg/L	232502	1	11/09/2016 20:27	IO
METALS, TOTAL SW6010D					**(SW3010A)**			
Lead	0.0577	0.0100		mg/L	232338	1	11/08/2016 00:02	IO

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client EMA/JS Work Order Number 1601260

Checklist completed by _____ 11/3/16
Signature Date

Carrier name: FedEx __ UPS __ Courier __ Client ✓ US Mail __ Other _____

Shipping container/cooler in good condition? Yes ✓ No __ Not Present __

Custody seals intact on shipping container/cooler? Yes __ No __ Not Present ✓

Custody seals intact on sample bottles? Yes __ No __ Not Present ✓

Container/Temp Blank temperature in compliance? (0°≤6°C)* Yes ✓ No __

Cooler #1 2.8 Cooler #2 _____ Cooler #3 _____ Cooler #4 _____ Cooler#5 _____ Cooler #6 _____

Chain of custody present? Yes ✓ No __

Chain of custody signed when relinquished and received? Yes ✓ No __

Chain of custody agrees with sample labels? Yes ✓ No __

Samples in proper container/bottle? Yes ✓ No __

Sample containers intact? Yes ✓ No __

Sufficient sample volume for indicated test? Yes ✓ No __

All samples received within holding time? Yes ✓ No __

Was TAT marked on the COC? Yes ✓ No __

Proceed with Standard TAT as per project history? Yes __ No __ Not Applicable ✓

Water - VOA vials have zero headspace? No VOA vials submitted ✓ Yes __ No __

Water - pH acceptable upon receipt? Yes ✓ No __ Not Applicable __

Adjusted? _____ Checked by _____

Sample Condition: Good ✓ Other(Explain) _____

(For diffusive samples or AIHA lead) Is a known blank included? Yes __ No ✓

See Case Narrative for resolution of the Non-Conformance.

* Samples do not have to comply with the given range for certain parameters.

\\Aes_server\I\Sample Receipt\My Documents\COCs and pH Adjustment Sheet\Sample_Cooler_Recipt_Checklist_Rev1.rtf

Client: Environmental Management Associates, LLC
Project Name: Southern States
Workorder: 1611260

ANALYTICAL QC SUMMARY REPORT

BatchID: 232338

Sample ID: **MB-232338**	Client ID:			Units: **mg/L**	Prep Date: **11/05/2016**	Run No: **329245**
SampleType: **MBLK**	TestCode: **METALS, TOTAL** **SW6010D**			BatchID: **232338**	Analysis Date: **11/07/2016**	Seq No: **7149877**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Lead	BRL	0.0100									

Sample ID: **LCS-232338**	Client ID:			Units: **mg/L**	Prep Date: **11/05/2016**	Run No: **329245**
SampleType: **LCS**	TestCode: **METALS, TOTAL** **SW6010D**			BatchID: **232338**	Analysis Date: **11/07/2016**	Seq No: **7149878**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Lead	1.006	0.0100	1.000		101	80	120				

Sample ID: **1611049-001BMS**	Client ID:			Units: **mg/L**	Prep Date: **11/05/2016**	Run No: **329245**
SampleType: **MS**	TestCode: **METALS, TOTAL** **SW6010D**			BatchID: **232338**	Analysis Date: **11/07/2016**	Seq No: **7149882**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Lead	0.9642	0.0100	1.000		96.4	75	125				

Sample ID: **1611049-001BMSD**	Client ID:			Units: **mg/L**	Prep Date: **11/05/2016**	Run No: **329245**
SampleType: **MSD**	TestCode: **METALS, TOTAL** **SW6010D**			BatchID: **232338**	Analysis Date: **11/07/2016**	Seq No: **7149883**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Lead	0.9601	0.0100	1.000		96.0	75	125	0.9642	0.423	20	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Environmental Management Associates, LLC
Project Name: Southern States
Workorder: 1611260

ANALYTICAL QC SUMMARY REPORT

BatchID: 232502

Sample ID: **MB-232502**	Client ID:			Units: **mg/L**	Prep Date: **11/09/2016**	Run No: **329496**
SampleType: **MBLK**	TestCode: **METALS, DISSOLVED**	**SW6010D**		BatchID: **232502**	Analysis Date: **11/09/2016**	Seq No: **7157066**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Lead	BRL	0.0100									

Sample ID: **LCS-232502**	Client ID:			Units: **mg/L**	Prep Date: **11/09/2016**	Run No: **329496**
SampleType: **LCS**	TestCode: **METALS, DISSOLVED**	**SW6010D**		BatchID: **232502**	Analysis Date: **11/09/2016**	Seq No: **7157067**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Lead	0.9589	0.0100	1.000		95.9	80	120				

Sample ID: **1611367-002DMS**	Client ID:			Units: **mg/L**	Prep Date: **11/09/2016**	Run No: **329496**
SampleType: **MS**	TestCode: **METALS, DISSOLVED**	**SW6010D**		BatchID: **232502**	Analysis Date: **11/09/2016**	Seq No: **7157071**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Lead	0.9981	0.0100	1.000		99.8	75	125				

Sample ID: **1611367-002DMSD**	Client ID:			Units: **mg/L**	Prep Date: **11/09/2016**	Run No: **329496**
SampleType: **MSD**	TestCode: **METALS, DISSOLVED**	**SW6010D**		BatchID: **232502**	Analysis Date: **11/09/2016**	Seq No: **7157072**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Lead	0.9657	0.0100	1.000		96.6	75	125	0.9981	3.29	20	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Environmental Management Associates, LLC
Project Name: Southern States
Workorder: 1611260

ANALYTICAL QC SUMMARY REPORT

BatchID: R329162

Sample ID: **MB-R329162**	Client ID:				Units: **NTU**		Prep Date:		Run No: **329162**	
SampleType: **MBLK**	TestCode: **Turbidity E180.1**				BatchID: **R329162**		Analysis Date: **11/03/2016**		Seq No: **7147799**	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Turbidity	BRL	1.00									

Sample ID: **LCS-R329162**	Client ID:				Units: **NTU**		Prep Date:		Run No: **329162**	
SampleType: **LCS**	TestCode: **Turbidity E180.1**				BatchID: **R329162**		Analysis Date: **11/03/2016**		Seq No: **7147800**	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Turbidity	5.360	1.00	5.000		107	90	110				

Sample ID: **1611260-001BDUP**	Client ID: **MW-13**				Units: **NTU**		Prep Date:		Run No: **329162**	
SampleType: **DUP**	TestCode: **Turbidity E180.1**				BatchID: **R329162**		Analysis Date: **11/03/2016**		Seq No: **7147840**	
Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Turbidity	91.15	5.00						93.35	2.38	30	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC.

November 10, 2016

John Schwaller
Environmental Management Associates, LLC
5262 Belle Wood Ct.
Buford GA 30518

TEL: (770) 271-4628
FAX: (770) 271-8944

RE: Southern States

Dear John Schwaller: Order No: 1611261

Analytical Environmental Services, Inc. received 2 samples on 11/3/2016 9:07:00 AM for the analyses presented in following report.

No problems were encountered during the analyses. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits. Any discrepancies associated with the analyses contained herein will be noted and submitted in the form of a project Case Narrative.
AES's accreditations are as follows:
-NELAC/Florida State Laboratory ID E87582 for analysis of Non-Potable Water, Solid & Chemical Materials, and Drinking Water Microbiology, effective 07/01/16-06/30/17.
-NELAC/Louisiana Agency Interest No. 100818 for or analysis of Non-Potable Water and Solid & Chemical Materials, effective 07/01/16-06/30/17.
-NELAC/Texas Certificate No. T104704509-16-6 for or analysis of Non-Potable Water and Solid & Chemical Materials, effective 03/01/16-02/28/17.
-AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Organics, Metals, PCM Asbestos, Gravimetric), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 09/01/17.

Mirzeta Kararic

Mirzeta Kararic
Project Manager

ANALYTICAL ENVIRONMENTAL SERVICES, INC
3080 Presidential Drive, Atlanta GA 30340-3704
AES TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

CHAIN OF CUSTODY

Work Order: 1611261

Date: _____ Page 1 of 1

COMPANY: EMA/JS

ADDRESS:

PHONE:

FAX:

SAMPLED BY: J. SCHWALLER

SIGNATURE:

ANALYSIS REQUESTED

TCL VOC's

1

PRESERVATION (See codes)

H

Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc.

#	SAMPLE ID	SAMPLED DATE	SAMPLED TIME	Grab	Composite	Matrix (See codes)	PRESERVATION	REMARKS	No # of Containers
1	SW-1	11/2	1635	X		SW	X		
2	SW-2	11/2	1648	X		SW	X		
3								INCLUDE	
4								1,4 DIOXANE	
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1:	11/3/16 0905	1: Jessica Whitley	11/3/16 9:07 am
2:		2:	
3:		3:	

SPECIAL INSTRUCTIONS/COMMENTS:

SHIPMENT METHOD

OUT / / VIA:

IN / / VIA:

CLIENT FedEx UPS MAIL COURIER

GREYHOUND OTHER_____

PROJECT INFORMATION

PROJECT NAME: SOUTHERN STATES

PROJECT #:

SITE ADDRESS:

SEND REPORT TO: SCHWALLER

INVOICE TO:
(IF DIFFERENT FROM ABOVE)

QUOTE #:_____ PO#:_____

RECEIPT

Total # of Containers

Turnaround Time Request

- [X] Standard 5 Business Days
- [ ] 2 Business Day Rush
- [ ] Next Business Day Rush
- [ ] Same Day Rush **(auth req.)**
- [ ] Other _____

STATE PROGRAM (if any): _____

E-mail? Y / N; Fax? Y / N

DATA PACKAGE: I II III IV

SAMPLES RECEIVED AFTER 3PM OR ON SATURDAY ARE CONSIDERED RECEIVED THE NEXT BUSINESS DAY. IF TURNAROUND TIME IS NOT INDICATED, AES WILL PROCEED WITH STANDARD TAT OF SAMPLES.
SAMPLES ARE DISPOSED 30 DAYS AFTER REPORT COMPLETION UNLESS OTHER ARRANGEMENTS ARE MADE.

MATRIX CODES: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify) WW = Waste Water

PRESERVATIVE CODES: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice O = Other (specify) NA = None

White Copy - Original; Yellow Copy - Client

Analytical Environmental Services, Inc

Date: 10-Nov-16

Client:	Environmental Management Associates, LLC	**Client Sample ID:**	SW-1
Project Name:	Southern States	**Collection Date:**	11/2/2016 4:35:00 PM
Lab ID:	1611261-001	**Matrix:**	Surface Water

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260B				**(SW5030B)**				
1,1,1-Trichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
1,1,2-Trichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
1,1-Dichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
1,1-Dichloroethene	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
1,2,4-Trichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
1,2-Dibromo-3-chloropropane	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
1,2-Dibromoethane	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
1,2-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
1,2-Dichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
1,2-Dichloropropane	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
1,3-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
1,4-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
1,4-Dioxane	BRL	150		ug/L	232524	1	11/08/2016 17:30	NP
2-Butanone	BRL	50		ug/L	232524	1	11/08/2016 17:30	NP
2-Hexanone	BRL	10		ug/L	232524	1	11/08/2016 17:30	NP
4-Methyl-2-pentanone	BRL	10		ug/L	232524	1	11/08/2016 17:30	NP
Acetone	BRL	50		ug/L	232524	1	11/08/2016 17:30	NP
Benzene	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
Bromodichloromethane	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
Bromoform	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
Bromomethane	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
Carbon disulfide	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
Carbon tetrachloride	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
Chlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
Chloroethane	BRL	10		ug/L	232524	1	11/08/2016 17:30	NP
Chloroform	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
Chloromethane	BRL	10		ug/L	232524	1	11/08/2016 17:30	NP
cis-1,2-Dichloroethene	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
cis-1,3-Dichloropropene	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
Cyclohexane	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
Dibromochloromethane	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
Dichlorodifluoromethane	BRL	10		ug/L	232524	1	11/08/2016 17:30	NP
Ethylbenzene	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
Freon-113	BRL	10		ug/L	232524	1	11/08/2016 17:30	NP
Isopropylbenzene	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
m,p-Xylene	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
Methyl acetate	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
Methyl tert-butyl ether	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
Methylcyclohexane	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
Methylene chloride	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 10-Nov-16

Client:	Environmental Management Associates, LLC	**Client Sample ID:**	SW-1
Project Name:	Southern States	**Collection Date:**	11/2/2016 4:35:00 PM
Lab ID:	1611261-001	**Matrix:**	Surface Water

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260B (SW5030B)								
o-Xylene	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
Styrene	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
Tetrachloroethene	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
Toluene	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
trans-1,3-Dichloropropene	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
Trichloroethene	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
Trichlorofluoromethane	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
Vinyl chloride	BRL	2.0		ug/L	232524	1	11/08/2016 17:30	NP
1,2-Dichloroethene, Total	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
Xylenes, Total	BRL	5.0		ug/L	232524	1	11/08/2016 17:30	NP
Surr: 4-Bromofluorobenzene	91.9	70.7-125		%REC	232524	1	11/08/2016 17:30	NP
Surr: Dibromofluoromethane	107	82.2-120		%REC	232524	1	11/08/2016 17:30	NP
Surr: Toluene-d8	100	81.8-120		%REC	232524	1	11/08/2016 17:30	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 10-Nov-16

Client:	Environmental Management Associates, LLC	**Client Sample ID:**	SW-2
Project Name:	Southern States	**Collection Date:**	11/2/2016 4:48:00 PM
Lab ID:	1611261-002	**Matrix:**	Surface Water

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260B				**(SW5030B)**				
1,1,1-Trichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
1,1,2,2-Tetrachloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
1,1,2-Trichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
1,1-Dichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
1,1-Dichloroethene	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
1,2,4-Trichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
1,2-Dibromo-3-chloropropane	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
1,2-Dibromoethane	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
1,2-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
1,2-Dichloroethane	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
1,2-Dichloropropane	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
1,3-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
1,4-Dichlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
1,4-Dioxane	BRL	150		ug/L	232524	1	11/08/2016 18:47	NP
2-Butanone	BRL	50		ug/L	232524	1	11/08/2016 18:47	NP
2-Hexanone	BRL	10		ug/L	232524	1	11/08/2016 18:47	NP
4-Methyl-2-pentanone	BRL	10		ug/L	232524	1	11/08/2016 18:47	NP
Acetone	BRL	50		ug/L	232524	1	11/08/2016 18:47	NP
Benzene	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
Bromodichloromethane	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
Bromoform	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
Bromomethane	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
Carbon disulfide	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
Carbon tetrachloride	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
Chlorobenzene	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
Chloroethane	BRL	10		ug/L	232524	1	11/08/2016 18:47	NP
Chloroform	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
Chloromethane	BRL	10		ug/L	232524	1	11/08/2016 18:47	NP
cis-1,2-Dichloroethene	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
cis-1,3-Dichloropropene	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
Cyclohexane	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
Dibromochloromethane	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
Dichlorodifluoromethane	BRL	10		ug/L	232524	1	11/08/2016 18:47	NP
Ethylbenzene	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
Freon-113	BRL	10		ug/L	232524	1	11/08/2016 18:47	NP
Isopropylbenzene	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
m,p-Xylene	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
Methyl acetate	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
Methyl tert-butyl ether	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
Methylcyclohexane	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
Methylene chloride	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 10-Nov-16

Client:	Environmental Management Associates, LLC	**Client Sample ID:**	SW-2
Project Name:	Southern States	**Collection Date:**	11/2/2016 4:48:00 PM
Lab ID:	1611261-002	**Matrix:**	Surface Water

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
Volatile Organic Compounds by GC/MS SW8260B (SW5030B)								
o-Xylene	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
Styrene	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
Tetrachloroethene	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
Toluene	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
trans-1,2-Dichloroethene	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
trans-1,3-Dichloropropene	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
Trichloroethene	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
Trichlorofluoromethane	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
Vinyl chloride	BRL	2.0		ug/L	232524	1	11/08/2016 18:47	NP
1,2-Dichloroethene, Total	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
Xylenes, Total	BRL	5.0		ug/L	232524	1	11/08/2016 18:47	NP
Surr: 4-Bromofluorobenzene	87.4	70.7-125		%REC	232524	1	11/08/2016 18:47	NP
Surr: Dibromofluoromethane	104	82.2-120		%REC	232524	1	11/08/2016 18:47	NP
Surr: Toluene-d8	96.2	81.8-120		%REC	232524	1	11/08/2016 18:47	NP

Qualifiers:

- * Value exceeds maximum contaminant level
- BRL Below reporting limit
- H Holding times for preparation or analysis exceeded
- N Analyte not NELAC certified
- B Analyte detected in the associated method blank
- > Greater than Result value
- E Estimated (value above quantitation range)
- S Spike Recovery outside limits due to matrix
- Narr See case narrative
- NC Not confirmed
- < Less than Result value
- J Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc.

Sample/Cooler Receipt Checklist

Client EMA/JS Work Order Number 1601260l

Checklist completed by _____ 11/3/16
Signature Date

Carrier name: FedEx __ UPS __ Courier __ Client ✓ US Mail __ Other _____

Shipping container/cooler in good condition? Yes ✓ No __ Not Present __

Custody seals intact on shipping container/cooler? Yes __ No __ Not Present ✓

Custody seals intact on sample bottles? Yes __ No __ Not Present ✓

Container/Temp Blank temperature in compliance? (0°≤6°C)* Yes ✓ No __

Cooler #1 2.8 Cooler #2 _____ Cooler #3 _____ Cooler #4 _____ Cooler#5 _____ Cooler #6 _____

Chain of custody present? Yes ✓ No __

Chain of custody signed when relinquished and received? Yes ✓ No __

Chain of custody agrees with sample labels? Yes ✓ No __

Samples in proper container/bottle? Yes ✓ No __

Sample containers intact? Yes ✓ No __

Sufficient sample volume for indicated test? Yes ✓ No __

All samples received within holding time? Yes ✓ No __

Was TAT marked on the COC? Yes ✓ No __

Proceed with Standard TAT as per project history? Yes __ No __ Not Applicable ✓

Water - VOA vials have zero headspace? No VOA vials submitted __ Yes ✓ No __

Water - pH acceptable upon receipt? Yes ✓ No __ Not Applicable __

Adjusted? _____ Checked by _____

Sample Condition: Good ✓ Other(Explain) _____

(For diffusive samples or AIHA lead) Is a known blank included? Yes __ No ✓

See Case Narrative for resolution of the Non-Conformance.

* Samples do not have to comply with the given range for certain parameters.

\\Aes_server\l\Sample Receipt\My Documents\COCs and pH Adjustment Sheet\Sample_Cooler_Recipt_Checklist_Rev1.rtf

Client: Environmental Management Associates, LLC
Project Name: Southern States
Lab Order: 1611261

Dates Report

Lab Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date	Prep Date	Analysis Date
1611261-001A	SW-1	11/2/2016 4:35:00PM	Surface Water	Volatile Organic Compounds by GC/MS		11/8/2016 10:34:00AM	11/08/2016
1611261-002A	SW-2	11/2/2016 4:48:00PM	Surface Water	Volatile Organic Compounds by GC/MS		11/8/2016 10:34:00AM	11/08/2016

Client: Environmental Management Associates, LLC
Project Name: Southern States
Workorder: 1611261

ANALYTICAL QC SUMMARY REPORT

BatchID: 232524

Sample ID: **MB-232524**	Client ID:		Units: **ug/L**	Prep Date: **11/08/2016**	Run No: **329348**
SampleType: **MBLK**	TestCode: **Volatile Organic Compounds by GC/MS SW8260B**		BatchID: **232524**	Analysis Date: **11/08/2016**	Seq No: **7153073**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	BRL	5.0									
1,1,2,2-Tetrachloroethane	BRL	5.0									
1,1,2-Trichloroethane	BRL	5.0									
1,1-Dichloroethane	BRL	5.0									
1,1-Dichloroethene	BRL	5.0									
1,2,4-Trichlorobenzene	BRL	5.0									
1,2-Dibromo-3-chloropropane	BRL	5.0									
1,2-Dibromoethane	BRL	5.0									
1,2-Dichlorobenzene	BRL	5.0									
1,2-Dichloroethane	BRL	5.0									
1,2-Dichloroethene, Total	BRL	5.0									
1,2-Dichloropropane	BRL	5.0									
1,3-Dichlorobenzene	BRL	5.0									
1,4-Dichlorobenzene	BRL	5.0									
1,4-Dioxane	BRL	150									
2-Butanone	BRL	50									
2-Hexanone	BRL	10									
4-Methyl-2-pentanone	BRL	10									
Acetone	BRL	50									
Benzene	BRL	5.0									
Bromodichloromethane	BRL	5.0									
Bromoform	BRL	5.0									
Bromomethane	BRL	5.0									
Carbon disulfide	BRL	5.0									
Carbon tetrachloride	BRL	5.0									
Chlorobenzene	BRL	5.0									
Chloroethane	BRL	10									

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Environmental Management Associates, LLC
Project Name: Southern States
Workorder: 1611261

ANALYTICAL QC SUMMARY REPORT

BatchID: 232524

Sample ID: **MB-232524** Client ID: Units: **ug/L** Prep Date: **11/08/2016** Run No: **329348**
SampleType: **MBLK** TestCode: **Volatile Organic Compounds by GC/MS SW8260B** BatchID: **232524** Analysis Date: **11/08/2016** Seq No: **7153073**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Chloroform	BRL	5.0									
Chloromethane	BRL	10									
cis-1,2-Dichloroethene	BRL	5.0									
cis-1,3-Dichloropropene	BRL	5.0									
Cyclohexane	BRL	5.0									
Dibromochloromethane	BRL	5.0									
Dichlorodifluoromethane	BRL	10									
Ethylbenzene	BRL	5.0									
Freon-113	BRL	10									
Isopropylbenzene	BRL	5.0									
m,p-Xylene	BRL	5.0									
Methyl acetate	BRL	5.0									
Methyl tert-butyl ether	BRL	5.0									
Methylcyclohexane	BRL	5.0									
Methylene chloride	BRL	5.0									
o-Xylene	BRL	5.0									
Styrene	BRL	5.0									
Tetrachloroethene	BRL	5.0									
Toluene	BRL	5.0									
trans-1,2-Dichloroethene	BRL	5.0									
trans-1,3-Dichloropropene	BRL	5.0									
Trichloroethene	BRL	5.0									
Trichlorofluoromethane	BRL	5.0									
Vinyl chloride	BRL	2.0									
Xylenes, Total	BRL	5.0									
Surr: 4-Bromofluorobenzene	42.39	0	50.00		84.8	70.7	125				
Surr: Dibromofluoromethane	54.43	0	50.00		109	82.2	120				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Environmental Management Associates, LLC
Project Name: Southern States
Workorder: 1611261

ANALYTICAL QC SUMMARY REPORT

BatchID: 232524

Sample ID: **MB-232524** Client ID: Units: **ug/L** Prep Date: **11/08/2016** Run No: **329348**
SampleType: **MBLK** TestCode: **Volatile Organic Compounds by GC/MS SW8260B** BatchID: **232524** Analysis Date: **11/08/2016** Seq No: **7153073**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Surr: Toluene-d8	47.46	0	50.00		94.9	81.8	120				

Sample ID: **LCS-232524** Client ID: Units: **ug/L** Prep Date: **11/08/2016** Run No: **329348**
SampleType: **LCS** TestCode: **Volatile Organic Compounds by GC/MS SW8260B** BatchID: **232524** Analysis Date: **11/08/2016** Seq No: **7153072**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	52.83	5.0	50.00		106	65.3	137				
Benzene	50.69	5.0	50.00		101	74.9	123				
Chlorobenzene	47.93	5.0	50.00		95.9	73.9	124				
Toluene	51.16	5.0	50.00		102	75	124				
Trichloroethene	48.00	5.0	50.00		96.0	73.1	128				
Surr: 4-Bromofluorobenzene	45.04	0	50.00		90.1	70.7	125				
Surr: Dibromofluoromethane	52.08	0	50.00		104	82.2	120				
Surr: Toluene-d8	47.24	0	50.00		94.5	81.8	120				

Sample ID: **1611261-001AMS** Client ID: **SW-1** Units: **ug/L** Prep Date: **11/08/2016** Run No: **329348**
SampleType: **MS** TestCode: **Volatile Organic Compounds by GC/MS SW8260B** BatchID: **232524** Analysis Date: **11/08/2016** Seq No: **7154364**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	61.94	5.0	50.00		124	60	150				
Benzene	57.30	5.0	50.00		115	70.1	132				
Chlorobenzene	51.46	5.0	50.00		103	70.9	131				
Toluene	59.72	5.0	50.00	1.170	117	70.1	133				
Trichloroethene	55.06	5.0	50.00		110	70	136				
Surr: 4-Bromofluorobenzene	47.03	0	50.00		94.1	70.7	125				
Surr: Dibromofluoromethane	50.84	0	50.00		102	82.2	120				
Surr: Toluene-d8	48.80	0	50.00		97.6	81.8	120				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Environmental Management Associates, LLC
Project Name: Southern States
Workorder: 1611261

ANALYTICAL QC SUMMARY REPORT

BatchID: 232524

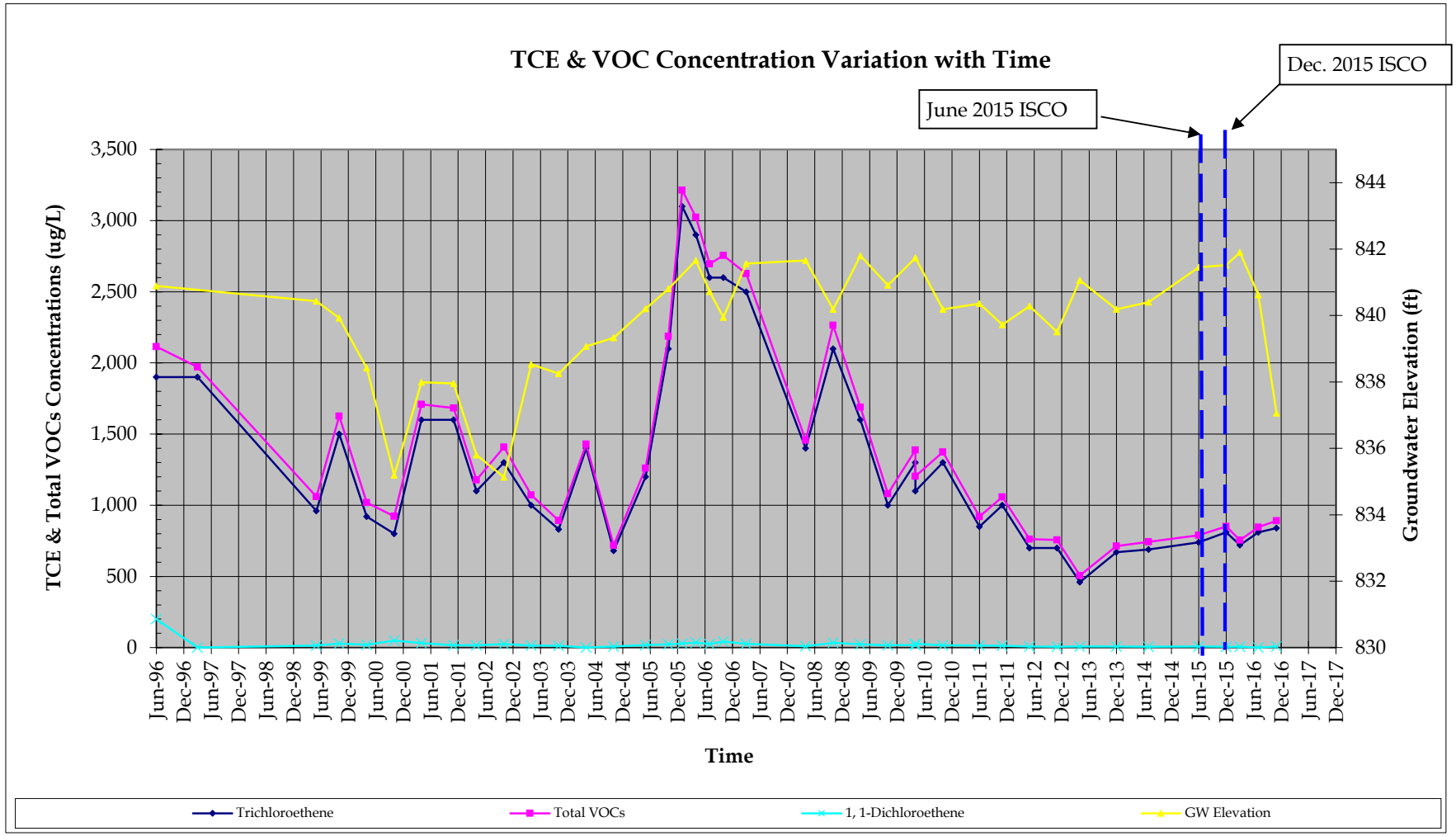
Sample ID: **1611261-001AMSD** Client ID: **SW-1** Units: **ug/L** Prep Date: **11/08/2016** Run No: **329348**
SampleType: **MSD** TestCode: **Volatile Organic Compounds by GC/MS SW8260B** BatchID: **232524** Analysis Date: **11/08/2016** Seq No: **7154365**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
1,1-Dichloroethene	65.21	5.0	50.00		130	60	150	61.94	5.14	17.7	
Benzene	57.23	5.0	50.00		114	70.1	132	57.30	0.122	20	
Chlorobenzene	50.27	5.0	50.00		101	70.9	131	51.46	2.34	20	
Toluene	59.26	5.0	50.00	1.170	116	70.1	133	59.72	0.773	20	
Trichloroethene	54.85	5.0	50.00		110	70	136	55.06	0.382	20	
Surr: 4-Bromofluorobenzene	43.68	0	50.00		87.4	70.7	125	47.03	0	0	
Surr: Dibromofluoromethane	52.67	0	50.00		105	82.2	120	50.84	0	0	
Surr: Toluene-d8	48.91	0	50.00		97.8	81.8	120	48.80	0	0	

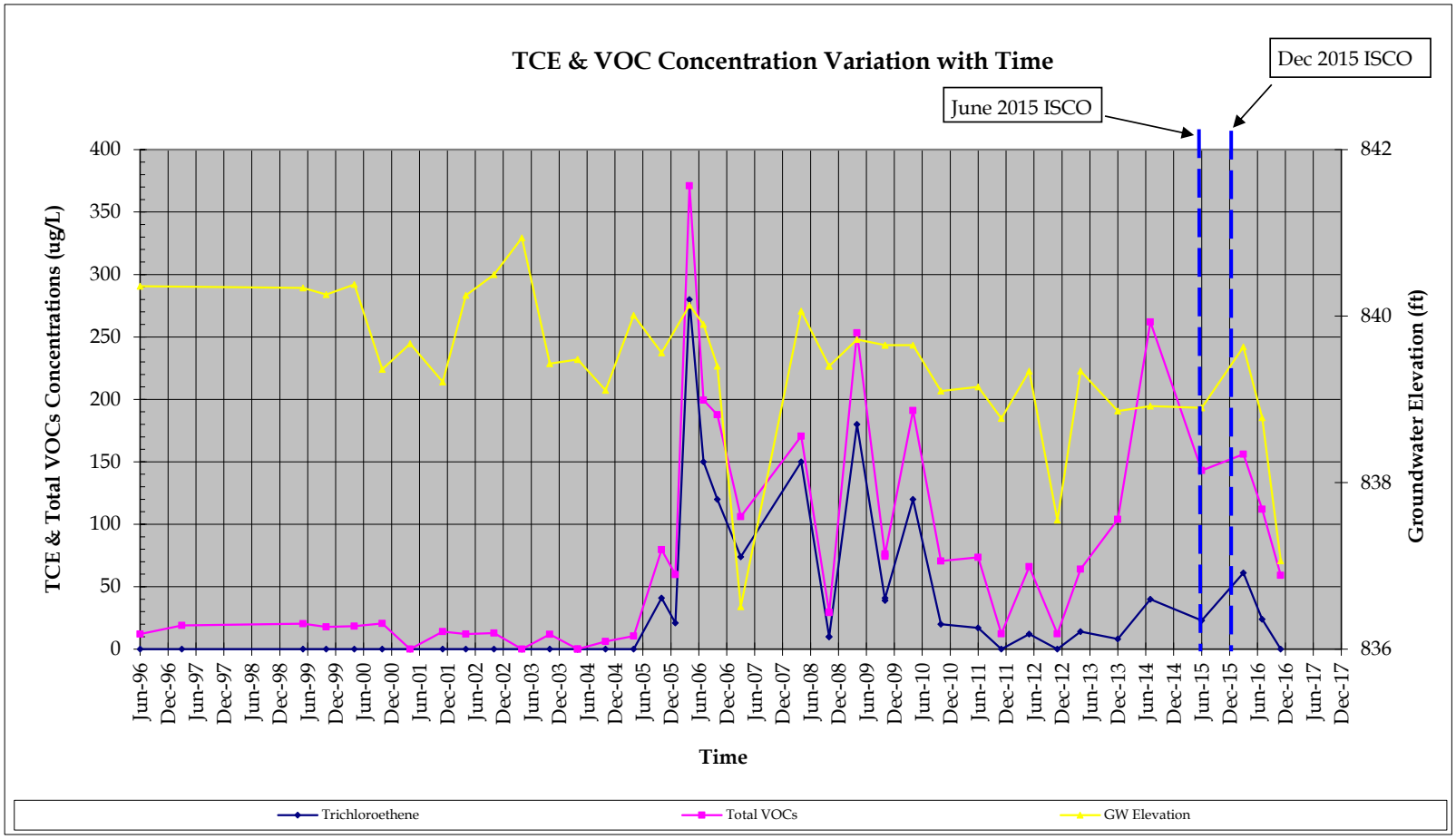
Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

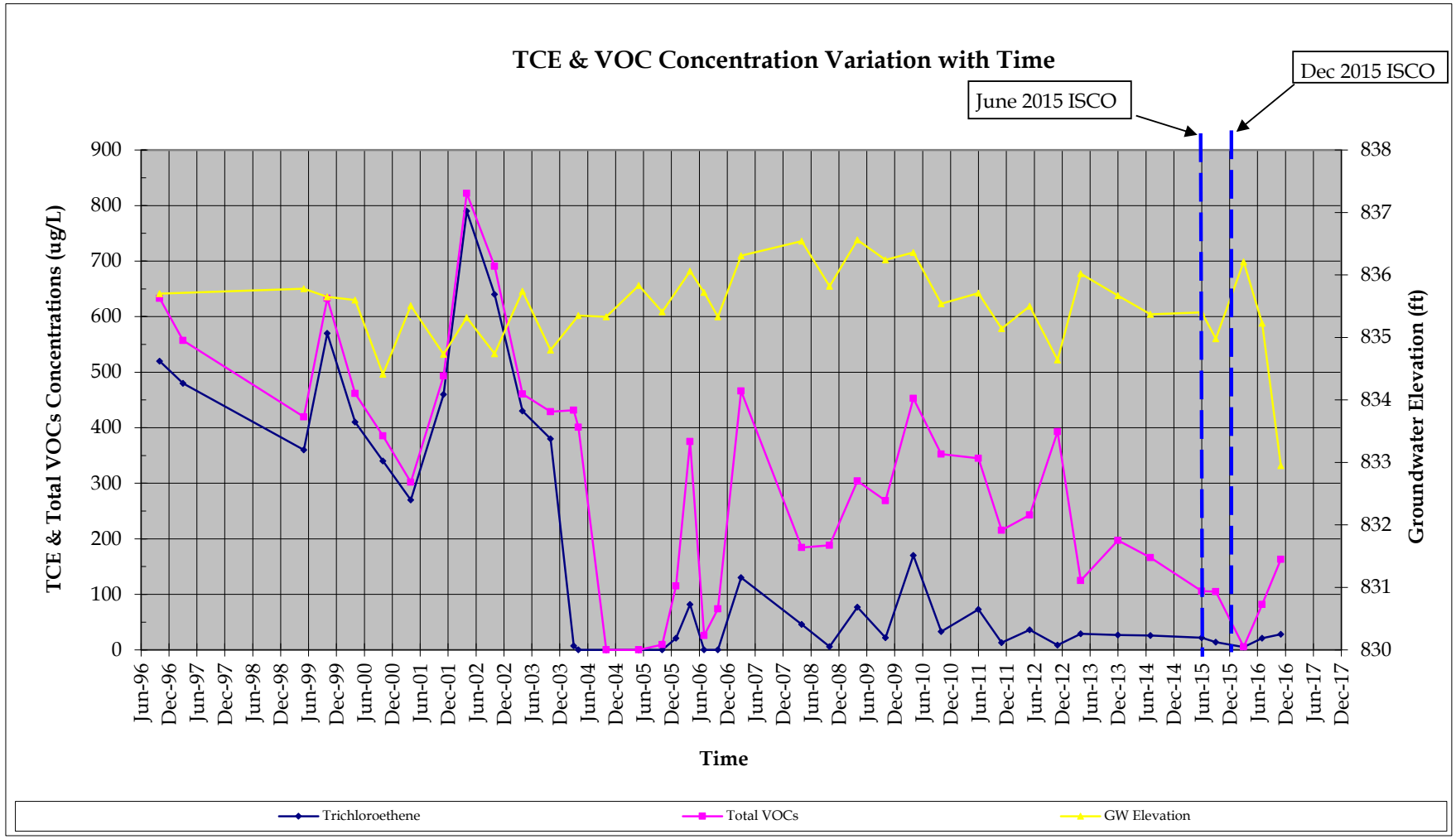
APPENDIX B
TOTAL VOC TREND GRAPHS FOR SELECT PERFORMANCE MONITORING WELLS



ORGANIC CONCENTRATIONS AT MW-9
OVERBURDEN MONITORING WELL
SOUTHERN STATES, LLC
Hampton, Georgia



ORGANIC CONCENTRATIONS AT MW-13
OVERBURDEN MONITORING WELL
SOUTHERN STATES, LLC
Hampton, Georgia



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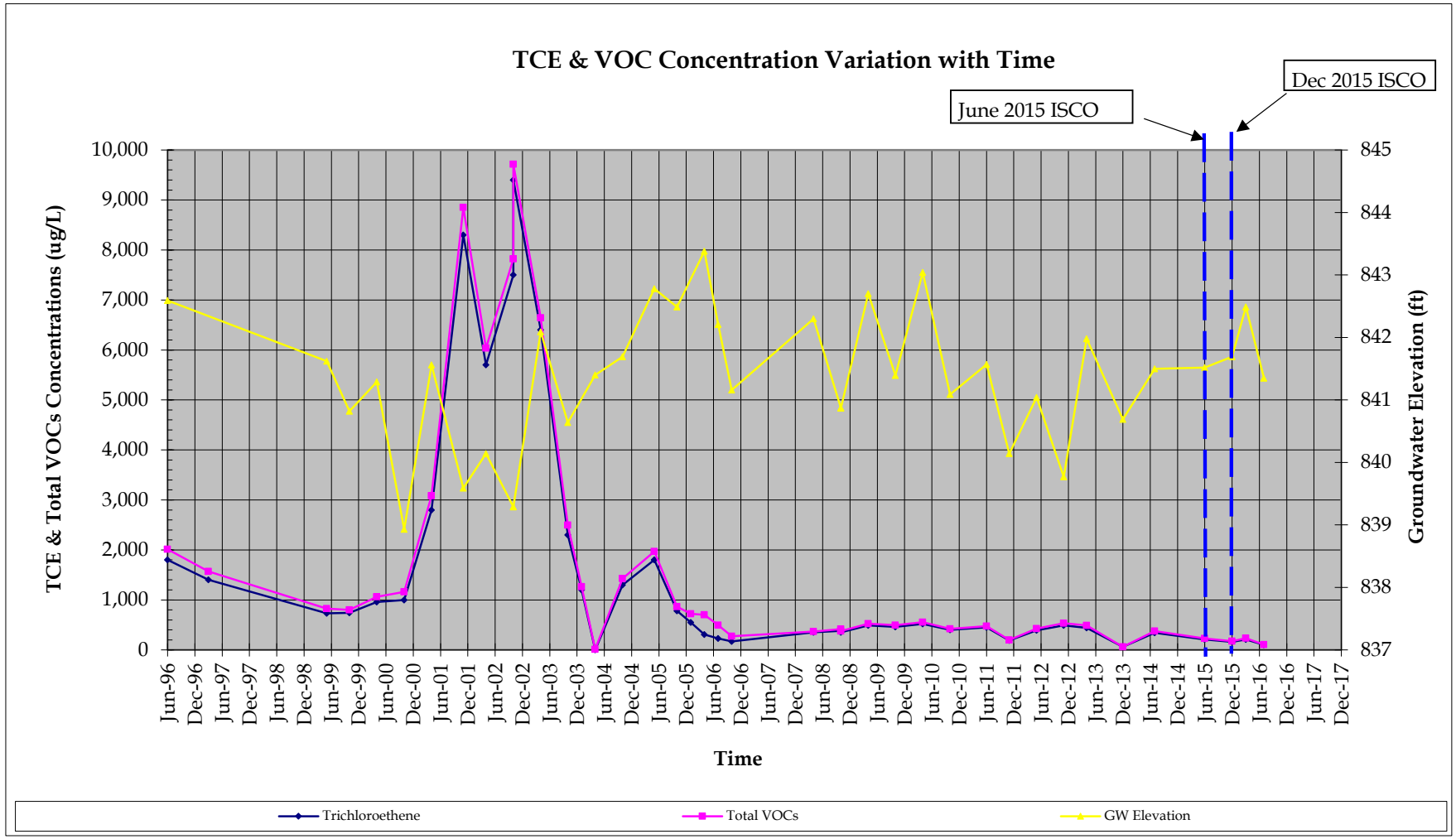
OVERBURDEN MONITORING WELL
SOUTHERN STATES, LLC
Hampton, Georgia



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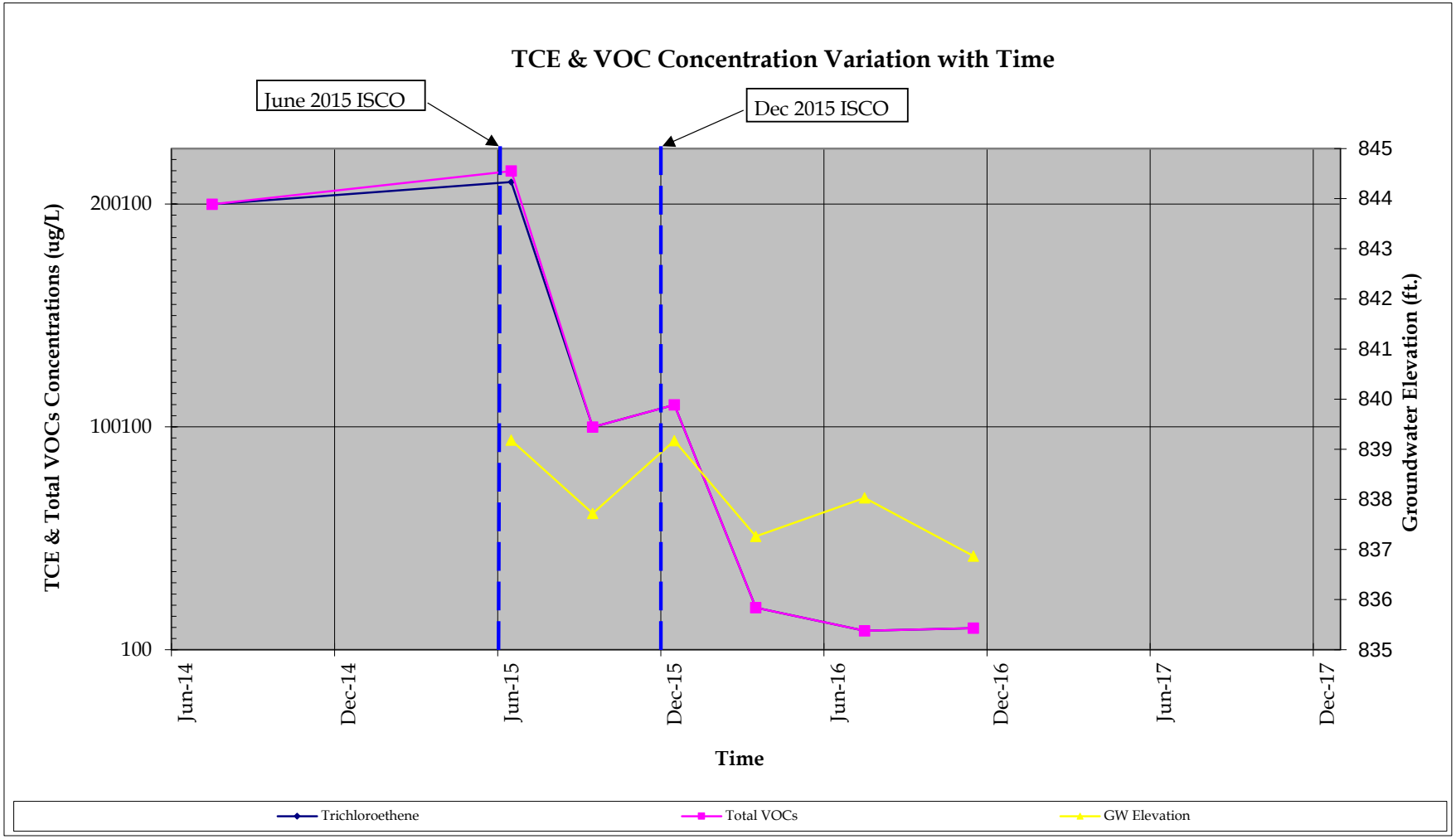
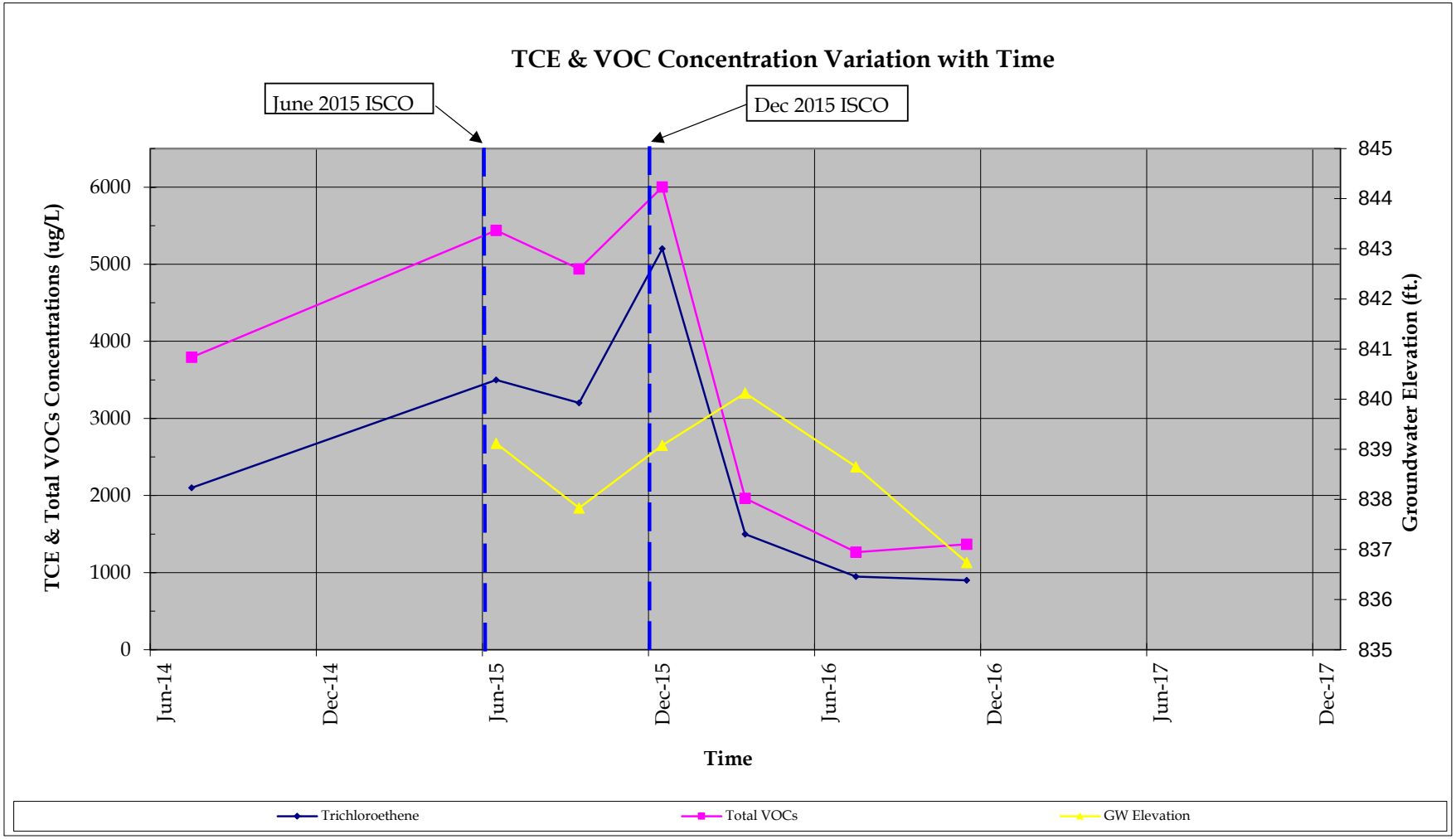
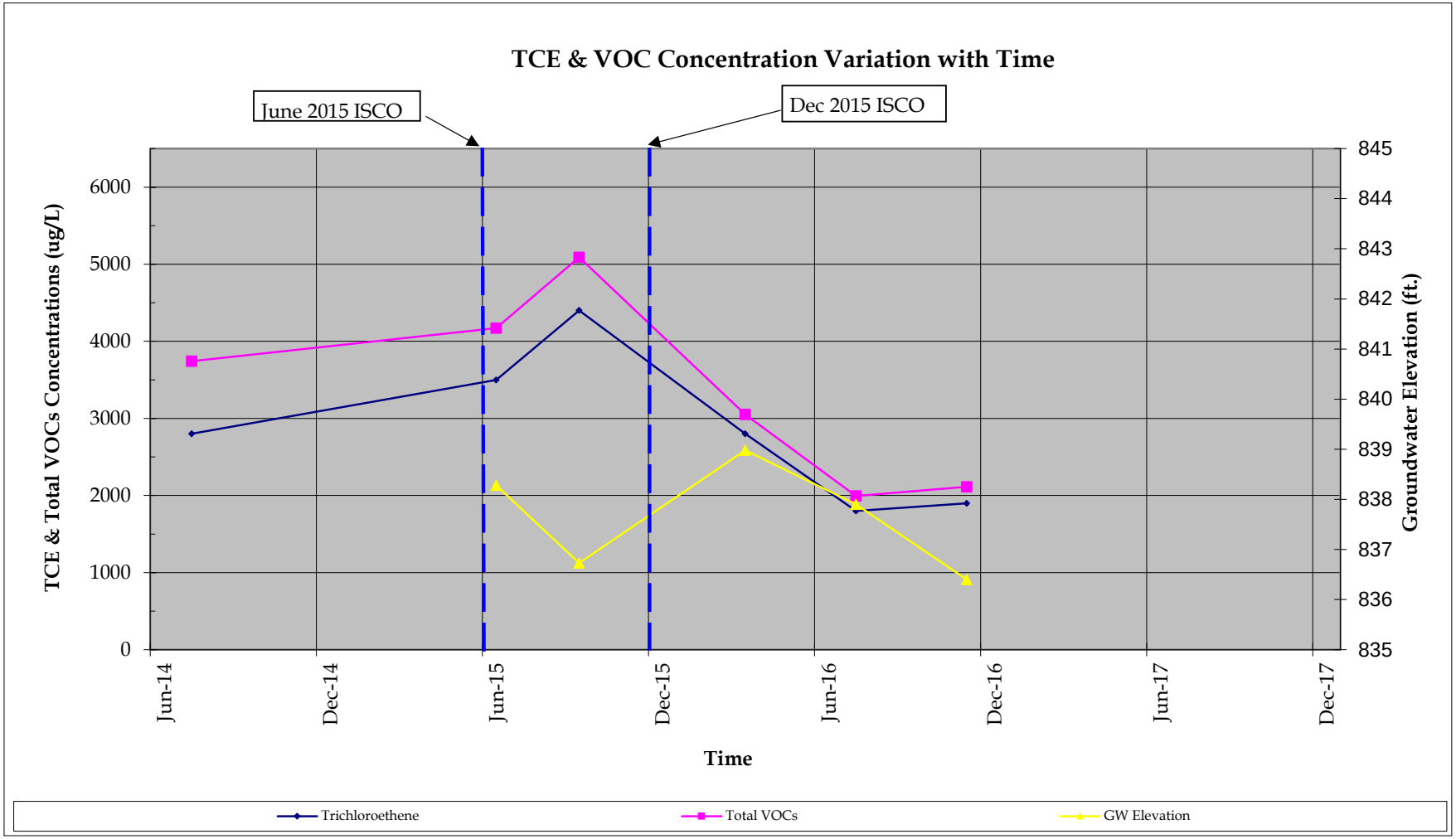
OVERBURDEN MONITORING WELL
SOUTHERN STATES, LLC
Hampton, Georgia



ORGANIC CONCENTRATIONS AT MW-39
OVERBURDEN MONITORING WELL
SOUTHERN STATES, LLC
Hampton, Georgia



ORGANIC CONCENTRATIONS AT MW-40
OVERBURDEN MONITORING WELL
SOUTHERN STATES, LLC
Hampton, Georgia



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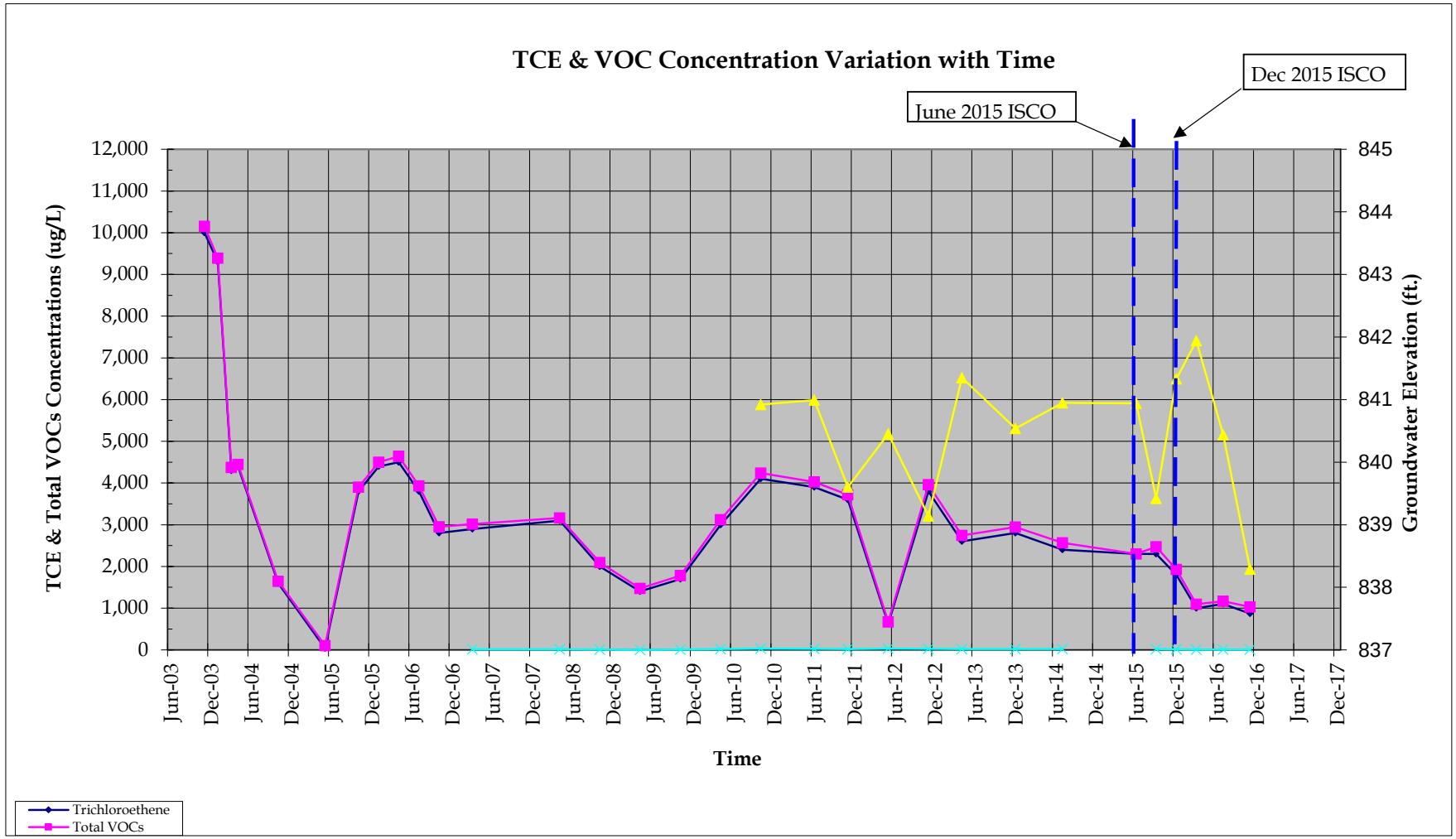
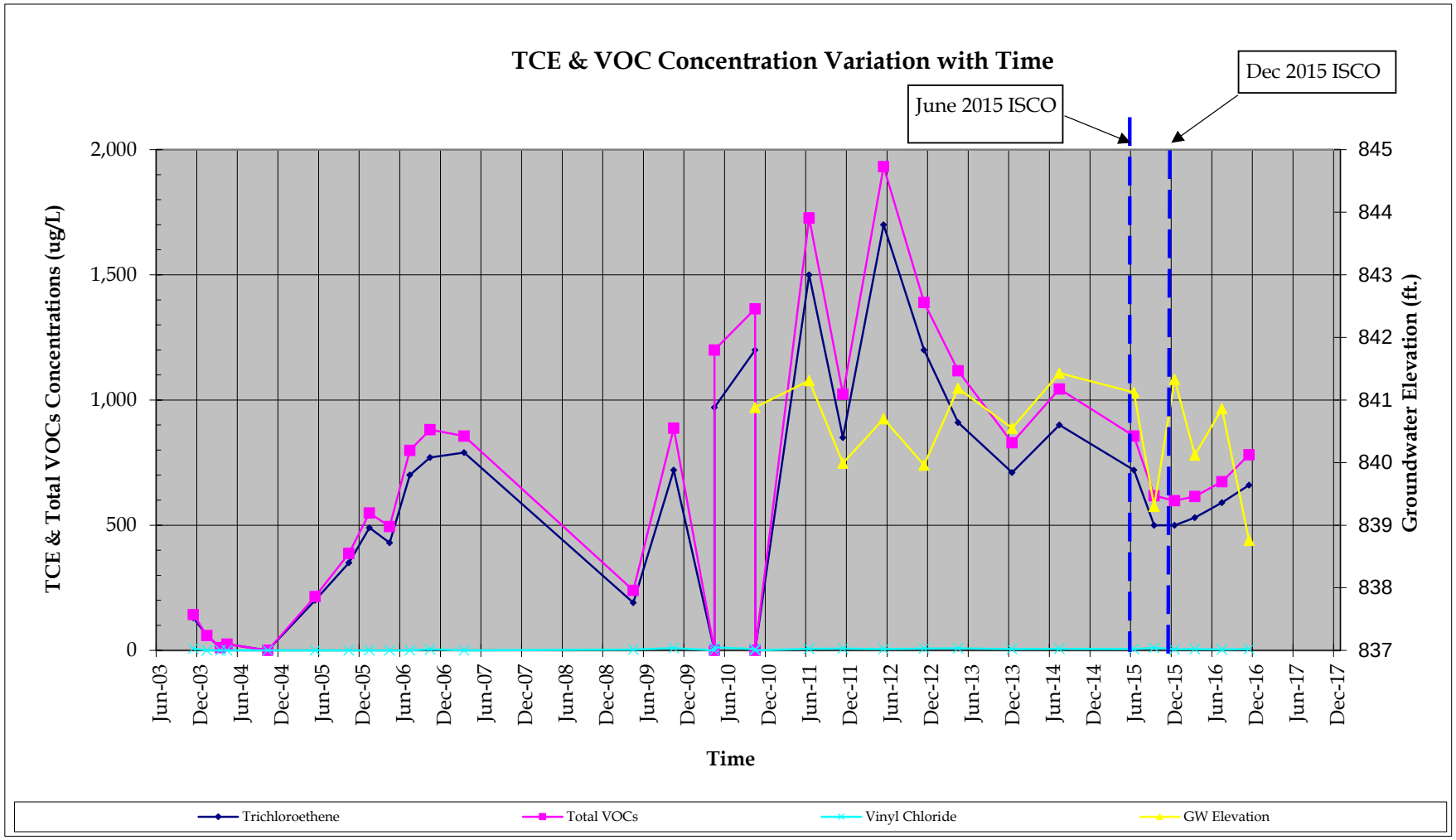
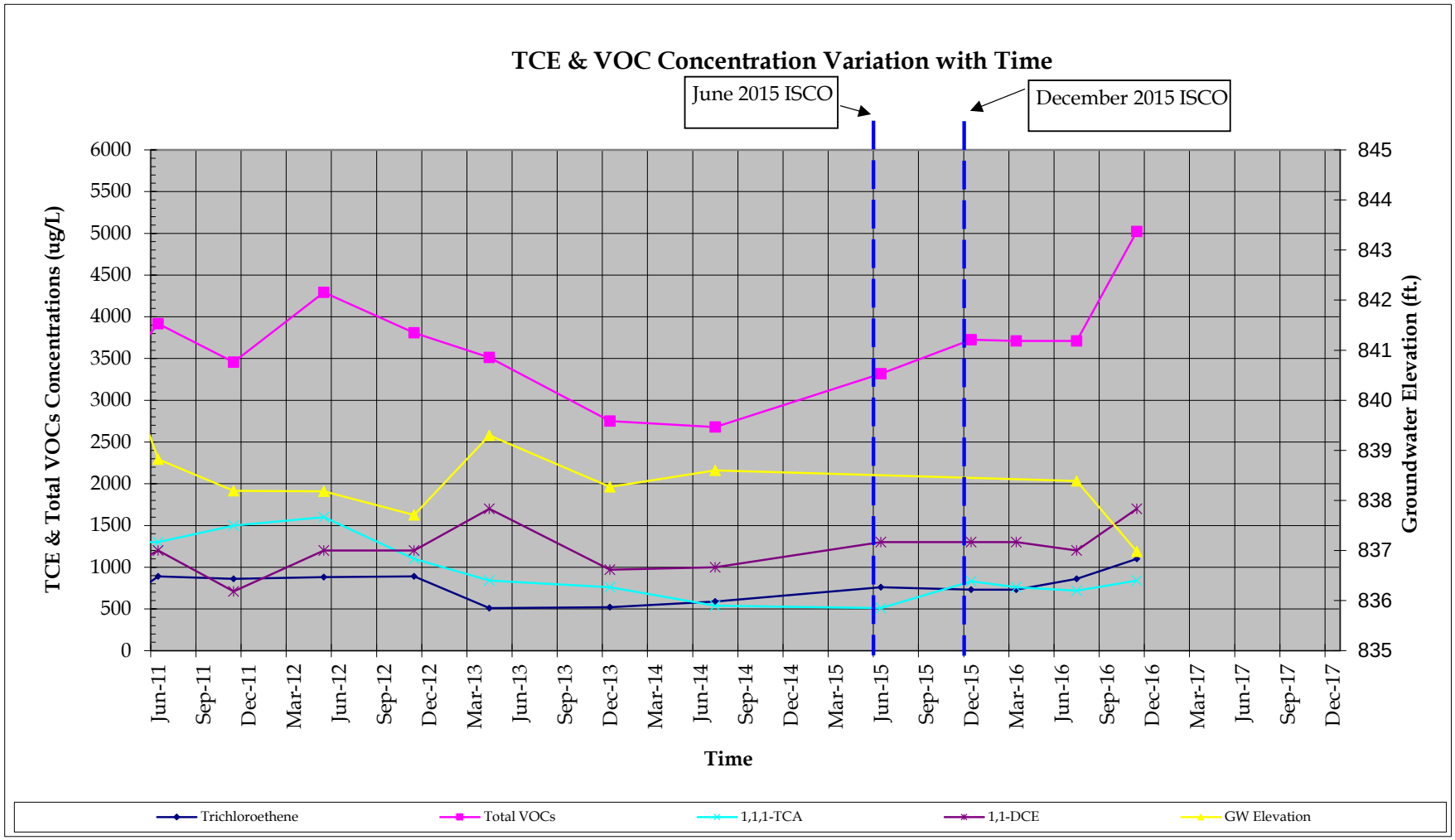
OVERBURDEN MONITORING WELL
SOUTHERN STATES, LLC
Hampton, Georgia



ORGANIC CONCENTRATIONS AT TP-1
OVERBURDEN MONITORING WELL
SOUTHERN STATES, LLC
Hampton, Georgia



ORGANIC CONCENTRATIONS AT TP-2
OVERBURDEN MONITORING WELL
SOUTHERN STATES, LLC
Hampton, Georgia



ORGANIC CONCENTRATIONS AT TP-3
OVERBURDEN MONITORING WELL
SOUTHERN STATES, LLC
Hampton, Georgia

APPENDIX C

UPDATED MILESTONE SCHEDULE

MILESTONE SCHEDULE
SOUTHERN STATES, LLC
30 GEORGIA AVENUE
HAMPTON, GEORGIA

First Year - 2015

	April 2015				May 2015				June 2015				July 2015				August 2015				September 2015				October 2015				November 2015				December 2015				January 2016				February 2016				March 2016			
Corrective Action Activity	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*
VRPAP Approval		√																																														
ISCO injection (Dec 2015 / Jan 2016 - split event)																																															
Groundwater Sampling																																															
Semiannual Progress Report																										√																						

Second Year - 2016 / Third Year - 2017

	April 2016				May 2016				June 2016				July 2016				August 2016				September 2016				October 2016				November 2016				December 2016				January 2017				February 2017				March 2017			
Corrective Action Activity	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*
Semi-Annual Groundwater Sampling																																																
Groundwater Modeling /Cleanup goals																																																
Semiannual Progress Reports		√																								√																						

Third Year - 2017 / Fourth Year - 2018

	April 2017				May 2017				June 2017				July 2017				August 2017				September 2017				October 2017				November 2017				December 2017				January 2018				February 2018				March 2018			
Corrective Action Activity	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*	*1*	*2*	*3*	*4*
Semi-Annual Groundwater Sampling (MNA)																																																
Updated CSM		√																																														
Ecological Risk Assessment Report																																																
Limited Soil Removal (SED-3 & SED-4 location)																																																
Limited Capping																																																
Semiannual Progress Reports		√																								√																						

APPENDIX D
SUMMARY OF PROFESSIONAL GEOLOGIST EFFORT

PG OVERSIGHT SUMMARY
SOUTHERN STATES, LLC
HAMPTON, GEORGIA

	Units	Unit Cost	
PG Summary Time	Hours	$125	Sub-total
10/16/16 – 10/31/16	0	$125	$0
11/1/16 - 11/30/16	40	$125	$5000
12/1/16 - 12/31/16	10	$125	$1125
1/1/17 - 1/31/17	20	$125	$2500
2/1/17 - 2/28/17	10	$125	$1125
3/1/17 – 3/31/17	20	$125	$2500
4/1/17 – 4/15/17	40	$125	$5000

APPENDIX E

RESPONSE TO COMMENTS

(Brownlee to Shelley December 2, 2016)

RESPONSE TO COMMENTS
EPD COMMENTS DECEMBER 2, 2016
VRP PROGRESS REPORTS #3

1. **Comment 1 –** *EPD tentatively concurs with your proposed removal of impacted sediment/soil from the SED-3 and SED-4 locations starting in the fourth quarter 2016. However, please note EPD's earlier comments regarding the need for additional sediment sampling and an ecological risk assessment, both of which may affect the proposed remediation target level and extent of remedial actions. If you choose to proceed, please collect an adequate number of confirmatory samples from both the sidewalls and bottoms of the excavated areas.*

   Response - As indicated, it was agreed that an ecological risk assessment was to be performed. Dr. Chris Saranko of GeoSyntec is performing the assessment and will be completed in the next 45 days. The results of the ecological risk assessment and any removal activities will be presented in VRP Progress Report #5 due October 2017.

2. **Comment 2** - *Please show those three treatment zones (A, B, and C) with some details possible in a figure.*

   Response – The locations of Treatment Zones A, B, and C indicating approximate injection points were previously submitted in VRP Progress Report 1 and are presented in this report and also here as Attachment A of these comments.

3. **Comment 3** - *Please provide Type 4 Risk Reduction Standard calculations for those regulated substances listed in Table 2 of the Report to EPD for its review and approval.*

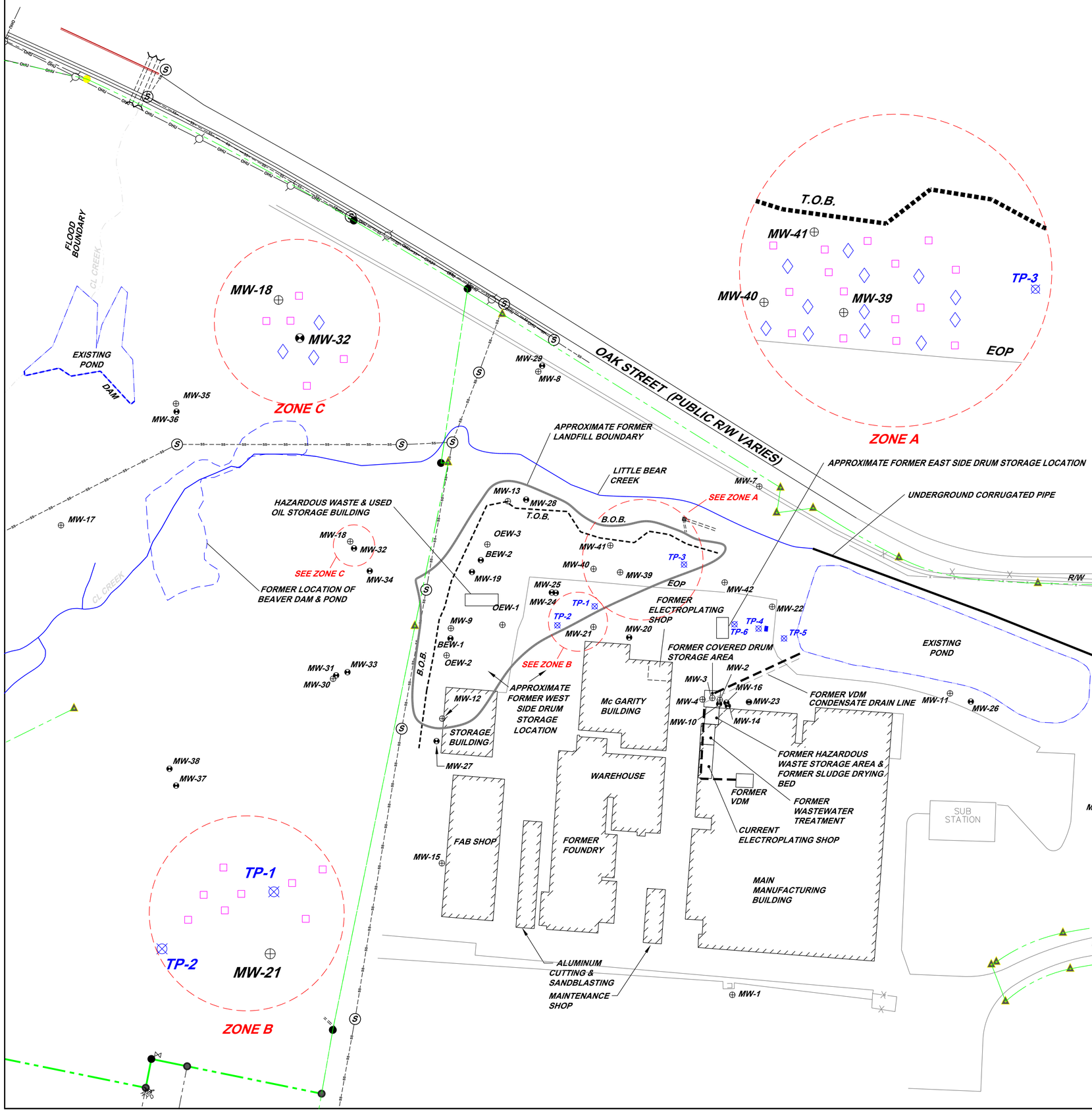
   Response – The Risk Reduction Standard (RRS) calculations were presented in the VRP Application dated October 30, 2014. SSL received comments (Brownlee to Shelley April 10, 2015) on the submittal including Comment 8 indicating that the RRs for soil are correct. EPD further stated that the RRS for groundwater were correct with the exception of Type 1/3 RRS for chloroform and the non-carcinogenic value for 1,1,2-trichloroethane (TCA). The correction to chloroform and the non-carcinogenic value for 1,1,2-TCA was made and Table A-2 revised as requested. The RRS calculations and Table A-2 (revised) are presented in Attachment B of these comments.

4. Comment 4 - *EPD does not concur with your proposed point of exposure well (POE), MW-17, since it is located 1400 feet from the delineated area of the site. According to the Section 12-8-108 of the Act, one option for a POE is a location 1000 feet away from the delineated contaminated area of the site. For this particular site, it should be located in the area between MW-17 and MW-18 and east of the Little Bear Creek. If a monitoring well in this location is not possible, a closer monitoring location may be used.*

   Response – As indicated in the VRP Report #3, the Point of Demonstration (POD) will be monitoring well MW-17 as it is downgradient of the suspected source area. The Point of Exposure (POE) will be an arbitrary point located 1,000 feet downgradient from the edge of the delineated contaminated area as identified by monitoring well MW-18.

ATTACHMENT A

TREATMENT ZONE LOCATIONS



LEGEND

- Property Line
- Chain Link Fence
- MW-11 Overburden Monitoring Well
- MW-10 Bedrock Monitoring Well
- TP-4 Temporary Piezometer
- TOB Top of Embankment
- EOP Edge of Pavement
- (105) Total VOC's, ug/L
- Deep Injection Point
- Shallow Injections Point

NOTE:
1,) SITE SURVEY UPDATED BY METRO ENGINEERING & SURVEYING – FEBRUARY 2012

2.) NO INJECTION PERFORMED IN ZONE B&C

0 70 140ft

Title: TREATMENT ZONE LOCATION MAP

Site: SOUTHERN STATES, LLC
Hampton, Georgia

EMA Environmental Management Associates, LLC

Facility ID.

Figure 3

ATTACHMENT B

TABLE A-2 REVISED
RRS CALCULATIONS

Risk Reduction Standards

GEPD Rule 391-3-19-.07 allows for the determination of risk reduction standards that are protective of human health. The Type 1 RRS criteria for soils were determined for the Site as follows:

Concentrations at any point above the uppermost groundwater zone in soil that has been affected by a release shall not exceed the concentrations given in Table 2 of Appendix III of Rule 391-3-19 or, for those substances not listed, the least of the concentrations from items 1 through 3 below.

1) *Concentrations at any point above the uppermost groundwater zone in soil that has been affected by a release shall not exceed the higher of:*

   i) *soil concentrations in Appendix I, excluding any values given in square brackets;*

   ii) *multiplication of the Type 1 groundwater concentration criteria by a factor of 100;*

   iii) *demonstration through use of the Toxicity Characteristic Leaching Procedure, SW-846 Method 1311, or other method approved by the EPD Director that a concentration in soil will not generate leachate concentrations that exceed Type 1 groundwater concentration criteria;*

2) *concentrations which are unlikely to result in any noncancer toxic effects on human health via soil ingestion along with inhalation of particulates and volatiles, determined using Equation 7 of RAGS, Part B, and standard residential exposure assumptions in Table 3 of Appendix III;*

3) *concentrations for which the upper bound on the estimated excess cancer risk is less than or equal to 10^{-5} (10^{-4} for Class C carcinogens) via soil ingestion and inhalation of particulates and volatiles, determined using Equation 6, RAGS, Part B, and standard residential exposure assumptions in Table 3 of Appendix III.*

The Type 1 and 3 RRS criteria for groundwater were determined for the Site as follows:

At any point within any groundwater that has been affected by a release, concentrations of regulated substances in groundwater samples must not exceed concentrations in Table 1 of Appendix III or, for those substances not listed, the background or detection limit concentrations.

The Type 4 RRS criteria for groundwater were determined for the Site as follows:

At any point within any groundwater that has been affected by a release, concentrations of regulated substances in groundwater samples must not exceed the lesser of the values from items 1 and 2 below or, for those substances for which neither calculation can be made, the higher of concentrations in Table 1 of Appendix III, background concentrations, or detection limit concentrations.

1) *concentrations which are unlikely to result in any noncancer toxic effects on human health via ingestion of, or inhalation of volatiles from, groundwater, determined using equation 2 from RAGS, Part B, and site-specific exposure factors for the non-residential use scenario.*

2) *concentrations for which the upper bound on the estimated excess cancer risk is less than or equal to 10^{-5} via ingestion of, and inhalation of volatiles from, groundwater, determined using Equation 1 from RAGS, Part B, and site-specific exposure factors for the non-residential use scenario.*

Risk reduction standards (RRS) are based on risk assessment procedures for standard or site-specific exposure assumptions. The exposure assumptions used by EMA as listed in HSRA Rule Chapter 391-3-19, Appendix III, Table 3 to calculate the RRS are as follow:

Parameter	***Units***	***Type 1***	***Type 3***	***Type 4***
THI, Total Hazard Index	unitless	1	1	1
TR, Target Risk	unitless	10^{-5} for class A & B	10^{-5} for class A & B	10^{-5} for class A & B
BW, body weight	kg	70 (HSRA Rule)	70 (HSRA Rule)	70 (HSRA Rule)
AT, averaging time	years	70 (HSRA Rule)	70 (HSRA Rule)	70 (HSRA Rule)
EF, exposure frequency	days/yr	350 (HSRA Rule)	250 (HSRA Rule)	250 (HSRA Rule)
ED, exposure duration	yr	30 (HSRA Rule)	25 (HSRA Rule)	25 (HSRA Rule)
Ir_w, daily water ingestion rate	L/day	2 (HSRA Rule)	1 (HSRA Rule)	1 (HSRA Rule)
Ir_{soil}, soil ingestion rate	mg/day	114 (HSRA Rule)	50 (HSRA Rule)	50 (HSRA Rule)
Ir_{air}, daily inhalation rate	m^3/day	15 (HSRA Rule)	20 (HSRA Rule)	20 (HSRA Rule)
VF	m^3/kg	Chemical-specific	Chemical-specific	Chemical-specific
PEF, particulate emission factor	m^3/kg	4.63×10^9 (HSRA Rule)	4.63×10^9 (HSRA Rule)	4.63×10^9 (HSRA Rule)
K, water-to-air volatization factor	L/m^3	0.5 (HSRA Rule)	0.5 (HSRA Rule)	0.5 (HSRA Rule)

The toxicity values used for the calculations were from the most recent version of USEPA's Regional Screening Level Summary Table (May 2014) and updated with current Integrated Risk Information System (IRIS) values, where applicable. The soil-to-air volatilization factors (VF) were calculated for volatile compounds using chemical-

specific information presented in USEPA's Regional Screening Level – Chemical-specific Parameters Supporting Table (May 2014) and the standard assumptions listed in the HSRA Rule Chapter 391-3-19, Appendix III, Table 3.

A summary of the calculation results for the Type 1 RRS for soils is included in Table A-1. The individual calculation spreadsheets for the carcinogenic and non-carcinogenic risk-based calculations and soil-to-air volatilization factors (These spreadsheets include the toxicity and exposure assumption values) are presented in Attachment A by analyte. A summary of the calculation results for the Type 1, 3, and 4 RRS for groundwater is included in Table A-2. The individual risk-based calculation spreadsheets are presented in Attachment B by analyte. When the Type 4 RRS was lower than the Type 1/3 RRS, the 1/3 RRS was used as the overall RRS.

TABLE A-1
SUMMARY OF TYPE 1 RRS CRITERIA FOR SOILS

Parameters	*VF-soil-to-air (1)* m^3/kg	HSRA Appendix I Notification Conc. µg/kg	Groundwater Type 1 RRS µg/L	Type 1 GW x 100 µg/kg	Risk-Based Non-carcinogenic Value (2) µg/kg	Risk-Based Carcinogenic Value (3) µg/kg	Risk-Based Soil Type 1 RRS µg/kg	Overall Type 1 RRS µg/kg
Volatile Organic Compounds								
1,1,1-Trichloroethane	1.55E+03	5440	200	20000	1.07E+07	--	1.07E+07	20000
1,1,2-Trichloroethane	8.81E+03	500	5	500	2.45E+03	1.67E+04	2.45E+03	500
1,1-Dichloroethane	2.11E+03	30	4000	400000	1.28E+08	4.21E+04	4.21E+04	42100
1,1-Dichloroethene	8.64E+02	360	7	700	2.38E+05	--	2.38E+05	700
cis-1,2-Dichloroethene	2.74E+03	530	70	7000	1.28E+06	--	1.28E+06	7000
Toluene	5.64E+03	14400	1000	100000	2.22E+07	--	2.22E+07	100000
Tetracholoroethene	2.64E+03	180	5	500	1.42E+05	3.15E+05	1.42E+05	500
Trichloroethene	2.44E+03	130	5	500	6.65E+03	1.82E+04	6.65E+03	500
Xylenes	7.84E+03	20000	10000	1000000	1.08E+06	--	1.08E+06	1000000
Vinyl chloride	5.81E+02	40	2	200	7.75E+04	3.55E+03	3.55E+03	200
PCBs								
Arochlor-1242	NA	1550	0.5	50	7.47E+03	--	7.47E+03	1550
Arochlor-1248	NA	1550	0.5	50	7.47E+03	--	7.47E+03	1550
Arochlor-1254	NA	1550	0.5	50	7.47E+03	1.28E+04	7.47E+03	1550
Arochlor-1260	NA	1550	0.5	50	7.47E+03	--	7.47E+03	1550
Total PCBS	NA	1550	0.5	50	--	--	--	1550

Notes:

(1) VF $= \frac{(LS \times V \times DH)}{A} \times \frac{(3.14 \times \alpha \times T)^{1/2}}{(2 \times D_{ei} \times E \times K_{as} \times 10^{-3}\ kg/g)}$

(2) Eq. 7 from RAGS Part B $= \frac{THI \times BW \times AT \times 365}{ED \times EF \times [((1/RfD_o) \times 10^{-6} \times Ir_{soil}) + ((1/RfD_i) \times Ir_{air} \times (1/VF + 1/PEF))]}$

(3) Eq. 6 from RAGS Part B $= \frac{TR \times BW \times AT \times 365}{EF \times ED \times [(Sf_o \times 10^{-6}\ kg/mg \times Ir_{soil}) + (Sf_i \times Ir_{air} \times [1/VF + 1/PEF])]}$

-- No data avialable

TABLE A-2
SUMMARY OF TYPE 1, 3, AND 4 RRS CRITERIA FOR GROUNDWATER

Parameters	Type 1/3 RRS (Appendix III) µg/L	Risk-Based Non-carcinogenic Value (1) µg/L	Risk-Based Carcinogenic Value (2) µg/L	Risk-Based GW Type 4 RRS µg/L	Overall Type 4 RRS µg/L
Volatile Organic Compounds					
1,1,1-Trichloroethane	200	--	1.36E+04	1.36E+04	13600
1,1,2-Trichloroethane [(2)]	5	5.83E-04	4.64E+00	5.83E-04	5
1,1-Dichloroethane [(2)]	4000	2.04E+04	4.64E+01	4.64E+01	4000
1,1-Dichloroethene [(2)]	7	5.24E+02	--	5.24E+02	524
Acetone	4000	4.56E+04	--	4.56E+04	45620
Carbon tetrachloride	5	1.70E+02	1.02E+01	1.02E+01	10.2
Chloroethane	10	2.92E+04	--	2.92E+04	29200
Chloroform (Trichloromethane)	80	2.24E+02	3.42E+00	3.42E+00	80
cis-1,2-Dichloroethene	70	2.04E+02	--	2.04E+02	204
Methyl tert butyl ether (MTBE)	--	8.76E+03	2.63E+02	2.63E+02	263
Toluene	1000	5.24E+03	--	5.24E+03	5241
trans-1,2-Dichloroethene	100	2.04E+03	--	2.04E+03	2044
Tetrachloroethene	5	9.81E+01	2.56E+02	9.81E+01	98
Trichloroethene	5	5.24E+00	1.92E+01	5.24E+00	5.24
Vinyl chloride	2	1.50E+02	3.27E+00	3.27E+00	3.27

Notes:

(1) Eq. 2 from RAGS Part B

$$\frac{THI \times BW \times AT \times 365}{EF \times ED \times [(1/RfD_i \times K \times Ir_a) + (1/RfD_o \times Ir_w)]}$$

(2) Eq. 1 from RAGS Part B

$$\frac{TR \times BW \times AT \times 365}{EF \times ED \times [(Sf_i \times K \times Ir_a) + (SF_0 \times Ir_w)]}$$

-- No data available

ATTACHMENT A

SOIL TOXICITY/VF CALCULATIONS

Carcinogenic effects *(Commercial/Residential Soil)*: RAGS equation 6

variable	units	Standardized Exposure Assumptions Type 1
TR target excess individual lifetime cancer risk	unitless	0.00001
Sfo, oral cancer slope factor	unitless	
Sfi, inhalation cancer slope factor	unitless	
BW, body weight	kg	70
AT, averaging time	years	70
EF, exposure frequency	days/yr	350
ED, exposure duration	yr	30
Ir_{soil}, soil ingestion rate	m3/day	114
Ir_{air}, daily inhalation rate	L/day	15
VF		1.55E+03
PEF, particulate emsiison factor	m3/kg	4.63E+09
K, water-to-air volatization factor	unitless	0.5
RRSo $\frac{TR*BW*AT*365}{EF*ED*(Sfo*1.0E-6*IRsoil)}$		#DIV/0!
RRSi $\frac{TR*BW*AT*365}{EF*ED*(Sfi*IRair*(1/VF+1/PEF))}$		#DIV/0!
$\frac{1}{1/RRSo + 1/RRSi}$	mg/kg	#DIV/0!
C(mg/Kg;risk-based)	mg/kg	**#DIV/0!**

Non-Carcinogenic effects *(Commercial/Residential Soil)*: RAGS equation 7

variable	units	Standardized Exposure Assumptions Type 1
THI, target hazard index	unitless	1
RfD_o, oral chronic reference dose	unitless	2.00E+00
RfD_i, inhalation chronic reference dose	unitless	1.43E+00
BW, body weight	kg	70
AT, averaging time	years	30
EF, exposure frequency	days/yr	350
ED, exposure duration	yr	30
Irsoil, soil ingestion rate	m3/day	114
Irair, daily inhalation rate	L/day	15
VF, soil-to-air volatization factor	m3/kg	1.55E+03
PEF, particulate emission factor	m3/kg	4.63E+09
K, water-to-air volatization factor	unitless	0.5
RRSo $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdo)*1.0E-6*IRsoil}$		1.28E+06
RRSi $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdi)*IRair*(1/VF+1/PEF)}$		1.08E+04
$\frac{1.0000}{1/RRSo + 1/RRSi}$	mg/kg	1.07E+04
C(mg/kg;risk-based)	**mg/kg**	**1.07E+04**

Carcinogenic effects *(Commercial/Residential Soil)*: RAGS equation 6

variable	units	Standardized Exposure Assumptions Type 1
TR target excess individual lifetime cancer risk	unitless	0.00001
Sfo, oral cancer slope factor	unitless	5.70E-02
Sfi, inhalation cancer slope factor	unitless	5.60E-02
BW, body weight	kg	70
AT, averaging time	years	70
EF, exposure frequency	days/yr	350
ED, exposure duration	yr	30
Ir_{soil}, soil ingestion rate	m3/day	114
Ir_{air}, daily inhalation rate	L/day	15
VF		8.81E+03
PEF, particulate emsiison factor	m3/kg	4.63E+09
K, water-to-air volatization factor	unitless	0.5
RRSo $\frac{TR*BW*AT*365}{EF*ED*(Sfo*1.0E-6*IRsoil)}$		262.131938
RRSi $\frac{TR*BW*AT*365}{EF*ED*(Sfi*IRair*(1/VF+1/PEF))}$		17.86052701
$\frac{1}{1/RRSo + 1/RRSi}$	mg/kg	16.721
C(mg/Kg;risk-based)	mg/kg	**1.67E+01**

Non-Carcinogenic effects *(Commercial/Residential Soil)*: RAGS equation 7

variable	units	Standardized Exposure Assumptions Type 1
THI, target hazard index	unitless	1
RfD_{o}, oral chronic reference dose	unitless	4.00E-03
RfD_{i}, inhalation chronic reference dose	unitless	5.71E-05
BW, body weight	kg	70
AT, averaging time	years	30
EF, exposure frequency	days/yr	350
ED, exposure duration	yr	30
Irsoil, soil ingestion rate	m3/day	114
Irair, daily inhalation rate	L/day	15
VF, soil-to-air volatization factor	m3/kg	8.81E+03
PEF, particulate emission factor	m3/kg	4.63E+09
K, water-to-air volatization factor	unitless	0.5
RRSo $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdo)*1.0E-6*IRsoil}$		2.56E+03
RRSi $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdi)*IRair*(1/VF+1/PEF)}$		2.45E+00
$\frac{1.0000}{1/RRSo + 1/RRSi}$	mg/kg	2.45E+00
C(mg/kg;risk-based)	**mg/kg**	**2.45E+00**

Carcinogenic effects *(Commercial/Residential Soil)* : RAGS equation 6

variable	units	Standardized Exposure Assumptions Type 1
TR target excess individual lifetime cancer risk	unitless	0.00001
Sfo, oral cancer slope factor	unitless	5.70E-03
Sfi, inhalation cancer slope factor	unitless	5.60E-03
BW, body weight	kg	70
AT, averaging time	years	70
EF, exposure frequency	days/yr	350
ED, exposure duration	yr	30
Ir_{soil}, soil ingestion rate	m3/day	114
Ir_{air}, daily inhalation rate	L/day	15
VF		2.11E+03
PEF, particulate emsiison factor	m3/kg	4.63E+09
K, water-to-air volatization factor	unitless	0.5
RRSo $\frac{TR*BW*AT*365}{EF*ED*(Sfo*1.0E-6*IRsoil)}$		2621.31938
RRSi $\frac{TR*BW*AT*365}{EF*ED*(Sfi*IRair*(1/VF+1/PEF))}$		42.83383301
$\frac{1}{1/RRSo + 1/RRSi}$	mg/kg	42.145
C(mg/Kg;risk-based)	mg/kg	**4.21E+01**

Non-Carcinogenic effects *(Commercial/Residential Soil)*: RAGS equation 7

variable	units	Standardized Exposure Assumptions Type 1
THI, target hazard index	unitless	1
RfD_o, oral chronic reference dose	unitless	2.00E-01
RfD_i, inhalation chronic reference dose	unitless	
BW, body weight	kg	70
AT, averaging time	years	30
EF, exposure frequency	days/yr	350
ED, exposure duration	yr	30
Irsoil, soil ingestion rate	m3/day	114
Irair, daily inhalation rate	L/day	15
VF, soil-to-air volatization factor	m3/kg	2.11E+03
PEF, particulate emission factor	m3/kg	4.63E+09
K, water-to-air volatization factor	unitless	0.5
RRSo $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdo)*1.0E-6*IRsoil}$		1.28E+05
RRSi $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdi)*IRair*(1/VF+1/PEF)}$		#DIV/0!
$\frac{1.0000}{1/RRSo + 1/RRSi}$	mg/kg	#DIV/0!
C(mg/kg;risk-based)	**mg/kg**	**1.28E+05**

Carcinogenic effects *(Commercial/Residential Soil)* : RAGS equation 6

variable	units	Standardized Exposure Assumptions Type 1
TR target excess individual lifetime cancer risk	unitless	0.00001
Sfo, oral cancer slope factor	unitless	
Sfi, inhalation cancer slope factor	unitless	
BW, body weight	kg	70
AT, averaging time	years	70
EF, exposure frequency	days/yr	350
ED, exposure duration	yr	30
Ir_{soil}, soil ingestion rate	m3/day	114
Ir_{air}, daily inhalation rate	L/day	15
VF		8.64E+02
PEF, particulate emsiison factor	m3/kg	4.63E+09
K, water-to-air volatization factor	unitless	0.5
RRSo $\frac{TR*BW*AT*365}{EF*ED*(Sfo*1.0E-6*IRsoil)}$		#DIV/0!
RRSi $\frac{TR*BW*AT*365}{EF*ED*(Sfi*IRair*(1/VF+1/PEF))}$		#DIV/0!
$\frac{1}{1/RRSo + 1/RRSi}$	mg/kg	#DIV/0!
C(mg/Kg;risk-based)	mg/kg	**#DIV/0!**

Non-Carcinogenic effects *(Commercial/Residential Soil)*: RAGS equation 7

variable	units	Standardized Exposure Assumptions Type 1
THI, target hazard index	unitless	1
RfD_o, oral chronic reference dose	unitless	5.00E-02
RfD_i, inhalation chronic reference dose	unitless	5.71E-02
BW, body weight	kg	70
AT, averaging time	years	30
EF, exposure frequency	days/yr	350
ED, exposure duration	yr	30
Irsoil, soil ingestion rate	m3/day	114
Irair, daily inhalation rate	L/day	15
VF, soil-to-air volatization factor	m3/kg	8.64E+02
PEF, particulate emission factor	m3/kg	4.63E+09
K, water-to-air volatization factor	unitless	0.5
RRSo $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdo)*1.0E-6*IRsoil}$		3.20E+04
RRSi $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdi)*IRair*(1/VF+1/PEF)}$		2.40E+02
$\frac{1.0000}{1/RRSo + 1/RRSi}$	mg/kg	2.38E+02
C(mg/kg;risk-based)	**mg/kg**	**2.38E+02**

Carcinogenic effects *(Commercial/Residential Soil)*: RAGS equation 6

variable	units	Standardized Exposure Assumptions Type 1
TR target excess individual lifetime cancer risk	unitless	0.00001
Sfo, oral cancer slope factor	unitless	
Sfi, inhalation cancer slope factor	unitless	
BW, body weight	kg	70
AT, averaging time	years	70
EF, exposure frequency	days/yr	350
ED, exposure duration	yr	30
Ir_{soil}, soil ingestion rate	m3/day	114
Ir_{air}, daily inhalation rate	L/day	15
VF		2.74E+03
PEF, particulate emsiison factor	m3/kg	4.63E+09
K, water-to-air volatization factor	unitless	0.5
RRSo $\frac{TR*BW*AT*365}{EF*ED*(Sfo*1.0E-6*IRsoil)}$		#DIV/0!
RRSi $\frac{TR*BW*AT*365}{EF*ED*(Sfi*IRair*(1/VF+1/PEF))}$		#DIV/0!
$\frac{1}{1/RRSo + 1/RRSi}$	mg/kg	#DIV/0!
C(mg/Kg;risk-based)	mg/kg	**#DIV/0!**

Non-Carcinogenic effects *(Commercial/Residential Soil)*: RAGS equation 7

variable	units	Standardized Exposure Assumptions Type 1
THI, target hazard index	unitless	1
RfD_o, oral chronic reference dose	unitless	2.00E-03
RfD_i, inhalation chronic reference dose	unitless	
BW, body weight	kg	70
AT, averaging time	years	30
EF, exposure frequency	days/yr	350
ED, exposure duration	yr	30
Irsoil, soil ingestion rate	m3/day	114
Irair, daily inhalation rate	L/day	15
VF, soil-to-air volatization factor	m3/kg	2.74E+03
PEF, particulate emission factor	m3/kg	4.63E+09
K, water-to-air volatization factor	unitless	0.5
RRSo $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdo)*1.0E-6*IRsoil}$		1.28E+03
RRSi $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdi)*IRair*(1/VF+1/PEF)}$		#DIV/0!
$\frac{1.0000}{1/RRSo + 1/RRSi}$	mg/kg	#DIV/0!
C(mg/kg;risk-based)	**mg/kg**	**1.28E+03**

Carcinogenic effects *(Commercial/Residential Soil)*: RAGS equation 6

variable	units	Standardized Exposure Assumptions Type 1
TR target excess individual lifetime cancer risk	unitless	0.00001
Sfo, oral cancer slope factor	unitless	
Sfi, inhalation cancer slope factor	unitless	
BW, body weight	kg	70
AT, averaging time	years	70
EF, exposure frequency	days/yr	350
ED, exposure duration	yr	30
Ir_{soil}, soil ingestion rate	m3/day	114
Ir_{air}, daily inhalation rate	L/day	15
VF		5.64E+03
PEF, particulate emsiison factor	m3/kg	4.63E+09
K, water-to-air volatization factor	unitless	0.5
RRSo $\frac{TR*BW*AT*365}{EF*ED*(Sfo*1.0E-6*IRsoil)}$		#DIV/0!
RRSi $\frac{TR*BW*AT*365}{EF*ED*(Sfi*IRair*(1/VF+1/PEF))}$		#DIV/0!
$\frac{1}{1/RRSo + 1/RRSi}$	mg/kg	#DIV/0!
C(mg/Kg;risk-based)	mg/kg	**#DIV/0!**

Non-Carcinogenic effects *(Commercial/Residential Soil)*: RAGS equation 7

variable	units	Standardized Exposure Assumptions Type 1
THI, target hazard index	unitless	1
RfD_o, oral chronic reference dose	unitless	8.00E-02
RfD_i, inhalation chronic reference dose	unitless	1.43E+00
BW, body weight	kg	70
AT, averaging time	years	30
EF, exposure frequency	days/yr	350
ED, exposure duration	yr	30
Irsoil, soil ingestion rate	m3/day	114
Irair, daily inhalation rate	L/day	15
VF, soil-to-air volatization factor	m3/kg	5.64E+03
PEF, particulate emission factor	m3/kg	4.63E+09
K, water-to-air volatization factor	unitless	0.5
RRSo $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdo)*1.0E-6*IRsoil}$		5.12E+04
RRSi $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdi)*IRair*(1/VF+1/PEF)}$		3.92E+04
$\frac{1.0000}{1/RRSo + 1/RRSi}$	mg/kg	2.22E+04
C(mg/kg;risk-based)	**mg/kg**	**2.22E+04**

Carcinogenic effects *(Commercial/Residential Soil)*: RAGS equation 6

variable	units	Standardized Exposure Assumptions Type 1
TR target excess individual lifetime cancer risk	unitless	0.00001
Sfo, oral cancer slope factor	unitless	2.10E-03
Sfi, inhalation cancer slope factor	unitless	9.10E-04
BW, body weight	kg	70
AT, averaging time	years	70
EF, exposure frequency	days/yr	350
ED, exposure duration	yr	30
Ir_{soil}, soil ingestion rate	m3/day	114
Ir_{air}, daily inhalation rate	L/day	15
VF		2.64E+03
PEF, particulate emsiison factor	m3/kg	4.63E+09
K, water-to-air volatization factor	unitless	0.5
RRSo $\frac{TR*BW*AT*365}{EF*ED*(Sfo*1.0E-6*IRsoil)}$		7115.009747
RRSi $\frac{TR*BW*AT*365}{EF*ED*(Sfi*IRair*(1/VF+1/PEF))}$		329.8781406
$\frac{1}{1/RRSo + 1/RRSi}$	mg/kg	315.261
C(mg/Kg;risk-based)	mg/kg	**3.15E+02**

Non-Carcinogenic effects *(Commercial/Residential Soil)*: RAGS equation 7

variable	units	Standardized Exposure Assumptions Type 1
THI, target hazard index	unitless	1
RfD_o, oral chronic reference dose	unitless	6.00E-03
RfD_i, inhalation chronic reference dose	unitless	1.14E-02
BW, body weight	kg	70
AT, averaging time	years	30
EF, exposure frequency	days/yr	350
ED, exposure duration	yr	30
Irsoil, soil ingestion rate	m3/day	114
Irair, daily inhalation rate	L/day	15
VF, soil-to-air volatization factor	m3/kg	2.64E+03
PEF, particulate emission factor	m3/kg	4.63E+09
K, water-to-air volatization factor	unitless	0.5
RRSo $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdo)*1.0E-6*IRsoil}$		3.84E+03
RRSi $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdi)*IRair*(1/VF+1/PEF)}$		1.47E+02
$\frac{1.0000}{1/RRSo + 1/RRSi}$	mg/kg	1.42E+02
C(mg/kg;risk-based)	**mg/kg**	**1.42E+02**

Carcinogenic effects *(Commercial/Residential Soil)*: RAGS equation 6

variable	units	Standardized Exposure Assumptions Type 1
TR target excess individual lifetime cancer risk	unitless	0.00001
Sfo, oral cancer slope factor	unitless	4.60E-02
Sfi, inhalation cancer slope factor	unitless	1.44E-02
BW, body weight	kg	70
AT, averaging time	years	70
EF, exposure frequency	days/yr	350
ED, exposure duration	yr	30
IR_{soil}, soil ingestion rate	m3/day	114
IR_{air}, daily inhalation rate	L/day	15
VF		2.44E+03
PEF, particulate emsiison factor	m3/kg	4.63E+09
K, water-to-air volatization factor	unitless	0.5
RRSo $\frac{TR*BW*AT*365}{EF*ED*(Sfo*1.0E-6*IRsoil)}$		324.8156623
RRSi $\frac{TR*BW*AT*365}{EF*ED*(Sfi*IRair*(1/VF+1/PEF))}$		19.33488754
$\frac{1}{1/RRSo + 1/RRSi}$	mg/kg	18.249
C(mg/Kg;risk-based)	mg/kg	**1.82E+01**

Non-Carcinogenic effects *(Commercial/Residential Soil)*: RAGS equation 7

variable	units	Standardized Exposure Assumptions Type 1
THI, target hazard index	unitless	1
RfD_o, oral chronic reference dose	unitless	5.00E-04
RfD_i, inhalation chronic reference dose	unitless	5.71E-04
BW, body weight	kg	70
AT, averaging time	years	30
EF, exposure frequency	days/yr	350
ED, exposure duration	yr	30
Irsoil, soil ingestion rate	m3/day	114
Irair, daily inhalation rate	L/day	15
VF, soil-to-air volatization factor	m3/kg	2.44E+03
PEF, particulate emission factor	m3/kg	4.63E+09
K, water-to-air volatization factor	unitless	0.5
RRSo $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdo)*1.0E-6*IRsoil}$		3.20E+02
RRSi $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdi)*IRair*(1/VF+1/PEF)}$		6.79E+00
$\frac{1.0000}{1/RRSo + 1/RRSi}$	mg/kg	6.65E+00
C(mg/kg;risk-based)	**mg/kg**	**6.65E+00**

Carcinogenic effects *(Commercial/Residential Soil)* : RAGS equation 6

variable	units	Standardized Exposure Assumptions Type 1
TR target excess individual lifetime cancer risk	unitless	0.00001
Sfo, oral cancer slope factor	unitless	
Sfi, inhalation cancer slope factor	unitless	
BW, body weight	kg	70
AT, averaging time	years	70
EF, exposure frequency	days/yr	350
ED, exposure duration	yr	30
Ir_{soil}, soil ingestion rate	m3/day	114
Ir_{air}, daily inhalation rate	L/day	15
VF		7.84E+03
PEF, particulate emsiison factor	m3/kg	4.63E+09
K, water-to-air volatization factor	unitless	0.5
RRSo $\frac{TR*BW*AT*365}{EF*ED*(Sfo*1.0E-6*IRsoil)}$		#DIV/0!
RRSi $\frac{TR*BW*AT*365}{EF*ED*(Sfi*IRair*(1/VF+1/PEF))}$		#DIV/0!
$\frac{1}{1/RRSo + 1/RRSi}$	mg/kg	#DIV/0!
C(mg/Kg;risk-based)	mg/kg	**#DIV/0!**

Non-Carcinogenic effects *(Commercial/Residential Soil)*: RAGS equation 7

variable	units	Standardized Exposure Assumptions Type 1
THI, target hazard index	unitless	1
RfD_o, oral chronic reference dose	unitless	2.00E-01
RfD_i, inhalation chronic reference dose	unitless	2.86E-02
BW, body weight	kg	70
AT, averaging time	years	30
EF, exposure frequency	days/yr	350
ED, exposure duration	yr	30
Irsoil, soil ingestion rate	m3/day	114
Irair, daily inhalation rate	L/day	15
VF, soil-to-air volatization factor	m3/kg	7.84E+03
PEF, particulate emission factor	m3/kg	4.63E+09
K, water-to-air volatization factor	unitless	0.5
RRSo $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdo)*1.0E-6*IRsoil}$		1.28E+05
RRSi $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdi)*IRair*(1/VF+1/PEF)}$		1.09E+03
$\frac{1.0000}{1/RRSo + 1/RRSi}$	mg/kg	1.08E+03
C(mg/kg;risk-based)	**mg/kg**	**1.08E+03**

Carcinogenic effects *(Commercial/Residential Soil)* : RAGS equation 6

variable	units	Standardized Exposure Assumptions Type 1
TR target excess individual lifetime cancer risk	unitless	0.00001
Sfo, oral cancer slope facto:	unitless	7.20E-01
Sfi, inhalation cancer slope factor	unitless	1.54E-02
BW, body weight	kg	70
AT, averaging time	years	70
EF, exposure frequency	days/yr	350
ED, exposure duration	yr	30
IR_{soil}, soil ingestion rate	m3/day	114
IR_{air}, daily inhalation rate	L/day	15
VF		5.81E+02
PEF, particulate emsiison factor	m3/kg	4.63E+09
K, water-to-air volatization factor	unitless	0.5
RRSo $\frac{TR*BW*AT*365}{EF*ED*(Sfo*1.0E-6*IRsoil)}$		20.75211176
RRSi $\frac{TR*BW*AT*365}{EF*ED*(Sfi*IRair*(1/VF+1/PEF))}$		4.283950849
$\frac{1}{1/RRSo + 1/RRSi}$	mg/kg	3.551
C(mg/Kg;risk-based)	mg/kg	**3.55E+00**

Non-Carcinogenic effects *(Commercial/Residential Soil)*: RAGS equation 7

variable	units	Standardized Exposure Assumptions Type 1
THI, target hazard index	unitless	1
RfD_o, oral chronic reference dose	unitless	3.00E-03
RfD_i, inhalation chronic reference dose	unitless	2.86E-02
BW, body weight	kg	70
AT, averaging time	years	30
EF, exposure frequency	days/yr	350
ED, exposure duration	yr	30
Irsoil, soil ingestion rate	m3/day	114
Irair, daily inhalation rate	L/day	15
VF, soil-to-air volatization factor	m3/kg	5.81E+02
PEF, particulate emission factor	m3/kg	4.63E+09
K, water-to-air volatization factor	unitless	0.5
RRSo $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdo)*1.0E-6*IRsoil}$		1.92E+03
RRSi $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdi)*IRair*(1/VF+1/PEF)}$		8.08E+01
$\frac{1.0000}{1/RRSo + 1/RRSi}$	mg/kg	7.75E+01
C(mg/kg;risk-based)	**mg/kg**	**7.75E+01**

Carcinogenic effects *(Commercial/Residential Soil)*: RAGS equation 6

variable	units	Standardized Exposure Assumptions Type 1
TR target excess individual lifetime cancer risk	unitless	0.00001
Sfo, oral cancer slope factor	unitless	2.00E+00
Sfi, inhalation cancer slope factor	unitless	2.00E+00
BW, body weight	kg	70
AT, averaging time	years	70
EF, exposure frequency	days/yr	350
ED, exposure duration	yr	30
Ir_{soil}, soil ingestion rate	m3/day	114
Ir_{air}, daily inhalation rate	L/day	15
VF		
PEF, particulate emsiison factor	m3/kg	4.63E+09
K, water-to-air volatization factor	unitless	0.5
RRSo $\frac{TR*BW*AT*365}{EF*ED*(Sfo*1.0E-6*IRsoil)}$		7.470760234
RRSi $\frac{TR*BW*AT*365}{EF*ED*(Sfi*IRair*(1/VF+1/PEF))}$		2.64E+05
$\frac{1}{1/RRSo + 1/RRSi}$	mg/kg	7.471
C(mg/Kg;risk-based)	mg/kg	**7.47E+00**

Non-Carcinogenic effects *(Commercial/Residential Soil)*: RAGS equation 7

variable	units	Standardized Exposure Assumptions Type 1
THI, target hazard index	unitless	1
RfD_o, oral chronic reference dose	unitless	
RfD_i, inhalation chronic reference dose	unitless	
BW, body weight	kg	70
AT, averaging time	years	30
EF, exposure frequency	days/yr	350
ED, exposure duration	yr	30
Irsoil, soil ingestion rate	m3/day	114
Irair, daily inhalation rate	L/day	15
VF, soil-to-air volatization factor	m3/kg	
PEF, particulate emission factor	m3/kg	4.63E+09
K, water-to-air volatization factor	unitless	0.5
RRSo $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdo)*1.0E-6*IRsoil}$		#DIV/0!
RRSi $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdi)*IRair*(1/VF+1/PEF)}$		#DIV/0!
$\frac{1.0000}{1/RRSo + 1/RRSi}$	mg/kg	#DIV/0!
C(mg/kg;risk-based)	**mg/kg**	**#DIV/0!**

Carcinogenic effects *(Commercial/Residential Soil)*: RAGS equation 6

variable	units	Standardized Exposure Assumptions Type 1
TR target excess individual lifetime cancer risk	unitless	0.00001
Sfo, oral cancer slope factor	unitless	2.00E+00
Sfi, inhalation cancer slope factor	unitless	2.00E+00
BW, body weight	kg	70
AT, averaging time	years	70
EF, exposure frequency	days/yr	350
ED, exposure duration	yr	30
Ir_{soil}, soil ingestion rate	m3/day	114
Ir_{air}, daily inhalation rate	L/day	15
VF		
PEF, particulate emsiison factor	m3/kg	4.63E+09
K, water-to-air volatization factor	unitless	0.5
RRSo $\frac{TR*BW*AT*365}{EF*ED*(Sfo*1.0E-6*IRsoil)}$		7.470760234
RRSi $\frac{TR*BW*AT*365}{EF*ED*(Sfi*IRair*(1/VF+1/PEF))}$		2.64E+05
$\frac{1}{1/RRSo + 1/RRSi}$	mg/kg	7.471
C(mg/Kg;risk-based)	mg/kg	**7.47E+00**

Non-Carcinogenic effects *(Commercial/Residential Soil)*: RAGS equation 7

variable	units	Standardized Exposure Assumptions Type 1
THI, target hazard index	unitless	1
RfD_{o}, oral chronic reference dose	unitless	
RfD_{i}, inhalation chronic reference dose	unitless	
BW, body weight	kg	70
AT, averaging time	years	30
EF, exposure frequency	days/yr	350
ED, exposure duration	yr	30
Irsoil, soil ingestion rate	m3/day	114
Irair, daily inhalation rate	L/day	15
VF, soil-to-air volatization factor	m3/kg	5.34E+05
PEF, particulate emission factor	m3/kg	4.63E+09
K, water-to-air volatization factor	unitless	0.5
RRSo $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdo)*1.0E-6*IRsoil}$		#DIV/0!
RRSi $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdi)*IRair*(1/VF+1/PEF)}$		#DIV/0!
$\frac{1.0000}{1/RRSo + 1/RRSi}$	mg/kg	#DIV/0!
C(mg/kg;risk-based)	**mg/kg**	**#DIV/0!**

Carcinogenic effects *(Commercial/Residential Soil)*: RAGS equation 6

variable	units	Standardized Exposure Assumptions Type 1
TR target excess individual lifetime cancer risk	unitless	0.00001
Sfo, oral cancer slope factor	unitless	2.00E+00
Sfi, inhalation cancer slope factor	unitless	2.00E+00
BW, body weight	kg	70
AT, averaging time	years	70
EF, exposure frequency	days/yr	350
ED, exposure duration	yr	30
Ir_{soil}, soil ingestion rate	m3/day	114
Ir_{air}, daily inhalation rate	L/day	15
VF		
PEF, particulate emsiison factor	m3/kg	4.63E+09
K, water-to-air volatization factor	unitless	0.5
RRSo $\frac{TR*BW*AT*365}{EF*ED*(Sfo*1.0E-6*IRsoil)}$		7.470760234
RRSi $\frac{TR*BW*AT*365}{EF*ED*(Sfi*IRair*(1/VF+1/PEF))}$		2.64E+05
$\frac{1}{1/RRSo + 1/RRSi}$	mg/kg	7.471
C(mg/Kg;risk-based)	mg/kg	**7.47E+00**

Non-Carcinogenic effects *(Commercial/Residential Soil)*: RAGS equation 7

variable	units	Standardized Exposure Assumptions Type 1
THI, target hazard index	unitless	1
RfD_o, oral chronic reference dose	unitless	2.00E-05
RfD_i, inhalation chronic reference dose	unitless	
BW, body weight	kg	70
AT, averaging time	years	30
EF, exposure frequency	days/yr	350
ED, exposure duration	yr	30
Irsoil, soil ingestion rate	m3/day	114
Irair, daily inhalation rate	L/day	15
VF, soil-to-air volatization factor	m3/kg	
PEF, particulate emission factor	m3/kg	4.63E+09
K, water-to-air volatization factor	unitless	0.5
RRSo $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdo)*1.0E-6*IRsoil}$		1.28E+01
RRSi $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdi)*IRair*(1/VF+1/PEF)}$		#DIV/0!
$\frac{1.0000}{1/RRSo + 1/RRSi}$	mg/kg	#DIV/0!
C(mg/kg;risk-based)	**mg/kg**	**1.28E+01**

Carcinogenic effects *(Commercial/Residential Soil)*: RAGS equation 6

variable	units	Standardized Exposure Assumptions Type 1
TR target excess individual lifetime cancer risk	unitless	0.00001
Sfo, oral cancer slope factor	unitless	2.00E+00
Sfi, inhalation cancer slope factor	unitless	2.00E+00
BW, body weight	kg	70
AT, averaging time	years	70
EF, exposure frequency	days/yr	350
ED, exposure duration	yr	30
Ir_{soil}, soil ingestion rate	m3/day	114
Ir_{air}, daily inhalation rate	L/day	15
VF		
PEF, particulate emsiison factor	m3/kg	4.63E+09
K, water-to-air volatization factor	unitless	0.5
RRSo $\frac{TR*BW*AT*365}{EF*ED*(Sfo*1.0E-6*IRsoil)}$		7.470760234
RRSi $\frac{TR*BW*AT*365}{EF*ED*(Sfi*IRair*(1/VF+1/PEF))}$		2.64E+05
$\frac{1}{1/RRSo + 1/RRSi}$	mg/kg	7.471
C(mg/Kg;risk-based)	mg/kg	**7.47E+00**

Non-Carcinogenic effects *(Commercial/Residential Soil)*: RAGS equation 7

variable	units	Standardized Exposure Assumptions Type 1
THI, target hazard index	unitless	1
RfD_o, oral chronic reference dose	unitless	2.00E-05
RfD_i, inhalation chronic reference dose	unitless	
BW, body weight	kg	70
AT, averaging time	years	30
EF, exposure frequency	days/yr	350
ED, exposure duration	yr	30
Irsoil, soil ingestion rate	m3/day	114
Irair, daily inhalation rate	L/day	15
VF, soil-to-air volatization factor	m3/kg	9.03E+05
PEF, particulate emission factor	m3/kg	4.63E+09
K, water-to-air volatization factor	unitless	0.5
RRSo $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdo)*1.0E-6*IRsoil}$		1.28E+01
RRSi $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdi)*IRair*(1/VF+1/PEF)}$		#DIV/0!
$\frac{1.0000}{1/RRSo + 1/RRSi}$	mg/kg	#DIV/0!
C(mg/kg;risk-based)	**mg/kg**	**#DIV/0!**

VF (Soil-to-Air Volatization Factor)

	Units	Defaults
LS, length of side of contaminated area	(m)	45
V, wind speed (velocity) in mixing zone	(m/s)	2.25
DH, diffusion height	m	2
A, area of contamination	cm^2	2.03E+07
π pi		3.14
α	cm^2/s	0.006408589
T, exposure interval	s	7.90E+08
ρ_s	g/cm^3	2.65
OC, soil organic carbon content fraction	unitless	0.02
D_{ei}, effective diffusivity	cm^2/s	0.04597
D_{ia}, molecular diffusivity	cm^2/s	**6.50E-02**
E, total soil porosity	unitless	3.50E-01
K_{as}, soil/air partition coefficient	g soil/cm^3 air	0.79727
H', Henry's law constant	dimensionless	**7.00E-01**
K_d, soil-water partition ceofficient	cm^3/g	8.78E-01
K_{oc}, organic carbon coefficient	cm^3/g(=L/kg)	**4.39E+01**
H, Henry's law constant	atm-m^3/mol	0.0172
	VF	**1.55E+03**

VF (Soil-to-Air Volatization Factor)

	Units	Defaults
LS, length of side of contaminated area	(m)	45
V, wind speed (velocity) in mixing zone	(m/s)	2.25
DH, diffusion height	m	2
A, area of contamination	cm^2	2.03E+07
π pi		3.14
α	cm^2/s	0.00026523
T, exposure interval	s	7.90E+08
ρ_s	g/cm^3	2.65
OC, soil organic carbon content fraction	unitless	0.02
D_{ei}, effective diffusivity	cm^2/s	0.04730
D_{ia}, molecular diffusivity	cm^2/s	**6.69E-02**
E, total soil porosity	unitless	3.50E-01
K_{as}, soil/air partition coefficient	g soil/cm^3 air	0.02775
H', Henry's law constant	dimensionless	**3.37E-02**
K_d, soil-water partition ceofficient	cm^3/g	1.21E+00
K_{oc}, organic carbon coefficient	cm^3/g(=L/kg)	**6.07E+01**
H, Henry's law constant	atm-m^3/mol	0.000824
	VF	**8.81E+03**

VF (Soil-to-Air Volatization Factor)

	Units	Defaults
LS, length of side of contaminated area	(m)	45
V, wind speed (velocity) in mixing zone	(m/s)	2.25
DH, diffusion height	m	2
A, area of contamination	cm^2	2.03E+07
π pi		3.14
α	cm^2/s	0.004047004
T, exposure interval	s	7.90E+08
ρ_s	g/cm^3	2.65
OC, soil organic carbon content fraction	unitless	0.02
D_{ei}, effective diffusivity	cm^2/s	0.05912
D_{ia}, molecular diffusivity	cm^2/s	**8.36E-02**
E, total soil porosity	unitless	3.50E-01
K_{as}, soil/air partition coefficient	g soil/cm^3 air	0.36164
H', Henry's law constant	dimensionless	**2.30E-01**
K_d, soil-water partition ceofficient	cm^3/g	6.36E-01
K_{oc}, organic carbon coefficient	cm^3/g(=L/kg)	**3.18E+01**
H, Henry's law constant	atm-m^3/mol	0.00562
	VF	**2.11E+03**

VF (Soil-to-Air Volatization Factor)

	Units	Defaults
LS, length of side of contaminated area	(m)	45
V, wind speed (velocity) in mixing zone	(m/s)	2.25
DH, diffusion height	m	2
A, area of contamination	cm^2	2.03E+07
π pi		3.14
α	cm^2/s	0.015515856
T, exposure interval	s	7.90E+08
ρ_s	g/cm^3	2.65
OC, soil organic carbon content fraction	unitless	0.02
D_{ei}, effective diffusivity	cm^2/s	0.06103
D_{ia}, molecular diffusivity	cm^2/s	**8.63E-02**
E, total soil porosity	unitless	3.50E-01
K_{as}, soil/air partition coefficient	g soil/cm^3 air	1.67767
H', Henry's law constant	dimensionless	**1.07E+00**
K_d, soil-water partition ceofficient	cm^3/g	6.36E-01
K_{oc}, organic carbon coefficient	cm^3/g(=L/kg)	**3.18E+01**
H, Henry's law constant	atm-m^3/mol	0.0261
	VF	**8.64E+02**

VF (Soil-to-Air Volatization Factor)

	Units	Defaults
LS, length of side of contaminated area	(m)	45
V, wind speed (velocity) in mixing zone	(m/s)	2.25
DH, diffusion height	m	2
A, area of contamination	cm^2	2.03E+07
π pi		3.14
α	cm^2/s	0.002553915
T, exposure interval	s	7.90E+08
ρ_s	g/cm^3	2.65
OC, soil organic carbon content fraction	unitless	0.02
D_{ei}, effective diffusivity	cm^2/s	0.06223
D_{ia}, molecular diffusivity	cm^2/s	**8.80E-02**
E, total soil porosity	unitless	3.50E-01
K_{as}, soil/air partition coefficient	g soil/cm^3 air	0.21061
H', Henry's law constant	dimensionless	**1.67E-01**
K_d, soil-water partition ceofficient	cm^3/g	7.92E-01
K_{oc}, organic carbon coefficient	cm^3/g(=L/kg)	**3.96E+01**
H, Henry's law constant	atm-m^3/mol	0.00408
	VF	**2.74E+03**

Toluene

VF (Soil-to-Air Volatization Factor)

	Units	Defaults
LS, length of side of contaminated area	(m)	45
V, wind speed (velocity) in mixing zone	(m/s)	2.25
DH, diffusion height	m	2
A, area of contamination	cm^2	2.03E+07
π pi		3.14
α	cm^2/s	0.000639149
T, exposure interval	s	7.90E+08
ρ_s	g/cm^3	2.65
OC, soil organic carbon content fraction	unitless	0.02
D_{ei}, effective diffusivity	cm^2/s	0.05516
D_{ia}, molecular diffusivity	cm^2/s	**7.80E-02**
E, total soil porosity	unitless	3.50E-01
K_{as}, soil/air partition coefficient	g soil/cm^3 air	0.05769
H', Henry's law constant	dimensionless	**2.70E-01**
K_d, soil-water partition ceofficient	cm^3/g	4.68E+00
K_{oc}, organic carbon coefficient	cm^3/g(=L/kg)	**2.34E+02**
H, Henry's law constant	atm-m^3/mol	0.00664
	VF	**5.64E+03**

VF (Soil-to-Air Volatization Factor)

	Units	Defaults
LS, length of side of contaminated area	(m)	45
V, wind speed (velocity) in mixing zone	(m/s)	2.25
DH, diffusion height	m	2
A, area of contamination	cm^2	2.03E+07
π pi		3.14
α	cm^2/s	0.002565071
T, exposure interval	s	7.90E+08
ρ_s	g/cm^3	2.65
OC, soil organic carbon content fraction	unitless	0.02
D_{ei}, effective diffusivity	cm^2/s	0.03569
D_{ia}, molecular diffusivity	cm^2/s	**5.05E-02**
E, total soil porosity	unitless	3.50E-01
K_{as}, soil/air partition coefficient	g soil/cm^3 air	0.38110
H', Henry's law constant	dimensionless	**7.24E-01**
K_d, soil-water partition ceofficient	cm^3/g	1.90E+00
K_{oc}, organic carbon coefficient	cm^3/g(=L/kg)	**9.49E+01**
H, Henry's law constant	atm-m^3/mol	0.0177
	VF	**2.64E+03**

VF (Soil-to-Air Volatization Factor)

	Units	Defaults
LS, length of side of contaminated area	(m)	45
V, wind speed (velocity) in mixing zone	(m/s)	2.25
DH, diffusion height	m	2
A, area of contamination	cm^2	2.03E+07
π pi		3.14
α	cm^2/s	0.003061947
T, exposure interval	s	7.90E+08
ρ_s	g/cm^3	2.65
OC, soil organic carbon content fraction	unitless	0.02
D_{ei}, effective diffusivity	cm^2/s	0.04880
D_{ia}, molecular diffusivity	cm^2/s	**6.90E-02**
E, total soil porosity	unitless	3.50E-01
K_{as}, soil/air partition coefficient	g soil/cm^3 air	0.32949
H', Henry's law constant	dimensionless	**4.00E-01**
K_d, soil-water partition ceofficient	cm^3/g	1.21E+00
K_{oc}, organic carbon coefficient	cm^3/g(=L/kg)	**6.07E+01**
H, Henry's law constant	atm-m^3/mol	0.00985
	VF	**2.44E+03**

VF (Soil-to-Air Volatization Factor)

	Units	Defaults
LS, length of side of contaminated area	(m)	45
V, wind speed (velocity) in mixing zone	(m/s)	2.25
DH, diffusion height	m	2
A, area of contamination	cm^2	2.03E+07
π pi		3.14
α	cm^2/s	0.000334854
T, exposure interval	s	7.90E+08
ρ_s	g/cm^3	2.65
OC, soil organic carbon content fraction	unitless	0.02
D_{ei}, effective diffusivity	cm^2/s	0.05993
D_{ia}, molecular diffusivity	cm^2/s	**8.47E-02**
E, total soil porosity	unitless	3.50E-01
K_{as}, soil/air partition coefficient	g soil/cm^3 air	0.02765
H', Henry's law constant	dimensionless	**2.12E-01**
K_d, soil-water partition ceofficient	cm^3/g	7.66E+00
K_{oc}, organic carbon coefficient	cm^3/g(=L/kg)	**3.83E+02**
H, Henry's law constant	atm-m^3/mol	0.00664
	VF	**7.84E+03**

VF (Soil-to-Air Volatization Factor)

	Units	Defaults
LS, length of side of contaminated area	(m)	45
V, wind speed (velocity) in mixing zone	(m/s)	2.25
DH, diffusion height	m	2
A, area of contamination	cm^2	2.03E+07
π pi		3.14
α	cm^2/s	0.02627269
T, exposure interval	s	7.90E+08
ρ_s	g/cm^3	2.65
OC, soil organic carbon content fraction	unitless	0.02
D_{ei}, effective diffusivity	cm^2/s	0.07567
D_{ia}, molecular diffusivity	cm^2/s	**1.07E-01**
E, total soil porosity	unitless	3.50E-01
K_{as}, soil/air partition coefficient	g soil/cm^3 air	2.61751
H', Henry's law constant	dimensionless	**1.14E+00**
K_d, soil-water partition ceofficient	cm^3/g	4.34E-01
K_{oc}, organic carbon coefficient	cm^3/g(=L/kg)	**2.17E+01**
H, Henry's law constant	atm-m^3/mol	0.0278
	VF	**5.81E+02**

ATTACHMENT B

GROUNDWATER TOXICITY CALCULATIONS

Carcinogenic effects *(Water)* : RAGS equation 1

variable	units	Adult Type 4	
TR target excess individual lifetime cancer risk	unitless	0.00001	
Sfo, oral cancer slope factor	mg/kg-day		
Sfi, inhalation cancer slope factor	mg/kg-day		
BW, body weight	kg	70	
AT, averaging time	years	70	
EF, exposure frequency	days/yr	250	
ED, exposure duration	yr	25	
Ir_{air}, daily inhalation rate	m3/day	20	
Ir_{w}, daily water ingestion rate	L/day	1	
K, water to air volatization factor	unitless	0.5	
RRSo $\frac{TR*BW*AT*365}{EF*ED*(Sfo*IRw)}$		#DIV/0!	**Oral**
RRSi $\frac{TR*BW*AT*365}{EF*ED*(Sfi*K*IRair)}$		#DIV/0!	**Inhalation**
$\frac{1.0000}{1/RRSo + 1/RRSi}$	mg/L	#DIV/0!	
C(mg/L;risk-based)	**mg/L**	**#DIV/0!**	**Equations OK**

Non-carcinogenic effects *(Water)* : RAGS equation 2

variable	units	Adult Type 4	
THI, target hazard index	unitless	1	
RfD_{o}, oral chronic reference dose	unitless	2.00E+00	
RfD_{i}, inhalation chronic reference dose	unitless	1.43E+00	
BW, body weight	kg	70	
AT, averaging time	years	25	AT = ED for Non-carcinogens
EF, exposure frequency	days/yr	250	
ED, exposure duration	yr	25	
Ir_{air}, daily inhalatiaon rate	m3/day	20	
Ir_{w}, daily water ingestion rate	L/day	1	
K, water-to-air volatization factor	unitless	0.5	
RRSo $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdo*IRw)}$		204.40	**Oral**
RRSi $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdi*K*IRair)}$		14.60000	**Inhalation**
$\frac{1}{1/RRSo + 1/RRSi}$	mg/L	13.6267	
C(mg/L;risk-based)	**mg/L**	**1.363E+01**	**Equations are OK**

Carcinogenic effects *(Water)* : RAGS equation 1

1,1,2-TCA

variable	units	Adult Type 4	
TR target excess individual lifetime cancer risk	unitless	0.00001	
Sfo, oral cancer slope factor	mg/kg-day	5.70E-02	
Sfi, inhalation cancer slope factor	mg/kg-day	5.60E-02	
BW, body weight	kg	70	
AT, averaging time	years	70	
EF, exposure frequency	days/yr	250	
ED, exposure duration	yr	25	
Ir_{air}, daily inhalation rate	m3/day	20	
Ir_{w}, daily water ingestion rate	L/day	1	
K, water to air volatization factor	unitless	0.5	
RRSo $\frac{TR*BW*AT*365}{EF*ED*(Sfo*IRw)}$		0.05020	**Oral**
RRSi $\frac{TR*BW*AT*365}{EF*ED*(Sfi*K*IRair)}$		5.11E-03	**Inhalation**
$\frac{1.0000}{1/RRSo + 1/RRSi}$	mg/L	4.64E-03	
C(mg/L;risk-based)	**mg/L**	**4.64E-03**	**Equations OK**

Non-carcinogenic effects (*Water*) : RAGS equation 2

variable	units	Adult Type 4	
THI, target hazard index	unitless	1	
RfD_{o}, oral chronic reference dose	unitless	4.00E-03	
RfD_{i}, inhalation chronic reference dose	unitless	5.71E-05	
BW, body weight	kg	70	
AT, averaging time	years	25	AT = ED for Non-carcinogens
EF, exposure frequency	days/yr	250	
ED, exposure duration	yr	25	
Ir_{air}, daily inhalatiaon rate	m3/day	20	
Ir_{w}, daily water ingestion rate	L/day	1	
K, water-to-air volatization factor	unitless	0.5	
RRSo $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdo*IRw)}$		0.41	**Oral**
RRSi $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdi*K*IRair)}$		0.00058	**Inhalation**
$\frac{1}{1/RRSo + 1/RRSi}$	mg/L	0.0006	
C(mg/L;risk-based)	**mg/L**	**5.832E-04**	**Equations are OK**

Carcinogenic effects *(Water)*: RAGS equation 1

variable	units	Adult Type 4	
TR target excess individual lifetime cancer risk	unitless	0.00001	
Sfo, oral cancer slope factor	mg/kg-day	5.70E-03	
Sfi, inhalation cancer slope factor	mg/kg-day	5.60E-03	
BW, body weight	kg	70	
AT, averaging time	years	70	
EF, exposure frequency	days/yr	250	
ED, exposure duration	yr	25	
Ir_{air}, daily inhalation rate	m3/day	20	
Ir_{w}, daily water ingestion rate	L/day	1	
K, water to air volatization factor	unitless	0.5	
RRSo $\frac{TR*BW*AT*365}{EF*ED*(Sfo*IRw)}$		0.50204	**Oral**
RRSi $\frac{TR*BW*AT*365}{EF*ED*(Sfi*K*IRair)}$		5.11E-02	**Inhalation**
$\frac{1.0000}{1/RRSo + 1/RRSi}$	mg/L	4.64E-02	
C(mg/L;risk-based)	**mg/L**	**4.64E-02**	**Equations OK**

Non-carcinogenic effects *(Water)*: RAGS equation 2

variable	units	Adult Type 4	
THI, target hazard index	unitless	1	
RfD_{o}, oral chronic reference dose	unitless	2.00E-01	
RfD_{i}, inhalation chronic reference dose	unitless		
BW, body weight	kg	70	
AT, averaging time	years	25	AT = ED for Non-carcinogens
EF, exposure frequency	days/yr	250	
ED, exposure duration	yr	25	
Ir_{air}, daily inhalatiaon rate	m3/day	20	
Ir_{w}, daily water ingestion rate	L/day	1	
K, water-to-air volatization factor	unitless	0.5	
RRSo $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdo*IRw)}$		20.44	**Oral**
RRSi $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdi*K*IRair)}$		#DIV/0!	**Inhalation**
$\frac{1}{1/RRSo + 1/RRSi}$	mg/L	#DIV/0!	
C(mg/L;risk-based)	**mg/L**	**2.044E+01**	**Equations are OK**

Carcinogenic effects *(Water)* : RAGS equation 1

variable	units	Adult Type 4	
TR target excess individual lifetime cancer risk	unitless	0.00001	
Sfo, oral cancer slope factor	mg/kg-day		
Sfi, inhalation cancer slope factor	mg/kg-day		
BW, body weight	kg	70	
AT, averaging time	years	70	
EF, exposure frequency	days/yr	250	
ED, exposure duration	yr	25	
Ir_{air}, daily inhalation rate	m3/day	20	
Ir_w, daily water ingestion rate	L/day	1	
K, water to air volatization factor	unitless	0.5	
RRSo $\frac{TR*BW*AT*365}{EF*ED*(Sfo*IRw)}$		#DIV/0!	**Oral**
RRSi $\frac{TR*BW*AT*365}{EF*ED*(Sfi*K*IRair)}$		#DIV/0!	**Inhalation**
$\frac{1.0000}{1/RRSo + 1/RRSi}$	mg/L	#DIV/0!	
C(mg/L;risk-based)	**mg/L**	**#DIV/0!**	**Equations OK**

Non-carcinogenic effects *(Water)* : RAGS equation 2

variable	units	Adult Type 4	
THI, target hazard index	unitless	1	
RfD_o, oral chronic reference dose	unitless	5.00E-02	
RfD_i, inhalation chronic reference dose	unitless	5.71E-02	
BW, body weight	kg	70	
AT, averaging time	years	25	AT = ED for Non-carcinogens
EF, exposure frequency	days/yr	250	
ED, exposure duration	yr	25	
Ir_{air}, daily inhalatiaon rate	m3/day	20	
Ir_w, daily water ingestion rate	L/day	1	
K, water-to-air volatization factor	unitless	0.5	
RRSo $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdo*IRw)}$		5.11	**Oral**
RRSi $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdi*K*IRair)}$		0.58400	**Inhalation**
$\frac{1}{1/RRSo + 1/RRSi}$	mg/L	0.5241	
C(mg/L;risk-based)	**mg/L**	**5.241E-01**	**Equations are OK**

Carcinogenic effects *(Water)*: RAGS equation 1

variable	units	Adult Type 4	
TR target excess individual lifetime cancer risk	unitless	0.00001	
Sfo, oral cancer slope factor	mg/kg-day		
Sfi, inhalation cancer slope factor	mg/kg-day		
BW, body weight	kg	70	
AT, averaging time	years	70	
EF, exposure frequency	days/yr	250	
ED, exposure duration	yr	25	
Ir_{air}, daily inhalation rate	m3/day	20	
Ir_w, daily water ingestion rate	L/day	1	
K, water to air volatization factor	unitless	0.5	
RRSo $\frac{TR*BW*AT*365}{EF*ED*(Sfo*IRw)}$		#DIV/0!	**Oral**
RRSi $\frac{TR*BW*AT*365}{EF*ED*(Sfi*K*IRair)}$		#DIV/0!	**Inhalation**
$\frac{1.0000}{1/RRSo + 1/RRSi}$	mg/L	#DIV/0!	
C(mg/L;risk-based)	**mg/L**	**#DIV/0!**	**Equations OK**

Non-carcinogenic effects *(Water)*: RAGS equation 2

variable	units	Adult Type 4	
THI, target hazard index	unitless	1	
RfD_o, oral chronic reference dose	unitless	9.00E-01	
RfD_i, inhalation chronic reference dose	unitless	8.86E+00	
BW, body weight	kg	70	
AT, averaging time	years	25	AT = ED for Non-carcinogens
EF, exposure frequency	days/yr	250	
ED, exposure duration	yr	25	
Ir_{air}, daily inhalatiaon rate	m3/day	20	
Ir_w, daily water ingestion rate	L/day	1	
K, water-to-air volatization factor	unitless	0.5	
RRSo $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdo*IRw)}$		91.98	**Oral**
RRSi $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdi*K*IRair)}$		90.52000	**Inhalation**
$\frac{1}{1/RRSo + 1/RRSi}$	mg/L	45.6221	
C(mg/L;risk-based)	**mg/L**	**4.562E+01**	**Equations are OK**

Carcinogenic effects *(Water)* : RAGS equation 1

variable	units	Adult Type 4	
TR target excess individual lifetime cancer risk	unitless	0.00001	
Sfo, oral cancer slope factor	mg/kg-day	7.00E-02	
Sfi, inhalation cancer slope factor	mg/kg-day	2.10E-02	
BW, body weight	kg	70	
AT, averaging time	years	70	
EF, exposure frequency	days/yr	250	
ED, exposure duration	yr	25	
Ir_{air}, daily inhalation rate	m3/day	20	
Ir_{w}, daily water ingestion rate	L/day	1	
K, water to air volatization factor	unitless	0.5	
RRSo $\frac{TR*BW*AT*365}{EF*ED*(Sfo*IRw)}$		0.04088	**Oral**
RRSi $\frac{TR*BW*AT*365}{EF*ED*(Sfi*K*IRair)}$		1.36E-02	**Inhalation**
$\frac{1.0000}{1/RRSo + 1/RRSi}$	mg/L	1.02E-02	
C(mg/L;risk-based)	**mg/L**	**1.02E-02**	**Equations OK**

Non-carcinogenic effects *(Water)* : RAGS equation 2

variable	units	Adult Type 4	
THI, target hazard index	unitless	1	
RfD_{o}, oral chronic reference dose	unitless	4.00E-03	
RfD_{i}, inhalation chronic reference dose	unitless	2.86E-02	
BW, body weight	kg	70	
AT, averaging time	years	25	AT = ED for Non-carcinogens
EF, exposure frequency	days/yr	250	
ED, exposure duration	yr	25	
Ir_{air}, daily inhalatiaon rate	m3/day	20	
Ir_{w}, daily water ingestion rate	L/day	1	
K, water-to-air volatization factor	unitless	0.5	
RRSo $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdo*IRw)}$		0.41	**Oral**
RRSi $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdi*K*IRair)}$		0.29200	**Inhalation**
$\frac{1}{1/RRSo + 1/RRSi}$	mg/L	0.1703	
C(mg/L;risk-based)	**mg/L**	**1.703E-01**	**Equations are OK**

Carcinogenic effects *(Water)* : RAGS equation 1

variable	units	Adult Type 4	
TR target excess individual lifetime cancer risk	unitless	0.00001	
Sfo, oral cancer slope factor	mg/kg-day	3.10E-02	
Sfi, inhalation cancer slope factor	mg/kg-day	8.05E-02	
BW, body weight	kg	70	
AT, averaging time	years	70	
EF, exposure frequency	days/yr	250	
ED, exposure duration	yr	25	
Ir_{air}, daily inhalation rate	m3/day	20	
Ir_{w}, daily water ingestion rate	L/day	1	
K, water to air volatization factor	unitless	0.5	
RRSo $\frac{TR*BW*AT*365}{EF*ED*(Sfo*IRw)}$		0.09231	**Oral**
RRSi $\frac{TR*BW*AT*365}{EF*ED*(Sfi*K*IRair)}$		3.55E-03	**Inhalation**
$\frac{1.0000}{1/RRSo + 1/RRSi}$	mg/L	3.42E-03	
C(mg/L;risk-based)	**mg/L**	**3.42E-03**	**Equations OK**

Non-carcinogenic effects *(Water)* : RAGS equation 2

variable	units	Adult Type 4	
THI, target hazard index	unitless	1	
RfD_{o}, oral chronic reference dose	unitless	1.00E-02	
RfD_{i}, inhalation chronic reference dose	unitless	2.80E-02	
BW, body weight	kg	70	
AT, averaging time	years	25	AT = ED for Non-carcinogens
EF, exposure frequency	days/yr	250	
ED, exposure duration	yr	25	
Ir_{air}, daily inhalatiaon rate	m3/day	20	
Ir_{w}, daily water ingestion rate	L/day	1	
K, water-to-air volatization factor	unitless	0.5	
RRSo $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdo*IRw)}$		1.02	**Oral**
RRSi $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdi*K*IRair)}$		0.28616	**Inhalation**
$\frac{1}{1/RRSo + 1/RRSi}$	mg/L	0.2236	
C(mg/L;risk-based)	**mg/L**	**2.236E-01**	**Equations are OK**

Carcinogenic effects *(Water)* : RAGS equation 1

variable	units	Adult Type 4	
TR target excess individual lifetime cancer risk	unitless	0.00001	
Sfo, oral cancer slope factor	mg/kg-day		
Sfi, inhalation cancer slope factor	mg/kg-day		
BW, body weight	kg	70	
AT, averaging time	years	70	
EF, exposure frequency	days/yr	250	
ED, exposure duration	yr	25	
Ir_{air}, daily inhalation rate	m3/day	20	
Ir_{w}, daily water ingestion rate	L/day	1	
K, water to air volatization factor	unitless	0.5	
RRSo $\frac{TR*BW*AT*365}{EF*ED*(Sfo*IRw)}$		#DIV/0!	**Oral**
RRSi $\frac{TR*BW*AT*365}{EF*ED*(Sfi*K*IRair)}$		#DIV/0!	**Inhalation**
$\frac{1.0000}{1/RRSo + 1/RRSi}$	mg/L	#DIV/0!	
C(mg/L;risk-based)	**mg/L**	**#DIV/0!**	**Equations OK**

Non-carcinogenic effects *(Water)* : RAGS equation 2

variable	units	Adult Type 4	
THI, target hazard index	unitless	1	
RfD_{o}, oral chronic reference dose	unitless		
RfD_{i}, inhalation chronic reference dose	unitless	2.86E+00	
BW, body weight	kg	70	
AT, averaging time	years	25	AT = ED for Non-carcinogens
EF, exposure frequency	days/yr	250	
ED, exposure duration	yr	25	
Ir_{air}, daily inhalatiaon rate	m3/day	20	
Ir_{w}, daily water ingestion rate	L/day	1	
K, water-to-air volatization factor	unitless	0.5	
RRSo $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdo*IRw)}$		#DIV/0!	**Oral**
RRSi $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdi*K*IRair)}$		29.20000	**Inhalation**
$\frac{1}{1/RRSo + 1/RRSi}$	mg/L	#DIV/0!	
C(mg/L;risk-based)	**mg/L**	**2.920E+01**	**Equations are OK**

Carcinogenic effects *(Water)* : RAGS equation 1

variable	units	Adult Type 4	
TR target excess individual lifetime cancer risk	unitless	0.00001	
Sfo, oral cancer slope factor	mg/kg-day		
Sfi, inhalation cancer slope factor	mg/kg-day		
BW, body weight	kg	70	
AT, averaging time	years	70	
EF, exposure frequency	days/yr	250	
ED, exposure duration	yr	25	
Ir_{air}, daily inhalation rate	m3/day	20	
Ir_w, daily water ingestion rate	L/day	1	
K, water to air volatization factor	unitless	0.5	
RRSo $\frac{TR*BW*AT*365}{EF*ED*(Sfo*IRw)}$		#DIV/0!	**Oral**
RRSi $\frac{TR*BW*AT*365}{EF*ED*(Sfi*K*IRair)}$		#DIV/0!	**Inhalation**
$\frac{1.0000}{1/RRSo + 1/RRSi}$	mg/L	#DIV/0!	
C(mg/L;risk-based)	**mg/L**	**#DIV/0!**	**Equations OK**

Non-carcinogenic effects *(Water)* : RAGS equation 2

variable	units	Adult Type 4	
THI, target hazard index	unitless	1	
RfD_o, oral chronic reference dose	unitless	2.00E-03	
RfD_i, inhalation chronic reference dose	unitless		
BW, body weight	kg	70	
AT, averaging time	years	25	AT = ED for Non-carcinogens
EF, exposure frequency	days/yr	250	
ED, exposure duration	yr	25	
Ir_{air}, daily inhalatiaon rate	m3/day	20	
Ir_w, daily water ingestion rate	L/day	1	
K, water-to-air volatization factor	unitless	0.5	
RRSo $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdo*IRw)}$		0.20	**Oral**
RRSi $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdi*K*IRair)}$		#DIV/0!	**Inhalation**
$\frac{1}{1/RRSo + 1/RRSi}$	mg/L	#DIV/0!	
C(mg/L;risk-based)	**mg/L**	**2.044E-01**	**Equations are OK**

Carcinogenic effects *(Water)*: RAGS equation 1

variable	units	Adult Type 4	
TR target excess individual lifetime cancer risk	unitless	0.00001	
Sfo, oral cancer slope factor	mg/kg-day	1.80E-03	
Sfi, inhalation cancer slope factor	mg/kg-day	9.10E-04	
BW, body weight	kg	70	
AT, averaging time	years	70	
EF, exposure frequency	days/yr	250	
ED, exposure duration	yr	25	
Ir_{air}, daily inhalation rate	m3/day	20	
Ir_{w}, daily water ingestion rate	L/day	1	
K, water to air volatization factor	unitless	0.5	
RRSo $\frac{TR*BW*AT*365}{EF*ED*(Sfo*IRw)}$		1.58978	**Oral**
RRSi $\frac{TR*BW*AT*365}{EF*ED*(Sfi*K*IRair)}$		3.14E-01	**Inhalation**
$\frac{1.0000}{1/RRSo + 1/RRSi}$	mg/L	2.63E-01	
C(mg/L;risk-based)	**mg/L**	**2.63E-01**	**Equations OK**

Non-carcinogenic effects *(Water)*: RAGS equation 2

variable	units	Adult Type 4	
THI, target hazard index	unitless	1	
RfD_{o}, oral chronic reference dose	unitless		
RfD_{i}, inhalation chronic reference dose	unitless	8.57E-01	
BW, body weight	kg	70	
AT, averaging time	years	25	AT = ED for Non-carcinogens
EF, exposure frequency	days/yr	250	
ED, exposure duration	yr	25	
Ir_{air}, daily inhalatiaon rate	m3/day	20	
Ir_{w}, daily water ingestion rate	L/day	1	
K, water-to-air volatization factor	unitless	0.5	
RRSo $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdo*IRw)}$		#DIV/0!	**Oral**
RRSi $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdi*K*IRair)}$		8.76000	**Inhalation**
$\frac{1}{1/RRSo + 1/RRSi}$	mg/L	#DIV/0!	
C(mg/L;risk-based)	**mg/L**	**8.760E+00**	**Equations are OK**

Carcinogenic effects *(Water)*: RAGS equation 1

variable	units	Adult Type 4	
TR target excess individual lifetime cancer risk	unitless	0.00001	
Sfo, oral cancer slope factor	mg/kg-day		
Sfi, inhalation cancer slope factor	mg/kg-day		
BW, body weight	kg	70	
AT, averaging time	years	70	
EF, exposure frequency	days/yr	250	
ED, exposure duration	yr	25	
Ir_{air}, daily inhalation rate	m3/day	20	
Ir_w, daily water ingestion rate	L/day	1	
K, water to air volatization factor	unitless	0.5	
RRSo $\frac{TR*BW*AT*365}{EF*ED*(Sfo*IRw)}$		#DIV/0!	**Oral**
RRSi $\frac{TR*BW*AT*365}{EF*ED*(Sfi*K*IRair)}$		#DIV/0!	**Inhalation**
$\frac{1.0000}{1/RRSo + 1/RRSi}$	mg/L	#DIV/0!	
C(mg/L;risk-based)	**mg/L**	**#DIV/0!**	**Equations OK**

Non-carcinogenic effects *(Water)*: RAGS equation 2

variable	units	Adult Type 4	
THI, target hazard index	unitless	1	
RfD_o, oral chronic reference dose	unitless	8.00E-02	
RfD_i, inhalation chronic reference dose	unitless	1.43E+00	
BW, body weight	kg	70	
AT, averaging time	years	25	AT = ED for Non-carcinogens
EF, exposure frequency	days/yr	250	
ED, exposure duration	yr	25	
Ir_{air}, daily inhalatiaon rate	m3/day	20	
Ir_w, daily water ingestion rate	L/day	1	
K, water-to-air volatization factor	unitless	0.5	
RRSo $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdo*IRw)}$		8.18	**Oral**
RRSi $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdi*K*IRair)}$		14.60000	**Inhalation**
$\frac{1}{1/RRSo + 1/RRSi}$	mg/L	5.2410	
C(mg/L;risk-based)	**mg/L**	**5.241E+00**	**Equations are OK**

Carcinogenic effects *(Water)*: RAGS equation 1

variable	units	Adult Type 4	
TR target excess individual lifetime cancer risk	unitless	0.00001	
Sfo, oral cancer slope factor	mg/kg-day		
Sfi, inhalation cancer slope factor	mg/kg-day		
BW, body weight	kg	70	
AT, averaging time	years	70	
EF, exposure frequency	days/yr	250	
ED, exposure duration	yr	25	
Ir_{air}, daily inhalation rate	m3/day	20	
Ir_{w}, daily water ingestion rate	L/day	1	
K, water to air volatization factor	unitless	0.5	
RRSo $\frac{TR*BW*AT*365}{EF*ED*(Sfo*IRw)}$		#DIV/0!	**Oral**
RRSi $\frac{TR*BW*AT*365}{EF*ED*(Sfi*K*IRair)}$		#DIV/0!	**Inhalation**
$\frac{1.0000}{1/RRSo + 1/RRSi}$	mg/L	#DIV/0!	
C(mg/L;risk-based)	**mg/L**	**#DIV/0!**	**Equations OK**

Non-carcinogenic effects *(Water)*: RAGS equation 2

variable	units	Adult Type 4	
THI, target hazard index	unitless	1	
RfD_{o}, oral chronic reference dose	unitless	2.00E-02	
RfD_{i}, inhalation chronic reference dose	unitless	0.00E+00	
BW, body weight	kg	70	
AT, averaging time	years	25	AT = ED for Non-carcinogens
EF, exposure frequency	days/yr	250	
ED, exposure duration	yr	25	
Ir_{air}, daily inhalatiaon rate	m3/day	20	
Ir_{w}, daily water ingestion rate	L/day	1	
K, water-to-air volatization factor	unitless	0.5	
RRSo $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdo*IRw)}$		2.04	**Oral**
RRSi $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdi*K*IRair)}$		#DIV/0!	**Inhalation**
$\frac{1}{1/RRSo + 1/RRSi}$	mg/L	#DIV/0!	
C(mg/L;risk-based)	**mg/L**	**2.044E+00**	**Equations are OK**

Carcinogenic effects *(Water)*: RAGS equation 1

variable	units	Adult Type 4
TR target excess individual lifetime cancer risk	unitless	0.00001
Sfo, oral cancer slope factor	mg/kg-day	2.10E-03
Sfi, inhalation cancer slope factor	mg/kg-day	9.10E-04
BW, body weight	kg	70
AT, averaging time	years	70
EF, exposure frequency	days/yr	250
ED, exposure duration	yr	25
Ir_{air}, daily inhalation rate	m3/day	20
Ir_{w}, daily water ingestion rate	L/day	1
K, water to air volatization factor	unitless	0.5
RRSo $\frac{TR*BW*AT*365}{EF*ED*(Sfo*IRw)}$		1.36267
RRSi $\frac{TR*BW*AT*365}{EF*ED*(Sfi*K*IRair)}$		3.14E-01
$\frac{1.0000}{1/RRSo + 1/RRSi}$	mg/L	2.56E-01
C(mg/L;risk-based)	**mg/L**	**2.56E-01**

Non-carcinogenic effects *(Water)*: RAGS equation 2

variable	units	Adult Type 4
THI, target hazard index	unitless	1
RfD_{o}, oral chronic reference dose	unitless	6.00E-03
RfD_{i}, inhalation chronic reference dose	unitless	1.14E-02
BW, body weight	kg	70
AT, averaging time	years	25
EF, exposure frequency	days/yr	250
ED, exposure duration	yr	25
Ir_{air}, daily inhalatiaon rate	m3/day	20
Ir_{w}, daily water ingestion rate	L/day	1
K, water-to-air volatization factor	unitless	0.5
RRSo $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdo*IRw)}$		0.61
RRSi $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdi*K*IRair)}$		0.11680
$\frac{1}{1/RRSo + 1/RRSi}$	mg/L	0.0981
C(mg/L;risk-based)	**mg/L**	**9.811E-02**

Carcinogenic effects *(Water)* : RAGS equation 1

variable	units	Adult Type 4	
TR target excess individual lifetime cancer risk	unitless	0.00001	
Sfo, oral cancer slope factor	mg/kg-day	4.60E-02	
Sfi, inhalation cancer slope factor	mg/kg-day	1.44E-02	
BW, body weight	kg	70	
AT, averaging time	years	70	
EF, exposure frequency	days/yr	250	
ED, exposure duration	yr	25	
Ir_{air}, daily inhalation rate	m3/day	20	
Ir_w, daily water ingestion rate	L/day	1	
K, water to air volatization factor	unitless	0.5	
RRSo $\frac{TR*BW*AT*365}{EF*ED*(Sfo*IRw)}$		0.06221	**Oral**
RRSi $\frac{TR*BW*AT*365}{EF*ED*(Sfi*K*IRair)}$		1.99E-02	**Inhalation**
$\frac{1.0000}{1/RRSo + 1/RRSi}$	mg/L	1.51E-02	
C(mg/L;risk-based)	**mg/L**	**1.51E-02**	**Equations OK**

Non-carcinogenic effects (*Water*) : RAGS equation 2

variable	units	Adult Type 4	
THI, target hazard index	unitless	1	
RfD_o, oral chronic reference dose	unitless	5.00E-04	
RfD_i, inhalation chronic reference dose	unitless	5.71E-04	
BW, body weight	kg	70	
AT, averaging time	years	25	AT = ED for Non-carcinogens
EF, exposure frequency	days/yr	250	
ED, exposure duration	yr	25	
Ir_{air}, daily inhalatiaon rate	m3/day	20	
Ir_w, daily water ingestion rate	L/day	1	
K, water-to-air volatization factor	unitless	0.5	
RRSo $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdo*IRw)}$		0.05	**Oral**
RRSi $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdi*K*IRair)}$		0.00584	**Inhalation**
$\frac{1}{1/RRSo + 1/RRSi}$	mg/L	0.0052	
C(mg/L;risk-based)	**mg/L**	**5.241E-03**	**Equations are OK**

Carcinogenic effects *(Water)* : RAGS equation 1

variable	units	Adult Type 4	
TR target excess individual lifetime cancer risk	unitless	0.00001	
Sfo, oral cancer slope factor	mg/kg-day	7.20E-01	
Sfi, inhalation cancer slope factor	mg/kg-day	1.54E-02	
BW, body weight	kg	70	
AT, averaging time	years	70	
EF, exposure frequency	days/yr	250	
ED, exposure duration	yr	25	
Ir_{air}, daily inhalation rate	m3/day	20	
Ir_{w}, daily water ingestion rate	L/day	1	
K, water to air volatization factor	unitless	0.5	
RRSo $\frac{TR*BW*AT*365}{EF*ED*(Sfo*IRw)}$		0.00397	**Oral**
RRSi $\frac{TR*BW*AT*365}{EF*ED*(Sfi*K*IRair)}$		1.86E-02	**Inhalation**
$\frac{1.0000}{1/RRSo + 1/RRSi}$	mg/L	3.27E-03	
C(mg/L;risk-based)	**mg/L**	**3.27E-03**	**Equations OK**

Non-carcinogenic effects *(Water)* : RAGS equation 2

variable	units	Adult Type 4	
THI, target hazard index	unitless	1	
RfD_{o}, oral chronic reference dose	unitless	3.00E-03	
RfD_{i}, inhalation chronic reference dose	unitless	2.86E-02	
BW, body weight	kg	70	
AT, averaging time	years	25	AT = ED for Non-carcinogens
EF, exposure frequency	days/yr	250	
ED, exposure duration	yr	25	
Ir_{air}, daily inhalatiaon rate	m3/day	20	
Ir_{w}, daily water ingestion rate	L/day	1	
K, water-to-air volatization factor	unitless	0.5	
RRSo $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdo*IRw)}$		0.31	**Oral**
RRSi $\frac{THI*BW*AT*365}{EF*ED*(1/Rfdi*K*IRair)}$		0.29200	**Inhalation**
$\frac{1}{1/RRSo + 1/RRSi}$	mg/L	0.1496	
C(mg/L;risk-based)	**mg/L**	**1.496E-01**	**Equations are OK**