LETTER OF TRANSMITTAL



521 Clemson Rd. Columbia, SC 29229 803-741-9000 / 803-741-9900 fax

ГО	Mr. Jonathan McInnis					
	SCDHEC		DATE	JOB NO.		
	Bureau of Land and Waste Management UST Program		January 3, 2014			
	2600 Bull St.		RE: Soil Gas Assessment Report			
	Columbia, SC 29201	_	USC Football Pra	ctice Facilities		

WE ARE SENDING YOU	X Attached	🗆 Under separate cover via	the following items

COPIES	DATE	NO.	DESCRIPTION
1	12/30/13		Report of Soil Gas Assessment (CD)

THESE ARE TRANSMITTED as checked below:

- □ For approval
- □ For your use
- Approved as submitted Approved as noted
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- □ As requested For review and comment
- □ FOR BIDS DUE ______ 20___

- □ Resubmit ___ copies for approval
- □ Submit _____ copies for distribution
- □ Return corrected prints

REMARKS:

Jonathan,

Attached is an unsolicited report of soil gas sampling conducted at the former State Farmer's Market along Bluff Rd. conducted for the University of South Carolina. Feel free to call me if you have any questions regarding this information.

Thank You,

COPY TO:

SIGNED: Mike Hudgins

If enclosures are not as noted, kindly notify us at once.

Report of Soil Gas Assessment

USC FOOTBALL PRACTICE FACILITIES NATIONAL GUARD ROAD, COLUMBIA, SC



December 30, 2013 Terracon Project No. 73137036

Prepared For: University of South Carolina Campus Planning and Construction Columbia, SC

> Prepared by: Terracon Consultants, Inc. Columbia, South Carolina



lerracon

December 30, 2013

University of South Carolina Campus Planning and Construction 743 Greene Street Columbia, SC, 29208 Attn: Ms. Ann Derrick

Telephone: (803) 777-5811 E-mail: aderrick@fmc.sc.edu

Re: Report of Soil Gas Assessment State Project No. H27-6096 USC Football Practice Facilities Columbia, South Carolina Terracon Project No. 73137036

Dear Ms. Derrick:

Terracon is pleased to submit this Report of Soil Gas Assessment for the above referenced site. This investigation was performed in accordance with Terracon's Proposal number P73130327 dated October 31, 2013.

We appreciate the opportunity to perform environmental services for the University of South Carolina. Please contact either of the undersigned at (803) 741-9000 if you have questions regarding the information provided in the report.

Sincerely,

Prepared by:

P. Michael Hudgins, P.G. Senior Hydrogeologist SC Registration No. 1137 Reviewed by:

Charles R. Clymer, Jr., P.G Senior Principal SC Registration No. 236



Terracon Consultants, Inc. 521 Clemson Road Columbia, South Carolina 29229 P (803) 741 9000 F (803) 741 9900 terracon.com

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Terracon

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REPORT OF SOIL GAS ASSESSMENT

USC FOOTBALL PRACTICE FACILITIES 1001 BLUFF ROAD COLUMBIA, SOUTH CAROLINA

Terracon Project No. 73137065 December 30, 2013

1.0 INTRODUCTION

1.1 Site Description

The property is approximately 50 acres of land located between Stadium Road and National Guard Road, in Columbia, South Carolina. At the time of the assessment, the site was improved with grass and asphalt parking for a tailgate facility, owned and operated by the University of South Carolina (USC). Storm drains are present throughout the site. The site was previously operated as the Columbia State Farmers Market since 1952. The site is currently being developed as indoor and outdoor football practice facilities for USC. A topographic map is included as Figure 1, and a site plan is included as Figure 2 of Appendix A.

In July 2008, Terracon conducted a Phase I Environmental Site Assessment (ESA – Report No. 73087727 dated July 15, 2008), which identified recognized environmental conditions (RECs) associated with the site, including a former unpermitted landfill located along the west adjacent property boundary. In August 2008, Terracon conducted a Limited Site Investigation (LSI) at the site while in use as the State Farmer's Market (Terracon Project No. 73087727B, dated October 31, 2008). The objective of the LSI was to evaluate the soils and groundwater conditions as a result of potential releases from historic site activities and adjacent land use. Methane concentrations were detected at potentially combustible levels (> 5% by volume) in the subsurface in temporary gas screening points and monitoring wells at the southwestern portion of the site. The source of the methane was suspected to be the former Stadium Road Dump, an abandoned, unpermitted landfill located at the western boundary of the site. The extent of methane was not delineated as part of the LSI.

Aerial photographs of the site were reviewed to evaluate the former site use. The 1955 aerial photo shows an apparent depression adjacent to the Farmer's Market. Further, an unpublished map showing a hatched area, labeled as 'Columbia Landfill Boundary' was reviewed with respect to the proposed development. The inspection of the above historical items indicate the proposed practice fields are located in the area of the depression and mapped landfill, as shown on Figure 2. Copies of these documents are included in Appendix E.





Methane is produced in landfills as a result of decomposing organic matter. If a low permeability layer (confining unit) is present above the waste, methane can build up to combustible levels below this layer. A grey clay layer was encountered during installation of LSI wells TW-8, TW-10, and TW-11 at depths ranging from 6 to 13 feet. Elevated methane levels were found below this low permeability unit in wells TW-8 and TW-11; however, these wells were screened above and below the confining unit. The data indicated that the methane identified at the site has the potential to accumulate below the observed low permeability unit

The objective of this Soil Gas Assessment was to evaluate the subsurface soil gas conditions in the proposed areas of redevelopment. The scope of work was proposed to:

- determine the extent of the low permeability soils identified during the LSI;
- sample soil gas for the presence of methane and other landfill gases both above and below the low permeability clay unit to evaluate the potential for these soils to limit gas flow to the surface;
- conduct short-term monitoring to evaluate the effects of venting during varying atmospheric conditions. This data can used to develop a monitoring protocol for the proposed facilities.

Terracon's LSI was performed under Terracon's Indefinite Delivery Contract (IDC) with the USC (P.O. # H-276096) and in accordance with Terracon's proposal 73130327 dated October 31, 2013.

Terracon also completed nine geotechnical borings (SB-1 through SB-9) as part of a separate IDC work scope (Terracon Proposal No. 73130308) to design the foundations for the facility observation towers and light supports. These borings were converted to temporary gas monitoring wells based on their distribution across the project and were used as monitoring points for this assessment.

1.2 Scope of Work

The following scope of work was approved by USC.

Soil Gas Sampling

 Install 10 soil gas vapor point pairs in the areas of the proposed practice fields. Evaluate the soil gas conditions and lithology for the potential for landfill gases to exist in the shallow (< 5 ft.) and deep (> 10 ft.) soils beneath the proposed facility. The deep points were targeted for construction above the water table and potentially



beneath low permeability soils (clay) previously identified at depths ranging from 6 to 12 feet as the site;

- Collect field methane readings in the gas vapor points and existing storm drain piping with a Landfill Gas Meter;
- Collect soil gas samples for laboratory analysis for Fixed Gases per EPA Method 3 and TO-15 Sulfur Series. Collect samples from four existing soil gas vapor points, selected based on the methane readings collected after installation, and one ambient air QC sample collected at the surface at VP-2;
- Abandon the soil vapor points and restore the surface to the surrounding conditions.

Short-Term Methane Monitoring of 9 Test Wells

- Convert 9 geotechnical borings (at light poles and filming tower borings) to test wells to allow for venting of methane and collection of methane readings;
- Monitor methane in the wells (SB-1 through SB-9) for a minimum of four sample events using a landfill gas meter. The first event was conducted within 24 hours after well installation. The remaining three events were conducted approximately one week apart for three consecutive weeks. Alternate capping and venting of the wells was conducted to ensure the vent wells were sealed during facility events;
- Abandon the test wells prior to start of construction. The wells will be abandoned in accordance with SCDHEC guidelines by a SC licensed well driller.

1.3 Standard of Care

Terracon's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time period. Terracon makes no warranties, either express or implied, regarding the findings, conclusions or recommendations. Please note that Terracon does not warrant the work of laboratories, regulatory agencies or other third parties supplying information used in the preparation of the report. These LSI services were performed in accordance with the scope of work agreed with you, our client, as reflected in our proposal and were not restricted by ASTM E1903-97.

1.4 Additional Scope Limitations



Findings, conclusions and recommendations resulting from these services are based upon information derived from the on-site activities and other services performed under this scope of work; such information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, nondetectable or not present during these services, and we cannot represent that the site contains no hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those identified during this LSI. Subsurface conditions may vary from those encountered at specific borings or wells or during other surveys, tests, assessments, investigations or exploratory services; the data, interpretations, findings, and our recommendations are based solely upon data obtained at the time and within the scope of these services.

1.5 Reliance

This report has been prepared for the exclusive use of the University of South Carolina, and any authorization for use or reliance by any other party (except a governmental entity having jurisdiction over the site) is prohibited without the express written authorization of the University of South Carolina and Terracon. Any unauthorized distribution or reuse is at the client's sole risk. Notwithstanding the foregoing, reliance by authorized parties will be subject to the terms, conditions and limitations stated in the proposal, LSI report, and Terracon's Terms and Conditions. The limitation of liability defined in the terms and conditions is the aggregate limit of Terracon's liability to the client and all relying parties unless otherwise agreed in writing.

2.0 FIELD ACTIVITIES

2.1 Vapor Point Installation

Terracon's field activities were conducted during the week of October 14, 2013. As part of the approved scope of work, a total of 10 shallow (5 ft.) and 10 deep (15 ft.) vapor point pairs VP-1S/1D through VP-10S/10D were installed at the site as follows:

- Three vapor point pairs (VP-1S/1D, VP-5S/5D, and VP-7S/7D) were installed adjacent to the 2008 LSI borings TW-8, TW-9, and 11, respectively.
- Four vapor point pairs (VP-2S/2D, VP-3S/3D, VP-4S/4D, and VP-6S/6D) were installed in the areas of the two proposed outdoor practice fields;
- Three vapor point pairs (VP-8S/8D, VP-9S/9D, and VP-10S/10D) were advanced in the area of the proposed indoor practice field;



The shallow/deep vapor points were installed as separate borings, approximately five-feet apart. Figure 2 is a site plan that indicates the approximate locations of the vapor points relative to the proposed construction area.

Drilling services for the vapor point installation were performed using a track-mounted Geoprobe[®] direct-push rig under the supervision of a Terracon environmental professional. Soil samples were collected using four-foot Macrocore[®] samplers. Drilling equipment was cleaned using a high pressure washer prior to beginning the project and before beginning each soil boring. Non-dedicated sampling equipment was cleaned using an Alconox[®] wash and potable water prior to the beginning of the project and before collecting each soil sample. All drilling was conducted by State of South Carolina licensed Well Driller.

The soil borings were advanced above the top of the shallow water table, occurring at a depths ranging from 15 to 17 feet below ground surface (bgs). Soil samples were collected continuously into plastic core liners to document lithology, color and relative moisture content.

The general soil lithology encountered during sample collection consisted of the following:

- South and Southeast portions of the site, (SB-7, SB-8, VP-6S/6D, VP-8S/8D, VP-9S/9D): Fine- to medium-grained sands and clayey sand from 5 to 25 feet bgs, overlying fine to medium sand. Low permeability soils were also encountered at a depth of 27 feet (SB-7, SB-8). Low permeability soils were not detected at shallow depths in this portion of the site. Ground water was encountered at depths ranging from 18 to 20 feet;
- Central portion of the site, (VP-1S/1D, VP-2S/2D, VP-4S/4D, VP-5S/5D: Fine- to medium-grained sands and clayey sand from 5 to 25 feet bgs, with a one to two-foot layer of low permeability soils ranging from 3 to 7 feet, overlying fine to medium sand. Low permeability soils were also encountered at depths ranging from 22 to 32 feet (SB-1, SB-5, SB-9). Ground water was encountered at depths ranging from 21 to 29 feet;
- North and northwest portion of the site (SB-2, SB-3, VP-7S/7D); Fine to medium-grained sands and clayey sand overlying low permeability soils encountered from 22 to 27 ft. Low permeability soils were not detected at shallow depths at this portion of the site Ground water was encountered at depths ranging from 18 to 19 feet.

No buried debris or trash was encountered in the borings performed for this assessment. Detailed lithologic descriptions are presented on the vapor point boring logs and geotechnical boring logs included in Appendix C. The approximate extent of the low permeability soils encountered within the upper soils is depicted on Figure 3.



Report of Soil Gas Assessment USC Practice Facilities ■ Columbia, SC December 30, 2013 ■ Terracon Project No. 73137065

Soil vapor screening points were installed and constructed in general accordance with the practices outlined in the Interstate Technology Regulatory Council (ITRC) *Vapor Intrusion Pathway: A Practical Guidance* (2007).

The soil vapor screening points were constructed at 5 and 15 feet below land surface (bls), above and below the upper low permeability soils encountered. The stainless steel points are configured with lateral ports for vapor entry and a barbed fitting at the top to connect to small bore (0.25 inches O.D./0.17 inches ID) Teflon®-lined sample tubing. The ports are protected from fines by a Teflon disk and stainless steel screen to prevent clogging. A sand filter pack was placed within the annulus to a height of six inches above the screen point. Granular (No. 20) bentonite was placed in the borehole annulus above the sand pack to six-inches above the sand pack and hydrated bentonite filled the remaining annulus to ground surface.

A helium tracer gas leak test was conducted on each vapor point prior to sampling. The tracer gas serves as a quality assurance/quality control (QA/QC) method to verify the integrity of the soil vapor probe seal. A field instrument capable of detecting helium was used to verify the presence of tracer gas. The protocol for using a tracer gas is to enclose the tubing and ground interface with a shroud and enrich the shroud atmosphere with helium gas. Approximately three well volumes were manually purged through Teflon[®] lined tubing connected to the vapor point that ran through and exited the shroud. Purge samples were screened for helium to assess for leaks in the annular seal. The results of the tracer testing indicated that a competent seal was achieved in the vapor point annulus.

2.2 Soil Gas Sampling

The soil gas vapor points were sampled using a calibrated Landtech GEM 2000+ Landfill Gas meter to detect the presence of methane. A summary of the sampling results are included on Table 1, in Appendix B.

An unknown monitoring well was discovered in the vicinity of soil gas point VP-1, labeled as MW-4. There were no other identifying features on this well, and the total well depth was tagged at approximately 20 feet below land surface. Water was measured to be 16.7 feet below land surface. Based on an assumed 10 foot screened interval, six to seven feet of the screened portion of this well is constructed within the vadose zone, and was therefore included as part of the soil gas sampling for this assessment.

On October 31, 2013, soil gas samples were collected for laboratory analysis from four soil vapor screening points (VP-2D, VP-3S, VP-5S, VP-10D) based on the field results and location. A laboratory-supplied, batch certified 1.4-liter SUMMA canister was connected to tubing at for collection of soil vapor samples. Each canister was filled using a dedicated flow



controller and set to a sample rate of less than or equal to 25 milliliters per minute. An inline vacuum gauge was installed to the sample controller to verify initial vacuum levels within the canister and as an indicator that final equalization has been reached (i.e. sampling is complete). Initial and final vacuums are presented on the laboratory analytical reports. A quality control ambient air sample (Ambient) was collected in the same manner as the soil gas samples. This sample was collected at ground surface in the vicinity of vapor point VP-2.

2.3 Storm Drain Gas Monitoring

The existing storm drain system was monitored for methane at six manholes) MH-1 through MH-6) across the system. The storm drains are three feet and five feet in diameter, constructed approximately 15 to 17 feet below ground surface. The manholes for this system are considered to serve as collection points for methane and were sampled with the landfill gas meter at available access points. The sampling results are included on Table 1.

2.3 Test Well Installation

On November 8 & 9, 2013, nine geotechnical borings (SB-1 though SB-9) were installed at the site to evaluate the subsurface conditions at the six light poles and three observation (filming) towers to be constructed at the facility (re: Terracon Geotechnical Engineering Report, dated November 21, 2013; Terracon Project No. 73135082). The geotechnical borings were drilled to depths ranging from 30 to 55 feet. Boring Logs for these wells are included in Appendix C.

Drilling for the temporary wells was conducted using 2-1/4-inch ID hollow stem augers. Soil samples were collected with split-spoons on five-foot centers. The geotechnical borings were converted to soil gas monitoring wells by installing two-inch diameter PVC casing and 10-foot screen in each well to depths of 15 to 30 feet. Filter pack was installed opposite the screens, and bentonite was installed from the top of the filter pack to ground surface. Surface completions were installed at each wellhead within a 2x2 ft. well pad and 8-inch diameter steel surface manhole. The manhole lids were constructed with removable spacers to allow venting and sealing of the manholes.

3.0 LABORATORY ANALYTICAL METHODS

Gas samples were collected from soil vapor points VP-1D, VP-2S, VP-5D, and VP-7D, selected based on the field methane concentrations. The soil vapor samples were packaged and delivered along with chain of custody documentation to Centek Laboratories, LLC in Syracuse, New York for analysis of:





- Fixed gas series per EPA Method 3C
- Sulfur Series by EPA Method TO-15

These analyses were selected to provide a qualitative measurement of the presence of methane and other landfill gases such as hydrogen sulfide. Laboratory results are summarized in Table 2 included in Appendix B. The executed chain-of-custody form and laboratory data sheets are provided in Appendix D.

4.0 DATA EVALUATION

4.1 Methane Sampling

The Lower Explosive Limit (LEL) for methane is 5% by volume, which is used to evaluate the potential for methane to exist as a hazardous (explosive) condition. Federal regulations promulgated under RCRA Subtitle D require controls on the existence and migration of methane in landfill gas. Landfills are required to control gas to ensure that the concentration of methane does not exceed 25% of the LEL, or 1.25 % by volume.

Methane was detected above the LEL for methane (5%) in 2 of 10 shallow borings and 5 of 10 deep vapor points, and in well MW-4, at concentrations ranging from 7.6% to 58.8%.

Where the shallow/deep well pairs encountered low permeability soils, the methane concentrations were significantly lower in the shallow (5 ft.) gas points (VP-1S/1D, VP-4S/4D, and VP-5S/5D). Although low permeability soils were encountered at VP-2S/2D, methane concentrations were within the same order of magnitude above LELs. Methane field results are summarized in Table 1 included in Appendix B.

Methane was detected in the storm drain system at four of the six manholes measured (MH-1 through MH-4) at concentrations ranging from 0.1% to 0.3%. No methane concentrations were detected at MH-5 or MH-6 above the instrument detection limits.

4.2 Laboratory Analytical Results

Laboratory analysis indicated methane concentrations above the LEL of 5% at VP-2S (59%) and at VP-5D (86.6%). Additionally, methane was detected in VP-3D (1%), and VP-10S (1.12%) at concentrations below the LEL. Laboratory results are summarized in Table 1 included in Appendix B.

Hydrogen sulfide (H₂S) was not detected above the laboratory practical quantitation limits (PQLs) in any of the temporary soil gas vapor probes sampled. However, H₂S was detected in the sample collected from temporary soil vapor probe VP-5D (6.5 μ g/m³) above the method detection limit.



The quality control sample (Ambient) detected H₂S at a concentration of 11ug/m³. This sample was collected adjacent to vapor point VP-2S, which exhibited elevated methane concentrations.

Terracon compared the detected H_2S concentrations to the United States Environmental Protection Agency (USEPA) Risk-Based Screening Level (RSL) for H_2S in indoor air - industrial (0.88 µg/m³), and applied a 0.1 attenuation factor to account for gas migration through soils. The resulting subsurface screening level was calculated as 8.8 µg/m³.

Other sulfides detected were Carbon Disulfide (CS_2) and Dimethyl Sulfide ((CH_3)2S), detected in VS-2S and VP-5D. The detected CS_2 concentrations were below the calculated RSL. No RSL is established for (CH_3)2S.

A site map showing the methane monitoring results is included as Figure 4. Inspection of Figure 4 indicates methane was detected in the shallow and/or deep soils beneath the two outdoor football practice fields and beyond the eastern project boundary. No methane was detected above 5% LEL in the borings located in the proposed indoor football practice facility; however a methane concentration of 1.8% was detected above the regulatory limit of 1.25% at deep vapor point VP-10D, located near the northwest portion of the proposed indoor facility.

4.3 Methane Monitoring Results

Methane screening was conducted in the temporary wells for four events during November and December 2013. The initial readings were collected within 24 hours of well completion and the wells were left uncapped (vented). The wells remained vented and readings were recorded again 6 days after installation. Due to events taking place at the facility, subsequent venting and capping the wells occurred for the following three weeks, venting for periods ranging from one to seven days. Readings were collected at all except one event (capped reading; 11/25/13), due to the lack of availability of a calibrated landfill gas meter.

Methane was consistently detected above the LEL in seven of the nine temporary wells (SB-1, SB-2, SB-4, SB-5, SB-6, SB-9, and MW-4) after being capped. Methane concentrations were below the instrument detection limits for the first, second, and fourth week, venting for 2 days, 1 day, and 4 days, respectively. However, the third week monitoring event indicated methane concentrations above the LEL in six wells after venting for approximately one day (21 hours). The third week vented results are presented on Figure 4.

A summary of the methane readings and results are included on Table 2. Also included on



Table 2 are barometric pressure readings for the monitoring period recorded at the nearest meteorological station¹ (Owens Field, KCUB) located less than two miles from the site. Atmospheric pressure may be of importance at sites where testing indicates variable or unexpected readings. A trend of rising barometric pressure tends to promote advection of air into the ground, which may negatively represent the subsurface soil gas conditions. During falling barometric pressures, methane concentrations tend to be higher as the methane dissipates from the subsurface.

Barometric pressure data was reviewed for the days prior to and on the day of monitoring. The pressure results recorded for Weeks 1 and 4 indicated relative steady readings prior to sampling. Week 2 was monitored during a *rising* barometric condition. No methane was detected in the temporary wells for these three weeks after the wells were vented. Conversely, Week 3 readings were recorded during a *falling* barometric condition, and elevated methane concentrations were recorded. This data can be used to help prepare future sampling protocols for long-term monitoring at the facilities.

5.0 FINDINGS AND RECOMMENDATIONS

The findings and recommendations of this investigation are as follows:

- Based on the field and laboratory analytical results, concentrations of methane were detected at potentially combustible levels in the subsurface at 14 of the 30 monitoring points evaluated for this assessment. Review of historical data indicates the source of the methane is suspected to be the former Stadium Road Dump, an abandoned, unpermitted landfill located at the northern and western portions of the site.
- Lithologic data collected during installation of the assessment wells indicates a low permeability unit is present at a depths ranging from 6 to 13 feet, allowing methane to accumulate to combustible levels. This low permeability unit does not appear to be continuous across the site.
- Based on the assessment results, planned redevelopment, and discussions with USC and the design team, a Vapor Mitigation System (VMS) was recommended to control the accumulation of methane and other harmful landfill gases identified in the shallow subsurface, and to protect the proposed turf grass at the proposed indoor and outdoor football practice facilities.

¹://www.wunderground.com/history/airport/KCUB/2013/11/8/CustomHistory.html





- Monitoring for methane and hydrogen sulfide is recommended to establish quantitative concentrations of the gases to establish trends for monitoring and to assist with the design and operation of a VMS appropriate for the proposed development. Atmospheric (barometric) conditions should be considered when developing a monitoring plan.
- A copy of this report must be provided to the SCDHEC as part of the state well regulations. With your approval, Terracon will submit a copy of this report to the SCDHEC to fulfill this requirement.
- Prior to site development, the temporary monitoring wells and the discovered unknown well (MW-4) should be abandoned in accordance with the state well regulations. A well abandonment report should be submitted to the SCDHEC, per the state well regulations, R.61-71.
- Site development plans include construction for indoor and outdoor practice facilities. A Health and Safety Plan should be prepared to educate site workers and safeguard potential worker exposure to contaminants in excess of permissible exposure limits and to monitor safety hazards which may be present at this site.

APPENDIX A

Figure 1- Topographic Map

Figure 2 – Site Map

Figure 3 - Site Map Showing Extent of Low Permeability Soils

Figure 4 - Methane Concentration Map









APPENDIX B

Table 1 - Soil Gas Data

Table 2 - Methane Data

TABLE 1 SOIL GAS DATA USC Football Practice Fields Terracon Project No. 73137065

	Date	Screen Interval	Field Methane	Laboratory Methane	Laboratory Sulfide
NUMBER	Weasureu	(ft. bas)	(% by volume)	(% by volume)	(uq/m3)
VP-1S	10/10/12	4.5 - 5	3.5	NS	NS
VP-1D	10/18/13	14.5 - 15	51.8	NS	NS
VP-2S	10/18/13	4.5 - 5	43.7	59.0	Hydrogen Sulfide - <13 Carbon Disulfide - 43 Dimethyl Sulfide - 77
VP-2D		14.5 - 15	53.7	NS	NS
VP-3S		4.5 - 5	< 0.1	NS	NS
VP-3D	10/18/13	14.5 - 15	< 0.1	1.00	Hydrogen Sulfide - <10 Carbon Disulfide - < 32 Dimethyl Sulfide - < 39
VP-4S	10/18/13	4.5 - 5	3.1	NS	NS
VP-4D	10/10/10	14.5 - 15	29.9	NS	NS
VP-5S		4.5 - 5	< 0.1	NS	NS
VP-5D	10/18/13	14.5 - 15	58.8	85.6	Hydrogen Sulfide - 6.5J Carbon Disulfide - 40 Dimethyl Sulfide - 30J
VP-6S	10/18/13	4.5 - 5	7.6	NS	NS
VP-6D	10/10/13	14.5 - 15	14.1	NS	NS
VP-7S	10/18/13	4.5 - 5	< 0.1	NS	NS
VP-7D	10/10/13	14.5 - 15	< 0.1	NS	NS
VP-8S	10/20/13	4.5 - 5	< 0.1	NS	NS
VP-8D	10/20/13	14.5 - 15	< 0.1	NS	NS
VP-9S	10/21/13	4.5 - 5	< 0.1	NS	NS
VP-9D	10/21/10	14.5 - 15	0.6	NS	NS
VP-10S	10/21/13	4.5 - 5	0.1	1.12	Hydrogen Sulfide - <13 Carbon Disulfide - <32 Dimethyl Sulfide - <39
VP-10D		14.5 - 15	1.8	NS	NS
MW-4*	10/18/13	10 - 20	51.9	NS	NS
MH-1	10/21/13	15	0.1	NS	NS
MH-2	10/21/13	15	0.1	NS	NS
MH-3	10/21/13	17.0	0.1	NS	NS
MH-4	10/21/13	17.0	0.1	NS	NS
MH-5	10/21/13	17	0.1	NS	NS
MH-6	10/21/13	15	0.1	NS	NS
AMBIENT	10/31/2013	15	0.1	<0.58	Hydrogen Sulfide - 11J Carbon Disulfide - < 32 Dimethyl Sulfide - < 39
RSL			NE	NE	Hydrogen Sulfide - 8.8 Carbon Disulfide -3,100 Dimethyl Sulfide - NE

Notes:

1) Results shown in boldface type are above the Lower Explosive Limit (LEL) for methane (5% by volume)

2) bgs - below ground surface

* MW-4 is a 1-inch PVC monitoring well installed by others to a depth of 20 feet with an assumed 10-foot screen interval

4) Methane field results were measured using a LandTech GEM 200 Landfill Gas Meter

5) Samples were submitted for laboratory analysis on October 31, 2013

6) RSL for Hydrogen Sulfide (8.8 ppbv) and Carbon Disulfide (3,100 ug/m3) are established by applying an attenuation factor of 0.1 for soils to the listed RSLs.

TABLE 2 METHANE DATA USC Football Outdoor Practice Fields Terracon Project No. 73137065

	Screen	Total	Methane Concentration (% by volume)							
BORING NUMBER	Interval	Boring Depth	Capped	Vented	Capped	Vented	Capped	Vented	Capped	Vented
	(11.)	(ft.)	for 7-days 11/9/2013 2:00-3:00 pm	for 2-days 11/11/2013 8:30-0930 am	for 7-days 11/18/2013 3:30-5:00 pm	for 1-day 11/19/2013 7:30-9:15 am	for 6-days 11/25/2013 11:00 am-1:30 pm	for 1-day 11/26/2013 8:00-10:30 am	 12/2/2013 8:00 - 9:00	for 4-days 12/6/2013 9:00 - 10:30 am
SB-1	5 - 25	40	7.5	0.1	62.3	< 0.1	13.4	44.2	NR	0.1
SB-2	5 - 30	50	14.7	< 0.1	35.4	< 0.1	10.3	24.9	NR	0.1
SB-3	5 - 25	50	1.0	0.1	0.2	< 0.1	<0.1	<0.1	NR	<0.1
SB-4	5 - 20	40	1.0	0.1	31.7	< 0.1	21.3	19.1	NR	<0.1
SB-5	5 - 15	55	34.5	0.1	38.9	< 0.1	7.1	44.7	NR	<0.1
SB-6	5 - 15	40	30.7	0.1	40.5	< 0.1	21.3	49.9	NR	0.1
SB-7	5 - 15	30	<0.1	<0.1	0.1	< 0.1	<0.1	<0.1	NR	<0.1
SB-8	5 - 15	30	<0.1	<0.1	0.1	< 0.1	<0.1	<0.1	NR	<0.1
SB-9	15 - 20	30	18.3	<0.1	25.5	< 0.1	11.9	12.5	NR	5.6
MW-4*	unknown	20	61.1**	NM	41.6	< 0.1	22.3	73.3	NR	83.5
at	Barometric time of sam	c Pressure pling (HG)	30.25	30.35	29.85	30.15	30.26	30.05	NR	30.13

Notes:

3) Borings are open hole from the bottom of the screen to the total boring depths

4) * MW-4 is a 1-inch PVC monitoring well installed to a depth of 20 feet with an assumed 10-foot screen interval

5) **Measured 11/11/13 - Capped reading.

6) All results were measured using a LandTech GEM 2000 Landfill Gas Meter

7) NR - No Reading (Gas Meter not available)

8) Barometric Pressures recorded less than 2 miles away during the 4-week monitoring period are graphed below:



¹⁾ Results shown in boldface type are above the Lower Explosive Limit (LEL) for methane (5% by volume)

²⁾ Regulatory limit is 1.25% Methane (25% of LEL). Explosive range is 5-15% by volume or 100-300 % LEL - UEL

APPENDIX C

Geologist Logs and Water Well Records

	v	WELL LOG	NO. VP-18	S/1D	Pa	age 1	of 1
PR	OJECT: USC Football Practice Fields		CLIENT:			-	
SIT							
	Columbia, South Carolina						
LOG	LOCATION See Exhibit A-2					Ŀ.)	IONS
APHIC						PTH (ER LE
GR/	NEDTH					B	UNAT OBSE
	0.5 ASPHALT						
	<u>CLAYEY SAND (SC)</u> , medium grained, gray a	ind light orange, der	se			_	
						_	
	2.5 SAND (SP) medium grained light brown loos	se					
	<u> (</u> ,					-	
						_	
2						5 -	
171						5-	
L.GD	6.5					-	
	7.0 CLAYEY SAND (SC), medium grained, gray a	ind light orange, der	se			_	
	7.5 <u>SAND (SP)</u> , medium granned, light brown, loss <u>SILTY SAND (SM)</u> , fine grained, gray, dense	se					
						_	
	9.5					_	
	SILTY CLAY (CL-ML), with sand, gray, dense	to very dense				10-	
	11.5					_	
	<u>12.0</u> SAND (SP), medium grained, dark gray, medi SILTY CLAY (CL-ML), with sand, gray, dense	to verv dense				-	
	<u></u> ,, <u>3</u> .2,					_	
	CLAYEY SAND (SC), medium grained, brown	, medium dense to o	lense				
						-	
						15-	
	16.0					_	
	Boring Terminated at 16 Feet					_	
	Stratification lines are approximate. In-situ, the transition may	y be gradual.					1
Advan	cement Method:			Notes:			
Dire	ct Push						
Aband	onment Method:						
200							
	WATER LEVEL OBSERVATIONS Water level not determined			Well Started: 10/18/2013	Well Complete	ed: 10/1	8/2013
		521 Clem		Drill Rig: Geoprobe / Macrocore	Driller: J. Chic	orazzi	
1		Columbia, So	outh Carolina	Project No.: 73137065	Exhibit: B-	-1	

	<u> </u>	WELL LOG NO. VP-2	S/2D	Page 1	of 1
PF	OJECT: USC Football Practice Fields	CLIENT:		U	
SI	TE:				
	Columbia, South Carolina				
POG	LOCATION See Exhibit A-2			Ţ.	IONS
APHIC				РТН ((ERLE
GR∕				В	WAT
	0.5 ROCK				
	SANDY LEAN CLAY (CL), with silt, medium g	grained, gray to tan, dense			-
	2.0				
	LEAN CLAY (CL), with silt and sand, mottled	(pink, gray, tan)			
	4.0	rou) modium donao, friablo			
	<u>SAND (SP)</u> , medium grained, brown, loose	ray), medium dense, mable			
71/21	5.5			5-	
E.GU	SAND (SP), fine to medium grained, gray to o	dark gray, loose to medium dense			-
	7.0				
	SILTY CLAY (CL-ML), with sand, gray, dense	e to very dense			
					-
KRAC					_
				10	
000.CO				10-	
1313/	11.0 SAND (SP), medium grained, light brown, me	edium dense			-
WELL					
DA P					
	14.0				_
				45	
	15.5				
AL KE	Boring Terminated at 16 Feet				
צופוא					
	Stratification lines are encryimate in alter the tear "	av be gradual			
PARA	Guadinoanon intes are approximate. In-Situ, the transition ma	ay be gradual.			
Advar	ncement Method: ect Push		Notes:		
VALIL					
Aban	donment Method:]			
אווא אווא	Water level not determined		Well Started: 10/17/2013	Well Completed: 10/	17/2013
		521 Clemson Road	Drill Rig: Geoprobe / Macrocore	Driller: J. Chiorazzi	
E .		Columbia, South Carolina	Project No.: 73137065	Exhibit: B-2	

	WELL LOG NO. VP-3S/3D							
P	ROJECT: USC Football Practice Fields		CLIENT:			-		
S	TE:							
	Columbia, South Carolina						1	
LOG	LOCATION See Exhibit A-2					Ft.)	IONS	YPE
APHIC						PTH (I	ER LE ER VAT	PLE T
GR/	ПЕРТН					B	WAT OBSE	SAM
₽ ^Δ								
	SILTY CLAY (CL-ML), trace sand, fine graine	ed, mottled (light gray	/, orange, pink), mec	lium dense to dense		_		
						_	-	
	3.0							
	CLAYEY SAND (SC), orange, medium dense	e, friable				_		
						_		
/12/13						5 —	-	
DT 12	NO RECOVERY							
-ATE.G						_		
TEMPI	7.0 SAND (SP), with debris, coarse grained, dark	gray, medium dens	e			_		
STD						_	-	
RACON								
TERF						_		
65.GP.	10.5					10-		
31370	SANDY LEAN CLAY (CL), medium grained, o	orange, stiff, dense				_	-	
VELL 7						_		
> 0N-0	12.5 SAND (SP) with rock medium grained							
RT LO	<u>Onite (or j</u> , with took, mealant grained					_		
o SMA	14.0 GRANITE fine grained very dense					_	-	
/ GĒ						15		
EPOR1	-					10		
NAL R	Boring Terminated at 16 Feet					_		
I ORIG								
FROM								
RATEC	Stratification lines are approximate. In-situ, the transition ma	ay be gradual.					1	I
Adva	ncement Method:			Notes:				
ID IF	ect Push							
> ⊥ O Z Abar	donment Method:	-						
OGIS					1			
SING L	WATER LEVEL OBSERVATIONS Water level not determined			Well Started: 10/17/2013	Well Complete	ed: 10/1	7/2013	}
IS BOF		521 Clem	SILUI Son Road	Drill Rig: Geoprobe / Macrocore	Driller: J. Chio	razzi		
Ξ		Columbia, So	outh Carolina	Project No.: 73137065	Exhibit: B-	3		

	WELL LOG NO. VP-4S/4D Page								
PR	OJI	ECT: USC Football Practice Fields		CLIENT:			<u> </u>	-	
SIT	E:								
		Columbia, South Carolina							1
SLOG	LOO	CATION See Exhibit A-2					Ft.)	EVEL	ГҮРЕ
APHIC							ЕРТН (TER LI ERVA ⁻	IPLE -
GR	DEF	ТН					ä	WA: OBS	SAN
		ROCK							
	1.5						-		
		CLAYEY SAND (SC), medium grained, orange	and gray, medium	dense to dense			-	-	
							_		
	3.5	SILTY CLAY (CL), mottled (light gray, orange,	purple), stiff to very	/ stiff, plastic					
2							_		
	5.0	SAND (SP), medium grained, orange, medium	dense, friable, mic	aceous			5 –		
E.GDI							_		
	6.5	CLAYEY SAND (SC), medium to coarse graine	d, brown, medium	dense			_		
S NO							_		
ERRAC							_	-	
CPJ T							10-		
137065	11.0								
	11.5	ORGANIC MATERIAL CLAYEY SAND (SC) coarse grained gray and	nink dense				_		
		<u>OLATE I DAND (DOI</u> , course grained, gray and	pink, dense				-		
							-		
SMAR							_		
G 22	14.5	SAND (SP), medium grained, light brown, loose	e						
PORT	15.5						15-		
	16.0	Boring Terminated at 16 Feet					-		
ORIGIN									
-ROM									
	Str	atification lines are approximate. In-situ, the transition may	be gradual.						
	Come	ont Method			Notee:				
	ct Pu	ish			Notes.				
≶ LO Aband	onme	ent Method:							
00 12 1									
	W	WATER LEVEL OBSERVATIONS ater level not determined			Well Started: 10/17/2013	Well Complete	ed: 10/1	7/2013	3
S BOR					Drill Rig: Geoprobe / Macrocore	Driller: J. Chic	orazzi		
Ξ	Columbia, South Carolina Project No.: 73137065 Exhibit: B-4						-4		

	WELL LOG NO. VP-5S/5D Page							of 1	
Р	RC	DJECT: USC Football Practice Fields		CLIENT:			-		
s	ITE	E:							
		Columbia, South Carolina							1
C LOG		_OCATION See Exhibit A-2					(Ft.)	TIONS	TYPE
APHI							ЕРТН	ATER L	MPLE
Ū	C							ХŐ	SA
		<u>CLAYEY SAND (SC)</u> , fine to medium grained,	brown, friable			/			
							_		
							_		
	3.	<u>SANDY LEAN CLAY (CL)</u> , purple to light gray,	stiff to very stiff				-	-	
							_	-	
12/13	5	.0					5-		
DT 12/		CLAYEY SAND (SC), medium grained, orange	e, dense to very der	ise			Ũ		
LATE.G	6	5.5 SAND (SD) medium to coarse grained brown					_		
TEMP	7	.5					-	-	
N_STD	8	CLAYEY SAND (SC), medium to coarse grain	ed, orangish tan				_	-	
RACO		SAND (SP), medium grained, tan					_	-	
PJ TE							10		
37065.G							10		
-L 731:	1	1.5	ensich brown stiff				_	-	
		<u>SANDY LEAN CLAY (CL)</u> , medium grained, or	rangish brown, stiff				-	-	
TLOG-I							_	-	
SMAR							_	-	
GEO	1	5.0					15		
EPORT		SAND (SP), medium grained, tan					15-		
INAL R	<u>, 1</u>	Boring Terminated at 16 Feet					_		
M ORIG									
D FRO									
PARATE		Stratification lines are approximate. In-situ, the transition may	/ be gradual.						
HS Adva	ance irect	ement Method: t Push			Notes:				
T VALIC									
Abar	ndor	nment Method:							
NG LOG		WATER LEVEL OBSERVATIONS			Well Started: 10/17/2013	Well Complete	ed: 10/1	7/2013	3
BORI		vvater level not determined	lierr	acon	Drill Rig: Geoprobe / Macrocore	Driller: J. Chio	orazzi		
THIS			521 Clem Columbia, So	ison Road outh Carolina	Project No.: 73137065	Exhibit: B	-5		

		,	WELL LOG	NO. VP-68	S/6D	Pa	ge 1	of 1	
PR	OJI	ECT: USC Football Practice Fields		CLIENT:					
SIT	E:								
		Columbia, South Carolina							
LOG	LOC	CATION See Exhibit A-2					' t.)	VEL	YPE
PHIC							PTH (F	ER LE RVAT	LE T
GRA							DEF	WATE DBSE	SAMF
	0.3	TH ASPHALT							
		SILTY SAND (SM), with organic material, mo	ottled (light gray, pink	, tan), dense to very	dense		_	-	
	2.0								
	2.0	CLAYEY SAND (SC), fine to medium grained	l, light orange, micae	eous			-		
	0.5						-	-	
	3.5	SAND (SP), medium to coarse grained, brow	n, medium dense				_		
	5-								
	CLAYEY SAND (SC), medium to coarse grained, orangish brown, medium dense								
							_	-	
	9.0								
//	9.5	CLAYEY SAND (SC), fine to medium grained	l, reddish orange, de	nse to very dense					
	10.5	CLATET SAND (SC), fine to medium grained	i, orangish tan, dens	e to very dense			10—	-	
	10.0	CLAYEY SAND (SC), fine to medium grained	l, tan, dense to very	dense			_	-	
\square	11.5	CLAYEY SAND (SC), fine to medium grained	l. light tan, dense to	verv dense					
		, <u></u> ,	.,	,			_		
							_	-	
	14.0								
		CLAYEY SAND (SC), fine to medium grained	l, orange, dense to v	ery dense			_		
$\frac{1}{1}$	15.0	CLAYEY SAND (SC), fine to medium grained	l, light tan, dense to	very dense			15—	-	
	16.0						_		
		Boring Terminated at 16 Feet							
	Str	atification lines are approximate. In-situ, the transition ma	ay be gradual.					1	
Advan	ceme	nt Method:			Notes:				
DIFE	iu Mu	จา							
Aband	onme	ent Method:	-						
	Wa	WATER LEVEL OBSERVATIONS			Well Started: 10/17/2013	Well Completed	d: 10/1	7/2013	3
					Drill Rig: Geoprobe / Macrocore	Driller: J. Chior	azzi		
		521 Clemson Road Columbia South Carolina Project No.: 73137065 Exhibit: B-6							

	V	WELL LOG	NO. VP-78	S/7D	Pa	age 1	of 1	
PR	OJECT: USC Football Practice Fields		CLIENT:			<u> </u>		
91								
	Columbia, South Carolina							
OG	LOCATION See Exhibit A-2						DNS NS	ΡE
HICL						TH (Ft	2 LEV	<u>Е</u> 1
GRAP						DEPI	VATE	AMPI
Ũ							29	Ś
	SILTY SAND (SM), orange to gray, medium d	lense, friable, micac	eous					
						-		
						-		
	3.0							
	CLAYEY SAND (SC), mottled (gray, pink, tan)), dense to very den	se			_		
						_		
/13								
12/12						5 –		
.GDT		material madium to		dium danaa		_		
PLATE	CLAYEY SAND (SC), with debris and organic	material, medium to	coarse grained, me	aium dense				
	7.5					_		
STD	8.0 SAND (SP) , medium to coarse grained, mediu	um dense				_		
	SAND (SP) , with organic material, light brown							
TERR	SAND (SP), with heavy wood fragments					-		
GPJ						10-		
1065	10.5 CLAYEY SAND (SC), medium to coarse grain	ned. micaceous						
- 7313	11.5					-		
WELI	SAND (SP)					_		
0N-90								
RT LC						_		
) SMA						_		
GEO								
ORT.	15.5					15-		
	16.0 CLAYEY SAND (SC), with heavy organic mate	erial				_		
IGINA	Boring Terminated at 10 Feet							
M OR								
0 FRC								
RATE	Stratification lines are approximate. In-situ, the transition ma	y be gradual.						1
Advar	ncement Method:			Notes:				
≝ Dire ♀	ect Push							
S Abano	Johnneht Method:							
	WATER LEVEL OBSERVATIONS			Well Started: 10/17/2013	Well Complete	-d· 10/1	7/2011	3
ORINC	Water level not determined	ller	acon	Drill Rig: Geoprobe / Macrosora		Ju. 10/1	1/2013	
HIS B		521 Clem	son Road	Project No : 72127065	Evhibit	7		
H I		Columbia, Se	Juli Carolina	1 10/001 110 / 313/003	LATINIC B	·/		

		V	VELL LOG	NO. VP-88	S/8D	Pa	ige 1	of 1	
	PR	OJECT: USC Football Practice Fields		CLIENT:					
_	SIT	F:							
		Columbia, South Carolina							
	GRAPHIC LOG	LOCATION See Exhibit A-2					DEPTH (Ft.)	VATER LEVEL BSERVATIONS	AMPLE TYPE
		DEPTH CLAYEY SAND (SC), with organics and gravel	. medium grained.	dark brown				>0	S
		1.0	, 3 ,				_		
		CLAYEY SAND (SC), medium grained, orange	e to brown						
		2.5					_		
	<u>, (</u>	3.0 SAND AND GRAVEL (SP), light brownish gray SAND (SP) with clay medium grained reddisi	h brown				_		
		DAND (DF) , with clay, medium grained, reduis	II DIOWII						
e S							_		
12/12/1							5 –		
GDT							_		
PLATE									
o_TEM							_		
N_STD							_		
RACO		9.0					_		
J TER		SAND (SP), with clay, fine to medium grained,	light brown						
65.GP							10-		
73 1370							_		
VELL									
NON-0		12.5 SAND (SP) with clay, find to modium grained	aravish orango						
RT LOG		SAND (SF), with Clay, line to medium grained,	grayish orange				_		
) SMAF							_		
U U U U U U U							4 -		
PORT.							15-		
AL RE		16.0 Boring Terminated at 16 Feet					_		
RIGIN		-							
ROMO									
TEDF		Stratification lines are approximate. In-situ, the transition may	v be gradual						
EPARA									
A I I SE	dvanc Direc	ement Method: ct Push			Notes:				
ON SI	bando	onment Method:							
5 LOG		WATER LEVEL OBSERVATIONS	36		Well Started: 10/18/2013	Well Complete	d. 10/1	8/2012	
ORINC		Water level not determined	llerr	acon	Drill Rig: Geoprobe / Macrocore	Driller: J. Chio	razzi	0,2013	
THIS B			521 Clem Columbia. So	son Road outh Carolina	Project No.: 73137065	Exhibit: B-	8		

	V	VELL LOG	NO. VP-98	S/9D	Pa	age 1	of 1	
PR	OJECT: USC Football Practice Fields		CLIENT:			-		
SIT	E: Columbia South Corolina							
(1)							ر ۱	
IC LOG						H (Ft.)	LEVEL	TYP
Hdr						EPTH	ATER SERV/	MPLE
Ū	DEPTH						N N N	SA
	CLAYEY SAND (SC), with organics and gravel	, medium grained, l	orown					
///	CLAYEY SAND (SC), medium grained, brown					-		
<u> </u>	2.0 CLAYEY SAND (SC), medium grained, gravish	hrown				_		
	3.0	DIOWIT						
	CLAYEY SAND (SC), medium grained, light br	own				_		
						-		
	5.0					5 -		
	5.5 SAND (SP), with organics, medium grained, bl. CLAYEY SAND (SC), medium grained, light br.	ack, hard own				Ŭ		
	<u> </u>					_		
						_	-	
						_		
						_		
	10.0					10-		
	10.5 SAND (SP), with organics, medium grained, black of a standard	ack dark vellowish brow	'n			10		
	<u>SEATE FOAND (SS)</u> , me to meanan gramed,					_		
						_	-	
						_		
						_		
						45		
						15-		
	16.0 Boring Terminated at 16 Feet					-		
	Stratification lines are approximate. In situ, the transition may	be gradual						
		bo gradau.						
Advan Dire	cement Method: ct Push			Notes:				
Aband	onment Method:							
	WATER LEVEL OBSERVATIONS							
	Water level not determined			Well Started: 10/18/2013	Well Complete	ed: 10/1	8/2013	
		521 Clem	son Road	Drill Rig: Geoprobe / Macrocore	Driller: J. Chio	razzi		
1		Columbia, So	outh Carolina	Project No.: 73137065	Exhibit: B-	9		

		WEL	L LOG I	NO. VP-108	S/10D	Pa	age 1	of 1	
ſ	PR	OJECT: USC Football Practice Fields		CLIENT:					
	SIT	Έ:							
ŀ		Columbia, South Carolina						1	1
	5LOG	LOCATION See Exhibit A-2					(Ft.)	EVEL	TYPE
	APHIC						EPTH	TER L	APLE
	GR	DEPTH					ā	WA OBS	SAN
		CLAYEY SAND (SC), with organics and gravel, me	dium grained, o	dark yellowish browr					
							-		
		2.0 CLAYEY SAND (SC) medium grained brown					-		
							_		
							-		
2/12/13		5.0 CLAYEY SAND (SC) with gravel medium grained	brown				5 -	-	
GDT 1		CLAYEY SAND (SC), fine to medium grained, oran	gish brown				_		
LATE.0									
TEMP							_		
N_STD		8.0 CLAYEY SAND (SC), medium grained, dark vellow	ish orange				_		
RACO							_		
J TER									
065.GF							10-		
73 1370							-	-	
WELL							_		
G-NO									
ART LC							_		
O SM/							-		
T. GE							15-		
EPOR.		16.0							
INAL R		Boring Terminated at 16 Feet					-		
A ORIG									
FROM									
RATEC		Stratification lines are approximate. In-situ, the transition may be gr	adual.					I	1
= SEPA	Advanc	cement Method:			Notes:				
ALID IF	Dire	ct Push							
NOT V	Abando	onment Method:							
OG IS						1			
RINGL		WATER LEVEL OBSERVATIONS Water level not determined	l Cocc		Well Started: 10/18/2013	Well Complete	ed: 10/1	8/2013	3
IS BOF			521 Clem	SLUI son Road	Drill Rig: Geoprobe / Macrocore	Driller: J. Chio	orazzi		
Τ			Columbia, So	outh Carolina	Project No.: 73137065	Exhibit: B-	10		

BORING	LOG	NO.	SB-1
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PROJECT: USC Outdoor Football Practice Facility

CLIENT: USC - Campus Planning and Construction Columbia, South Carolina

SIT	E: National Guard Road Columbia, South Carolina							
GRAPHIC LOG	LOCATION See Exhibit A-2	Su	face Elev.: 185 (Ft.) ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (tsf)
	FILL - CLAYEY SAND (SC), fine to medium gra	ained, brownish tannish, medium dense		 5		X	3-10-6 N=16 6-8-10 N=18	
	8.5 FILL - SILTY SAND (SM), with sand and wood	debris, fine grained, black, medium dense		10		X	N=20 8-10-13 N=23	
				15 20		X	9-12-16 N=28 7-10-6	
	22.0 SAND (SP), fine to medium grained, whitish tan	, medium dense	163	20	\bigtriangledown	\times	9-10-9 N=19	
	27.0 SILTY CLAY (CL-ML), tan, stiff 32.0		<u>158</u>	 30		X	4-5-7 N=12	
	SILTY SAND (SM), fine to medium grained, whi	te to brown, medium dense		35		X	3-5-5 N=10	
	40.0 Boring Terminated at 40 Feet		145	40 			5-6-7 N=13	
	Stratification lines are approximate. In-situ, the transition may be	gradual.	Hammer Type: A	utomatic				
Advanc 2.25 Abando Meth	ement Method: "Hollow Stem Auger onment Method: nane Vent installed to 25 feet.	See Exhibit A-3 for description of field procedures. See Appendix B for description of laboratory procedures and additional data (if any). See Appendix C for explanation of symbols and abbreviations.	Notes:					
∇	WATER LEVEL OBSERVATIONS 22' (End of Drilling)		Boring Started: 11/8	8/2013		Borii	ng Completed: 11/8/2	2013
		521 Clemson Road	Drill Rig: CME-45			Drill	er: H. Wessinger	
		Columbia, South Carolina	Project No.: 731350	82		Exhi	ibit: A-4	

	E	BORING LC	G NO. SB-	2				Page 1 d	of 1
PROJE	ECT: USC Outdoor Football Practic	ce Facility	CLIENT: USC - Colur	- Campus Planbia, South	annir Caro	ng ai lina	nd C	onstruction	า
SITE:	National Guard Road Columbia, South Carolina								
CRAPHICLOG	ATION See Exhibit A-2		Surfa	ace Elev.: 184 (Ft.) ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (ref)
8.5	FILL - SILTY SAND (SM), fine to medium grain	ed, tan, loose ned, brown, loose		175.5	5			3-4-3 N=7 2-2-2 N=4 2-3-4 N=7 5-3-4 N=7	
17.0 2	FILL - SILTY SAND (SM), fine grained, gray, m FILL - SAND (SP), with brick fragments, fine gr	edium dense ained, dark brown, lo	ose	167	15 20	-		12-12-14 N=26 7-10-22 N=32	
5 22 22.0 5 22 27.0	FILL - SAND (SP), with brick fragments, fine gr LEAN CLAY (CL), with sand, brownish tan, stif	rained, dark brown, de	ense	162	25			2-4-4 N=8 3-5-7	
32.0	<u>SILTY SAND (SM)</u> , fine grained, tan to orange,	loose to medium den	se	152	30			N=12 3-4-4 N=8 3-4-6 N=10	
42.0	SILTY SAND (SM), with gravel, fine to coarse g	rained, white, mediur	n dense	142	45	-		5-6-7 N=13	
Stra	Boring Terminated at 50 Feet	e gradual.		Hammer Type: A	50			N=15	
dvancemen 2.25" Hollo bandonmer Methane \	t Method: w Stem Auger ht Method: /ent installed to 30 feet.	See Exhibit A-3 for descri See Appendix B for descr procedures and additiona See Appendix C for expla abbreviations.	ption of field procedures. iption of laboratory I data (if any). nation of symbols and	Notes:					

521 Clemson Road Columbia, South Carolina Boring Started: 11/8/2013

Drill Rig: CME-45

Project No.: 73135082

Boring Completed: 11/8/2013

A-5

Driller: H. Wessinger

Exhibit:

WATER LEVEL OBSERVATIONS

29' (End of Drilling)

 \lor

Page 1 of 1

PR	OJECT: USC Outdoor Football Practic	e Facility	CLIENT: USC - Campus Planning and Construction Columbia, South Carolina						
SIT	E: National Guard Road Columbia, South Carolina								
GRAPHIC LOG	LOCATION See Exhibit A-2		Surf	ace Elev.: 183 (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (tsf)
	DEPTH FILL - CLAYEY SAND (SC), fine to coarse grain 12.0 SANDY SILT (ML), fine grained, gray, hard 17.0 FILL - CLAYEY SAND (SC), fine to medium grain 22.0 CLAYEY SAND (SC), some organics, fine grained	ined, brown, medium	dium dense	171 166 161	5 10 15 20			3-3-4 N=7 2-2-2 N=4 2-3-4 N=7 5-7-9 N=16 14-14-21 N=35 5-7-8 N=15 3-3-4	
	27.0 LEAN CLAY (CL), with sand, gray, soft 32.0			156	25 30			N=7 2-2-2 N=4	
	CLAYEY SAND (SC), fine grained, mottled (brov	vn, gray, tan, red), lo	ose to medium dense	3	35 40 45			3-3-6 N=9 3-4-5 N=9 4-5-5 N=10	, , , , , ,
	47.0 <u>SILTY SAND (SM)</u> , fine to coarse grained, orang 50.0	e, medium dense					\times	5-7-10	
	Boring Terminated at 50 Feet				50 55			N=17	
	Stratification lines are approximate. In-situ, the transition may be	gradual.		Hammer Type: A	utomatic				
Advanc 2.25 Abando Meth	ement Method: Stem Auger Stem Aug	See Exhibit A-3 for descrip See Appendix B for descrip orocedures and additional See Appendix C for explar abbreviations.	otion of field procedures. iption of laboratory data (if any). nation of symbols and	Notes:					
$\overline{\nabla}$	WATER LEVEL OBSERVATIONS			Boring Started: 11/8	/2013		Borin	ng Completed: 11/8/2	013
	בי נבווע טו שוווווש <i>ן</i>	521 Clem		Drill Rig: CME-45			Drille	er: H. Wessinger	
		Columbia, So	outh Carolina	Project No.: 731350	82		Exhib	oit: A-6	

BORING LOG NO. SB-4

PROJECT: USC Outdoor Football Practice Facility

CLIENT: USC - Campus Planning and Construction Columbia, South Carolina

SIT	E: National Guard Road Columbia, South Carolina								
GRAPHIC LOG	LOCATION See Exhibit A-2		Surf	ace Elev.: 186 (Ft.) ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (tsf)
	FILL - CLAYEY SAND (SC), fine to medium gr	ained, reddish white, lo	ose	192			\times	3-2-4	
	FILL - SILTY SAND (SM), fine grained, gray, d	ense		103			\times	N=6 17-22-24	/
							\mathbf{X}	N=46 13-15-21	
	8.5 FILL - SILTY SAND (SM), with gravel, fine to n	nedium grained, mediur	n dense	177.5	-		$\overline{\mathbf{A}}$	N=36 15-16-13	
		-			10-			N=29	/
							\checkmark	5-9-7	
	17.0			169	15_		4	N=16	,
	FILL - LEAN CLAY (CL), with wood pieces, me	ottled (black, brown, gra	ay), very stiff		_			10 10 7	
					20	\square	Ą	N=19	
	FILL - LEAN CLAY (CL), with organics, mottle	d (black, brown, gray),	soft	164	_				
Сų					25_		Ą	1-1-1 N=2	<u></u>
	27.0 LEAN CLAY (CL), with sand, gray, soft to med	ium-stiff		159	-				
					30-		X	4-1-2 N=3	/
					35-		X	3-4-5 N=9	
	37.0 CLAVEY SAND (SC) fine to medium grained	brown medium dense		149					
	40.0	brown, mediam dense		146	40-		\mathbf{X}	3-5-5	
	Boring Terminated at 40 Feet				-04			N=10	
					45-				
					-				
					50_				
					55_				
	Stratification lines are approximate. In-situ. the transition may be	e gradual.		Hammer Type: A	 utomatic				
		•							
Advanc 2.25	ement Method: ' Hollow Stem Auger	See Exhibit A-3 for descript	ion of field procedures.	Notes:					
Aberia	amont Mathadi	See Appendix B for descrip procedures and additional of See Appendix C for explana	uon or laboratory data (if any). ation of symbols and						
Meth	ane Vent installed to 20 feet.	abbreviations.	and of Sympols dilu						
	WATER LEVEL OBSERVATIONS	75		Boring Started: 11/8	/2013		Borin	g Completed: 11/8/2	013
	20' (End of Drilling)	lierra	JCON	Drill Rig: CME-45			Drille	er: H. Wessinger	
		- 521 Clems Columbia, Sou	Project No.: 731350						

PR	OJECT: USC Outdoor Football Practic	ce Facility	CLIENT: USC	- Campus Pl	annir	ng ar	nd Co	onstructio	n
SIT	E: National Guard Road Columbia, South Carolina		Colu	mbia, South	Caro	lina			
RAPHIC LOG	LOCATION See Exhibit A-2		Sur	face Elev: 185 (Et)	ЭЕРТН (Ft.)	ATER LEVEL SERVATIONS	MPLE TYPE	FIELD TEST RESULTS	NCONFINED MPRESSIVE RENGTH (tsf)
ט גרל	DEPTH FULL - SULTY SAND (SM) fine to medium grain	ed brown medium c	lense	ELEVATION (Ft.)		З₿	SA	Ľ.	S [™]
	<u> </u>				- - - 5-			5-8-10 N=18 5-7-7 N=14	
	8.5 FILL - SANDY LEAN CLAY (CL), with clay, fine	e grained, gray, very s	stiff	176.5				4-5-6 N=11 7-6-9	
	12.0 FILL - CLAYEY SAND (SC), fine to medium gra	ained, brown, mediun	n dense	173	10			N=15	
	17.0 FILL - CLAYEY SAND (SC), fine to medium gra	ained, brown, very loo	ose	168	15		\sim	9-9-7 N=16	
					20		X	1-2-1 N=3	
	27.0			158	25		X	2-2-2 N=4	
	LEAN CLAY (CL), with organics, grayish black,	soft		152	 30		×	1-1-1 N=2	
	SILTY SAND (SM), fine to medium grained, bro	wn, medium dense			 35		×	5-7-9 N=16	
	37.0 SILTY SAND (SM), fine grained, gray, very loos	e		148	 40		×	1-2-1 N=3	
				100	45 <u>-</u>		×	1-2-1 N=3	
	SILTY SAND (SM), fine to medium grained, ora	nge, loose		138	 50		×	3-4-5 N=9	
	52.0 <u>SAND (SP)</u> , with gravel and silt, fine to coarse g 55.0	rained, white, mediu	m dense	133 130	 55—	-	\leq	6-8-10 N=18	
	Boring Terminated at 55 Feet	- eventuel							
	Strauncation lines are approximate. In situ, the transition may be	gradual.		Hammer Type. A	ulomalic	,			
Jvani 2.25 Dand Met	cement Method: " Hollow Stem Auger onment Method: hane Vent installed to 15 feet.	See Exhibit A-3 for descri See Appendix B for descr procedures and additiona See Appendix C for expla abbreviations.	ption of field procedures. iption of laboratory I data (if any). nation of symbols and	Notes:					
	WATER LEVEL OBSERVATIONS			Boring Started: 11/8	/2013		Boring	Completed: 11/8	3/2013
<u> </u>	וס (בווע טו שווווווע)	521 Clem	acon ison Road	Drill Rig: CME-45			Driller	H. Wessinger	
		Columbia, S	outh Carolina	Project No.: 731350	82		Exhibi	t: A-8	

			E	BORING LC	DG NO. SB	-6				Page 1 (of 1
ľ	PR	OJECT: I	JSC Outdoor Football Practi	ce Facility	CLIENT: USC	- Campus Pl	annir	ng a	nd (Constructio	n
	SIT	E: Natior Colum	al Guard Road bia, South Carolina			libia, South	Caro	iiia			
	GRAPHIC LOG	LOCATION	See Exhibit A-2		Surl	ace Elev.: 186 (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (tsf)
ALID IF SEPARATED FROM ORIGINAL REPORT. GEO LOG-DEPTH TO BOTTOM OF PAGE 73135082.GPJ TERRACON_STD_TEMPLATE.GDT 11/21/13		DEPTH FILL - S 8.0 FILL - S 12.0 FILL - S 12.0 SILTY S 32.0 SILTY S 32.0 SILTY S 37.0 SILTY S 37.0 SILTY S 40.0 Boring	SILTY SAND (SM), fine to medium grain SILTY SAND (SM), fine grained, gray, v SILTY SAND (SM), fine to medium grained SAND (SM), fine to medium grained, bro SILAY (CL-ML), brown, medium dense SAND (SM), brown, medium dense to lo Terminated at 40 Feet hes are approximate. In-situ, the transition may brouger	reck, brown, medium d very stiff ned, brown to gray, ve own to gray, medium d to loose bose	lense ry loose to loose dense dense	ELEVATION (Ft.)	50- 50- 10- 10- 10- 10- 10- 10- 10- 1			5-6-7 N=13 4-5-6 N=11 5-7-8 N=15 10-10-16 N=26 4-3-4 N=7 3-3-3 N=6 1-1-1 N=2 6-8-8 N=16 4-5-5 N=10 4-4-4 N=8	
AV TON SI DC	Abando Meth	onment Method: nane Vent install	ed to 20 feet.	procedures and additional See Appendix C for expla abbreviations.	I data (if any). nation of symbols and						
NG LC	∇	WATER				Boring Started: 11/8	3/2013		Bori	ng Completed: 11/8/	2013
BORI		10 (Ena ôf	יוווווע)	IIELL	асоп	Drill Rig: CME-45			Drill	er: H. Wessinger	
THIS	á 521 Clemson Road Columbia, South Carolina Project No.: 731350							082 Exhibit: A-9			

	BORING LOG NO. SB-7 Page 1 of 1									
PR	OJECT: USC Outdoor Football Practic	ce Facility	CLIENT: USC Colur	- Campus Pl mbia. South	annir Caro	ng a lina	nd (Construction	ו	
SI	E: National Guard Road Columbia, South Carolina			,						
GRAPHIC LOG	LOCATION See Exhibit A-2		Surf	face Elev.: 186 (Ft.) El EVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (tsf)	
	SILTY SAND (SM), fine to medium grained, red	, loose		174	5 - - - - - 10-	-	XXXX	2-2-2 N=4 2-3-2 N=5 2-3-3 N=6 3-3-5 N=8		
	SILTY SAND (SM), fine to medium grained, tan	, medium dense to lo	ose		15		\times	4-5-7 N=12		
	22.0 <u>SILTY SAND (SM)</u> , fine to medium grained, tan	, medium dense		164	20		X	4-4-5 N=9		
	27.0 SANDY LEAN CLAY (CL), whitish brown, stiff			159	25	-	\bowtie	6-7-9 N=16		
	30.0 Boring Terminated at 30 Feet			156	30-	-	\ge	3-5-6 N=11	2.5	
					35	-				
					40	-				
					50	-				
	Oberliffe effere lines are ensuring to be site, the termities more be				55-					
	Unconfined Compressive Strength was performed with Pocket F	e gradual. Penetrometer		Hammer Type: A	utomatic	;				
Advan 2.2 Aband Met	cement Method: " Hollow Stem Auger onment Method: hane Vent installed to 15 feet.	See Exhibit A-3 for descri See Appendix B for descr procedures and additiona See Appendix C for expla abbreviations.	ption of field procedures. iption of laboratory I data (if any). nation of symbols and	Notes:						
$\overline{\nabla}$	WATER LEVEL OBSERVATIONS			Boring Started: 11/8	8/2013		Bori	ng Completed: 11/8/2	2013	
	וש (בווע טו שוווווק)	IIGLL	JCON	Drill Rig: CME-45			Drill	er: H. Wessinger		
		521 Clerr Columbia, S	ison Road outh Carolina	Project No.: 731350			Exh	ibit: A-10		

BORING LOG NO. SB-8

PROJECT: USC Outdoor Football Practice Facility

CLIENT: USC - Campus Planning and Construction Columbia, South Carolina

SIT	E: National Guard Road Columbia, South Carolina							
GRAPHIC LOG	LOCATION See Exhibit A-2		Surface Elev.: 183 (Ft.) ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (tsf)
	FILL - SILT (ML), with sand, fine grained, whitis FILL - CLAYEY SAND (SC) fine to medium arr	sh tan, loose	180	-		X	4-5-4 N=9	
	5.5		177.5	5 _		\square	N=12	
	SILTT SAND (SIM), The to medium grained, bio	wii, 100se		-	-	\times	3-4-5 N=9 3-3-3	
	2.0	tish tan Jooso to modium donso	171	10	-		N=6	
	SILT SAID (SIM), The to medium graned, with			15 <u>-</u>	-	X	4-3-3 N=6	
				20-		\times	6-7-8 N=15	
					-		N=13	
	27.0		156	25		\bowtie	6-8-10 N=18	
	LEAN CLAY (CL), with sand, brown, stiff			_			3-5-7	2.25
	Boring Terminated at 30 Feet			30 35 40 45 50 55 			<u>IN=12</u>	
	Stratification lines are approximate. In-situ, the transition may be Unconfined Compressive Strength was performed with Pocket F	gradual. enetrometer	Hammer Type: A	utomatic	;			
Advance 2.25" Abando Metha	ement Method: Hollow Stem Auger Inment Method: ane Vent installed to 15 feet.	See Exhibit A-3 for description of field procedu See Appendix B for description of laboratory procedures and additional data (if any). See Appendix C for explanation of symbols an abbreviations.	res. Notes:					
$\overline{}$	WATER LEVEL OBSERVATIONS		Boring Started: 11/8	8/2013		Borii	ng Completed: 11/8/2	2013
<u> </u>	ווויזאי (Ena of Drilling)	lierlacol	Drill Rig: CME-45			Drill	er: H. Wessinger	
		521 Clemson Road	Project No.: 731350	82		Exhi	bit [.] A-11	

BORING LOG NO. SB-9

PROJECT: USC Outdoor Football Practice Facility

CLIENT: USC - Campus Planning and Construction Columbia, South Carolina

SIT	Е:	National Guard Road Columbia, South Carolina								
GRAPHIC LOG	LOC	CATION See Exhibit A-2		Surf	ace Elev.: 182 (Ft.) ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	UNCONFINED COMPRESSIVE STRENGTH (tsf)
	<u>DEP</u> 3.0 12.0 17.0 22.0	FILL - SANDY SILT (ML), reddish white, mediu FILL - SILTY SAND (SM), fine to medium grain FILL - SILTY SAND (SM), fine grained, gray, m FILL - CLAYEY SAND (SC), fine to medium grained SILTY SAND (SM), fine to medium grained, tan CLAYEY SILT (ML), with sand, gray to brown, n Boring Terminated at 30 Feet	um stiff ied, brown, medium d iedium dense ained, brown, medium i, medium dense medium dense	ense to loose	ELEVATION (Ft.) 179 174 174 170 165 160 152	5 10 10 15 20 25 30 35 40 40 45 50 50			4-3-3 N=6 3-6-5 N=11 3-3-5 N=8 4-5-7 N=12 5-6-5 N=11 4-5-5 N=10 6-6-5 N=11 4-4-6 N=10	
Advanc 2.25 Abando Meth	Stra Unc eemen " Hollo onmer hane \	atification lines are approximate. In-situ, the transition may be confined Compressive Strength was performed with Pocket F it Method: w Stem Auger nt Method: /ent installed to 20 feet.	e gradual. Penetrometer See Exhibit A-3 for descrip See Appendix B for descri procedures and additional See Appendix C for explar abbreviations.	ption of field procedures. iption of laboratory data (if any). nation of symbols and	Hammer Type: A	55 uutomatic				
∇	19'	WATER LEVEL OBSERVATIONS (End of Drilling)			Boring Started: 11/8	/2013		Bori	ng Completed: 11/8/2	2013
		· •	521 Clem	SILUI Son Road	Drill Rig: CME-45			Drill	er: H. Wessinger	
			Columbia So	outh Carolina	Project No : 731350	82		Fxhi	ibit [.] A-12	

APPENDIX D

Laboratory Analytical Report



NYSDOH ELAP Certificate No. 11830

Analytical Report

Mike Hudgins Terracon - Columbia, SC 521 Clemson Rd Columbia, SC 29229 Friday, November 08, 2013 Order No.: C1311010

TEL: 803-741-9000 FAX RE: USC Practice Fields

Dear Mike Hudgins:

Centek Laboratories, LLC received 5 sample(s) on 11/6/2013 for the analyses presented in the following report.

I certify that this data package is in compliance with the terms and conditions of the Contract, both technically and for completeness. Release of the data contained in this hardcopy data package and/or in the computer readable data submitted has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

Centek Laboratories performs all analyses according to EPA, NIOSH or OSHA-approved analytical methods. Centek Laboratories is dedicated to providing quality analyses and exceptional customer service. All method blanks, laboratory spikes, and/or matrix spikes met quality assurance objective except as indicated in the case narrative. All samples were received and analyzed within the EPA recommended holding times. Test results are not Method Blank (MB) corrected for contamination.

We do our best to make our reporting format clear and understandable and hope you are thoroughly satisfied with our services. Please contact your client service representative at (315) 431-9730 or myself, if you would like any additional information regarding this report.

Thank you for using Centek Laboratories. This report can not be reproduced except in its entirety, without prior written authorization.

Sincerely,

with Doll.

William Dobbin Lead Technical Director

Disclaimer: The test results and procedures utilized, and laboratory interpretations of the data obtained by Centek as contained in this report are believed by Centek to be accurate and reliable

for sample(s) tested. In accepting this report, the customer agrees that the full extent of any and all liability for actual and consequential damages of Centek for the services performed shall be equal to the fee charged to the customer for the services as liquidated damages. ELAP does not offer certification for the following parameters by this method at present time, they are: 4- ethyltoluene, ethyl acetate and propylene. 4-ethyltoluene, ethyl acetate, propylene, sulfur derived and silcon compounds.

Centek Laboratories, LLC Terms and Conditions

Sample Submission

All samples sent to Centek Laboratories should be accompanied by our Request for Analysis Form or Chain of Custody Form. A Chain of Custody will be provided with each order shipped for all sampling events, or if needed, one is available at our website www.CentekLabs.com. Samples received after 3:00pm are considered to be a part of the next day's business.

Sample Media

Samples can be collected in an canister or a Tedlar bag. Depending on your analytical needs, Centek Laboratories may receive a bulk, liquid, soil or other matrix sample for headspace analysis.

Blanks

Every sample is run with a surrogate or tracer compound at a pre-established concentration. The surrogate compound run with each sample is used as a standard to measure the performance of each run of the instrument. If required, a Minican can be provided containing nitrogen to be run as a trip blank with your samples.

Sampling Equipment

Centek Laboratories will be happy to provide the canisters to carry-out your sampling event at no charge. The necessary accessories, such as regulators, tubing or personal sampling belts, are also provided to meet your sampling needs. The customer is responsible for all shipping charges to the client's destination and return shipping to the laboratory. Client assumes all responsibility for lost, stolen and any damages of equipment.

Turn Around time (TAT)

Centek Laboratories will provide results to its clients in one business-week by 6:00pm EST after receipt of samples. For example, if samples are received on a Monday they are due on the following Monday by 6:00pm EST. Results are faxed or emailed to the requested location indicated on the Chain of Custody. Non-routine analysis may require more than the one business-week turnaround time. Please confirm non-routine sample turnaround times.

Reporting

Results are emailed or faxed at no additional charge. A hard copy of the result report is mailed within 24 hours of the faxing or emailing of your results. Cat "B" like packages are within 3-4 weeks from time of analysis. Standard Electronic Disk Deliverables (EDD) is also available at no additional charge.

Payment Terms

Payment for all purchases shall be due within 30 days from date of invoice. The client agrees to pay a finance charge of 1.5% per month on the overdue balance and cost of collection, including attorney fees, if collection proceedings are necessary. You must have a completed credit

Page 2 of 18

application on file to extend credit. Purchase orders or checks information must be submitted for us to release results

Rush Turnaround Samples

Expedited turn around times is available. Please confirm rush turnaround times with Client Services before submitting samples.

Applicable Surcharges for Rush Turnaround Samples: Same day TAT = 200% Next business day TAT by Noon = 150% Next business day TAT by 6:00pm = 100% Second business day TAT by 6:00pm = 75% Third business day TAT by 6:00pm = 50% Fourth business day TAT by 6:00pm = 35% Fifth business day = Standard

Statement of Confidentiality

Centek Laboratories, LLC is aware of the importance of the confidentiality of results to many of our clients. Your name and data will be held in the strictest of confidence. We will not accept business that may constitute a conflict of interest. We commonly sign Confidential Nondisclosure Agreements with clients prior to beginning work. All research, results and reports will be kept strictly confidential. Secrecy Agreements and Disclosure Statements will be signed for the client if so specified. Results will be provided only to the addressee specified on the Chain of Custody Form submitted with the samples unless law requires release. Written permission is required from the addressee to release results to any other party.

Limitation on Liability

Centek Laboratories, LLC warrants the test results to be accurate to the methodology and sample type for each sample submitted to Centek Laboratories, LLC. In no event shall Centek Laboratories, LLC be liable for direct, indirect, special, punitive, incidental, exemplary or consequential damages, or any damages whatsoever, even if Centek Laboratories, LLC has been previously advised of the possibility of such damages whether in an action under contract, negligence, or any other theory, arising out of or in connection with the use, inability to use or performance of the information, services, products and materials available from the laboratory or this site. These limitations shall apply notwithstanding any failure of essential purpose of any limited remedy. Because some jurisdictions do not allow limitations on how long an implied warranty lasts, or the exclusion or limitation of liability for consequential or incidental damages, the above limitations may not apply to you. This is a comprehensive limitation of liability that applies to all damages of any kind, including (without limitation) compensatory, direct, indirect or consequential damages, loss of data, income or profit and or loss of or damage to property and claims of third parties.



Date: 19-Nov-13

CLIENT:Terracon - Columbia, SCProject:USC Practice Fields

C1311010

CASE NARRATIVE

Samples were analyzed using the methods outlined in the following references:

Compendium of Methods for the Determination of Toxic Organic Compounds, Compendium Method TO-15, January 1999 and Centek Laboratories, LLC SOP TS-80:

All method blanks, laboratory spikes, and/or matrix spikes met quality assurance objective except as indicated in the corrective action report(s). All samples were received and analyzed within the EPA recommended holding times. Test results are not Method Blank (MB) corrected for contamination.

NYSDEC ASP samples:

Lab Order:

Canisters should be evacuated to a reading of less than or equal to 50 millitorr prior to shipment to sampling personnel. The vacuum in the canister will be field checked prior to sampling, and must read 28" of Hg (\pm 2", vacuum, absolute) before a sample can be collected. After the sample has been collected, the pressure of the canister will be read and recorded again, and must be 5" of Hg (\pm 1", vacuum, absolute) for the sample to be valid. Once received at the laboratory, the canister vacuum should be confirmed to be 5" of Hg, \pm 1". Please record and report the pressure/vacuum of received canisters on the sample receipt paperwork. A pressure/vacuum reading should also be taken just prior to the withdrawal of sample from the canister, and recorded on the sample preparation log sheet. All regulators are calibrated to meet these requirements before they leave the laboratory. However, due to environmental conditions and use of the equipment Centek can not guarantee that this criteria can always be achieved.

	Chain of	f Custody		Site Name:	use Practic	d	Origin of Sample (circle on)
Contak Laboratorias	Bio	oGas		Project: 1	313706	5	/LFG DG-AG DG-WMTP
1	143 Midler Park D	Dr., Syracuse, NY 13	1206	PO#:			Blended Other
Ĭ	(315)4	431-9730		Quote Q- 🗸	P180		
	www.Cent	<u>tekLabs.com</u>	-	Other:	1 - 3c	וא	Total # of Tedlars
Ch Turnaround Time: Or	eck Rush TAT D ne Surcharge % D	Due Company: ate: Report to:	NI K	しくちょう	S S S S		Company: hvoice to: Check if same
5 Business Days	25%	Address:	571 0	-0 v.5.0			
3 Business Days	20%	City, State	Zip	lumbic , Si	62262 J		City. State. Zip
2 Business Days	75%						
Next Day by Noon	100%	Email: Pw	1 hudge	is eterne	ACON, C OM	4	Email:
Same Day	200%	Phone: A	NT - 20	0006-1		T	Phone:
			Fixed.	**Check All	That Apply*	*	
Sample Identification	on Date	e & Time Sampled	Major Gases		C Siloxane C's Series	Sulfur Series	Comments
Ampleut	5-91	2 HZI/ EI-18	<u>х</u>			.×	
22-9V	f. of	11-13 1430	×				
7 VP-3D	- 01	31-13 / 171A	(X			×	
v 7 - 5 D	10.1	2021 / 21-16	X				
17-105	[- 0]	0261 / 51-12	Х			×	
Chain of Custody		rint Namo					
Samled hv.					Ignature		Date/Time Courier: CIRCLE ONE
	Regin W.	2017.5					FedEX/ UPS Pickup/Dropoff
Relinquished by:		11-			11		For LAB USE ONLY 2 10 1 / 2
*** Bv signing Cantal	k l ahs Chain of Cu	W/V- istody vou are a			W C		やんまける Work Order # しつどう
		usiouy, you are a	bundaco		os lerms an	id Condit	ions/listed on the reverse side. $C/3/7/07$
			2				

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613 1313

CENTEK LABORATORIES, LL	С	Sample Receipt	Checklist
Client Name TERRACON - COLUMBIA, SC		Date and Time Receive	11/6/2013
Work Order Number C1311010		Received by: JDS	
Checklist completed by Signature	Dale The FedEx	Reviewed by <u>w </u>	11/4/13 Date
Shipping container/cooler 6 good condition?	Yes 🔽		
Custody seals intact on shipping container/conter?	Yes []]		
Custody seals intact on sample bottles?	Yes 🖾	No 🕮 Not Present 🗐	
Chain of custody present?	Yes 🔽		
Chain of custody signed when relinquished and received?	Yes 🔽		
Chain of custory agrees with sample labels?	Yes		
Samples in proper container/bottle?	Yes 🔽		
Sample containers intact?	Yes 🔽		
Sufficient sample volume for indicated test?	Yes 🔽		
All samples received within holding time?	Yes 🔽		
Container/Temp Blank temperature in compliance?	Yes 🔽		
Water - VOA vials have zero headspace? No VOA vials	submitted 🔽	Yes 🗌 No 🗌	
Water - pH acceptable upon receipt?	Yes	No 🗹	
Adjusted?	Chec	sked by	
Any No and/or NA (not applicable) response must be detailed in	the comments section t	⊃e 	
Client contacted Date contacted:		Person contacted	
Contacted by: Regarding:			
Comments: Sample UP-3D	does no	t match	
againty tabel	advise	1 Mike	
(any) it in the			
Corrective Action			

Date: 19-Nov-13



CLIENT: Project: Lab Order:	Terracon - Columbia, SC USC Practice Fields C1311010		Work Orde	er Sample Summary
Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
C1311010-001A	Ambient	131	10/31/2013	11/6/2013
C1311010-002A	VP-2S	321	10/31/2013	11/6/2013
C1311010-003A	VP-3D	312	10/31/2013	11/6/2013
C1311010-004A	VP-5D	328	10/31/2013	11/6/2013
C1311010-005A	VP-10S	224	10/31/2013	11/6/2013

19-Nov-13

Lab Order: Client: Project:	C1311010 Terracon - Columbia, S(USC Practice Fields	C			DATES	REPORT	
Sample ID	Client Sample ID	Collection Date	Matrix	Test Name	TCLP Date Prei	p Date A	vnalysis Date
CI311010-001A	Ambient	10/31/2013	Air	Fixed Gas Series			11/6/2013
				Sulfurs Series by TO-15			11/6/2013
C1311010-002A	VP-2S			Fixed Gas Series			11/6/2013
				Sulfurs Series by TO-15			11/6/2013
C1311010-003A	VP-3D			Fixed Gas Series			11/6/2013
				Sulfurs Series by TO-15			11/6/2013
C1311010-004A	VP-5D			Fixed Gas Series			11/6/2013
				Sulfurs Series by TO-15			11/6/2013
C1311010-005A	VP-10S			Fixed Gas Series			11/6/2013
				Sulfurs Series by TO-15			11/6/2013

Date: 08-Nov-13

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CLIENT:	Terracon - Columbia, SC
Lab Order:	C1311010
Project:	USC Practice Fields
Lab ID:	C1311010-001A

Client Sample ID: Ambient Tag Number: 131 Collection Date: 10/31/2013 Matrix: AIR

Analyses	Result	**Limit Qu	ual Units	DF	Date Analyzed
FIELD PARAMETERS		FLD			Analyst:
Lab Vacuum In	-2		"Hg		11/6/2013
Lab Vacuum Out	-30		"Hg		11/6/2013
FIXED GAS SERIES		EPA METHO	DD 3C		Analyst: WD
Carbon dioxide	0.0350	1.90	J %	1	11/6/2013
Carbon Monoxide	ND	0.880	%	1	11/6/2013
Methane	ND	0.580	%	1	11/6/2013
Nitrogen	77.0	8.30	%	1	11/6/2013
Oxygen	14.6	0.880	%	1	11/6/2013
SULFURS SERIES BY TO-15		TO-15			Analyst: WD
1-Propanethiol	ND	10	ppbV	1	11/6/2013 3:49:00 PM
Carbon disulfide	ND	10	ppbV	1	11/6/2013 3:49:00 PM
Carbonyl sulfide	ND	10	ppbV	1	11/6/2013 3:49:00 PM
Dimethyl sulfide	ND	10	ppbV	1	11/6/2013 3:49:00 PM
Ethyl mercaptan	ND	10	ppbV	1	11/6/2013 3:49:00 PM
Hydrogen Sulfide	8.6	10 .	J ppbV	1	11/6/2013 3:49:00 PM
Isopropyl mercaptan	ND	10	ppbV	1	11/6/2013 3:49:00 PM
Methyl mercaptan	ND	10	ppbV	1	11/6/2013 3:49:00 PM
Surr: Bromofluorobenzene	114	70-130	%REC	1	11/6/2013 3:49:00 PM

Qualifiers:	**	Reporting Limit		Results reported are not blank corrected
	В	Analyte detected in the associated Method Blank	Е	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit
	S	Spike Recovery outside accepted recovery limits		Page I

Date: 08-Nov-13

CLIENT:Terracon - Columbia, SCClient Sample ID: VP-2SLab Order:C1311010Tag Number: 321Project:USC Practice FieldsCollection Date: 10/31/2013Lab ID:C1311010-002AMatrix: AIR

Analyses	Result	**Limit Qu	ual Units	DF	Date Analyzed
FIELD PARAMETERS		FLD			Analyst:
Lab Vacuum In	-2		"Hg		11/6/2013
Lab Vacuum Out	-30		"Hg		11/6/2013
FIXED GAS SERIES		EPA METH	DD 3C		Analyst: WD
Carbon dioxide	7.23	1.90	%	1	11/6/2013
Carbon Monoxide	ND	0.880	%	1	11/6/2013
Methane	59.0	0.580	%	1	11/6/2013
Nitrogen	41.0	8.30	%	1	11/6/2013
Oxygen	1.10	0.880	%	1	11/6/2013
SULFURS SERIES BY TO-15		TO-15			Analyst: WD
1-Propanethiol	ND	10	ppbV	1	11/6/2013 4:28:00 PM
Carbon disulfide	13	10	ppbV	1	11/6/2013 4:28:00 PM
Carbonyl sulfide	ND	10	ppbV	1	11/6/2013 4:28:00 PM
Dimethyl sulfide	20	10	ppbV	1	11/6/2013 4:28:00 PM
Ethyl mercaptan	ND	10	ppbV	1	11/6/2013 4:28:00 PM
Hydrogen Sulfide	ND	10	ppbV	1	11/6/2013 4:28:00 PM
Isopropyl mercaptan	ND	10	ppbV	1	11/6/2013 4:28:00 PM
Methyl mercaptan	ND	10	ppbV	1	11/6/2013 4:28:00 PM
Surr: Bromofluorobenzene	117	70-130	%REC	1	11/6/2013 4:28:00 PM

Qualifiers:	**	Reporting Limit		Results reported are not blank corrected	
	В	Analyte detected in the associated Method Blank	E	Value above quantitation range	
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits	
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit	0.65
	S	Spike Recovery outside accepted recovery limits		Pag	ge 2 of 5

Date: 08-Nov-13

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CLIENT:	Terracon - Columbia, SC
Lab Order:	C1311010
Project:	USC Practice Fields
Lab ID:	C1311010-003A

Client Sample ID: VP-3D Tag Number: 312 Collection Date: 10/31/2013 Matrix: AIR

Analyses	Result	**Limit Qu	al Units	DF	Date Analyzed
FIELD PARAMETERS		FLD			Analyst:
Lab Vacuum In	-2		"Hg		11/6/2013
Lab Vacuum Out	-30		"Hg		11/6/2013
FIXED GAS SERIES		EPA METHO	DD 3C		Analyst: WD
Carbon dioxide	0.102	1.90	J %	1	11/6/2013
Carbon Monoxide	ND	0.880	%	1	11/6/2013
Methane	1.00	0.580	%	1	11/6/2013
Nitrogen	75.8	8.30	%	1	11/6/2013
Oxygen	12.9	0.880	%	1	11/6/2013
SULFURS SERIES BY TO-15		TO-15			Analyst: WD
1-Propanethiol	ND	10	ppbV	1	11/6/2013 5:07:00 PM
Carbon disulfide	ND	10	ppbV	1	11/6/2013 5:07:00 PM
Carbonyl sulfide	ND	10	ppbV	1	11/6/2013 5:07:00 PM
Dimethyl sulfide	ND	10	ppbV	1	11/6/2013 5:07:00 PM
Ethyl mercaptan	ND	10	ppbV	1	11/6/2013 5:07:00 PM
Hydrogen Sulfide	ND	10	ppbV	1	11/6/2013 5:07:00 PM
Isopropyl mercaptan	ND	10	ppbV	1	11/6/2013 5:07:00 PM
Methyl mercaptan	ND	10	ppbV	1	11/6/2013 5:07:00 PM
Surr: Bromofluorobenzene	111	70-130	%REC	1	11/6/2013 5:07:00 PM

Qualifiers:	**	Reporting Limit		Results reported are not blank corrected	
	В	Analyte detected in the associated Method Blank	Е	Value above quantitation range	
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation l	imits
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit	D 0
	S	Spike Recovery outside accepted recovery limits			Page 3

Date: 08-Nov-13

CLIENT:Terracon - Columbia, SCLab Order:C1311010Project:USC Practice FieldsLab ID:C1311010-004A

Client Sample ID: VP-5D Tag Number: 328 Collection Date: 10/31/2013 Matrix: AIR

Analyses	Result	**Limit (Qual	Units	DF	Date Analyzed
FIELD PARAMETERS		FLC)			Analyst:
Lab Vacuum In	-2			"Hg		11/6/2013
Lab Vacuum Out	-30			"Hg		11/6/2013
FIXED GAS SERIES		EPA METH	HOD	3C		Analyst: WD
Carbon dioxide	0.0940	1.90	J	%	1	11/6/2013
Carbon Monoxide	ND	0.880		%	1	11/6/2013
Methane	85.6	0.580		%	1	11/6/2013
Nitrogen	25.4	8.30		%	1	11/6/2013
Oxygen	0.824	0.880	J	%	1	11/6/2013
SULFURS SERIES BY TO-15		TO-1	5			Analyst: WD
1-Propanethiol	ND	10		ppbV	1	11/6/2013 5:46:00 PM
Carbon disulfide	13	10		ppbV	1	11/6/2013 5:46:00 PM
Carbonyl sulfide	ND	10		ppbV	1	11/6/2013 5:46:00 PM
Dimethyl sulfide	7.7	10	J	ppbV	1	11/6/2013 5:46:00 PM
Ethyl mercaptan	ND	10		ppbV	1	11/6/2013 5:46:00 PM
Hydrogen Sulfide	4.9	10	J	ppbV	1	11/6/2013 5:46:00 PM
Isopropyl mercaptan	ND	10		ppbV	1	11/6/2013 5:46:00 PM
Methyl mercaptan	ND	10		ppbV	1	11/6/2013 5:46:00 PM
Surr: Bromofluorobenzene	112	70-130		%REC	1	11/6/2013 5:46:00 PM

Qualifiers:	**	Reporting Limit		Results reported are not blank corrected	
	В	Analyte detected in the associated Method Blank	E	Value above quantitation range	
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation lit	mits
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit	
	S	Spike Recovery outside accepted recovery limits			Page 4 of 5

Date: 08-Nov-13

CLIENT:Terracon - Columbia, SCLab Order:C1311010Project:USC Practice FieldsLab ID:C1311010-005A

Client Sample ID: VP-10S Tag Number: 224 Collection Date: 10/31/2013 Matrix: AIR

Analyses	Result	**Limit Q	ual Units	DF	Date Analyzed
FIELD PARAMETERS		FLD			Analyst:
Lab Vacuum In	-2		"Hg		11/6/2013
Lab Vacuum Out	-30		"Hg		11/6/2013
FIXED GAS SERIES		EPA METH	OD 3C		Analyst: WD
Carbon dioxide	10.1	1.90	%	1	11/6/2013
Carbon Monoxide	ND	0.880	%	1	11/6/2013
Methane	1.12	0.580	%	1	11/6/2013
Nitrogen	75.2	8.30	%	1	11/6/2013
Oxygen	9.02	0.880	%	1	11/6/2013
SULFURS SERIES BY TO-15		TO-15	;		Analyst: WD
1-Propanethiol	ND	10	ppbV	1	11/6/2013 6:25:00 PM
Carbon disulfide	ND	10	ppbV	1	11/6/2013 6:25:00 PM
Carbonyl sulfide	ND	10	ppbV	1	11/6/2013 6:25:00 PM
Dimethyl sulfide	ND	10	ppbV	1	11/6/2013 6:25:00 PM
Ethyl mercaptan	ND	10	ppbV	1	11/6/2013 6:25:00 PM
Hydrogen Sulfide	ND	10	ppbV	1	11/6/2013 6:25:00 PM
Isopropyl mercaptan	ND	10	ppbV	1	11/6/2013 6:25:00 PM
Methyl mercaptan	ND	10	ppbV	1	11/6/2013 6:25:00 PM
Surr: Bromofluorobenzene	107	70-130	%REC	1	11/6/2013 6:25:00 PM

Qualifiers:	**	Reporting Limit		Results reported are not blank corrected	
	В	Analyte detected in the associated Method Blank	E	Value above quantitation range	
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation l	imits
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit	
	S	Spike Recovery outside accepted recovery limits			Page 5 of 5

Date: 08-Nov-13

CLIENT:	Terracon - Columbia, SC	Client Sample ID: Ambient
Lab Order:	C1311010	Tag Number: 131
Project:	USC Practice Fields	Collection Date: 10/31/2013
Lab ID:	C1311010-001A	Matrix: AIR

Analyses	Result	**Limit Qua	l Units	DF	Date Analyzed
SULFURS SERIES BY TO-15		TO-15			Analyst: WD
1-Propanethiol	ND	32	ug/m3	1	11/6/2013 3:49:00 PM
Carbon disulfide	ND	32	ug/m3	1	11/6/2013 3:49:00 PM
Carbonyl sulfide	ND	25	ug/m3	1	11/6/2013 3:49:00 PM
Dimethyl sulfide	ND	39	ug/m3	1	11/6/2013 3:49:00 PM
Ethyl mercaptan	ND	26	ug/m3	1	11/6/2013 3:49:00 PM
Hydrogen Sulfide	11	13 J	ug/m3	1	11/6/2013 3:49:00 PM
Isopropyl mercaptan	ND	32	ug/m3	1	11/6/2013 3:49:00 PM
Methyl mercaptan	ND	20	ug/m3	1	11/6/2013 3:49:00 PM

Qualifiers:	**	Reporting Limit		Results reported are not blank corrected	
	В	Analyte detected in the associated Method Blank	Е	Value above quantitation range	
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation	limits
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit	
	S	Spike Recovery outside accepted recovery limits			Page 1 of 5

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CLIENT:	Terracon - Columbia, SC	Client Sample ID: VP-2S
Lab Order:	C1311010	Tag Number: 321
Project:	USC Practice Fields	Collection Date: 10/31/2013
Lab ID:	C1311010-002A	Matrix: AIR

Analyses	Result	**Limit Qual	Units	DF	Date Analyzed
SULFURS SERIES BY TO-15		TO-15			Analyst: WD
1-Propanethiol	ND	32	ug/m3	1	11/6/2013 4:28:00 PM
Carbon disulfide	43	32	ug/m3	1	11/6/2013 4:28:00 PM
Carbonyl sulfide	ND	25	ug/m3	1	11/6/2013 4:28:00 PM
Dimethyl sulfide	77	39	ug/m3	1	11/6/2013 4:28:00 PM
Ethyl mercaptan	ND	26	ug/m3	1	11/6/2013 4:28:00 PM
Hydrogen Sulfide	ND	13	ug/m3	1	11/6/2013 4:28:00 PM
Isopropyl mercaptan	ND	32	ug/m3	1	11/6/2013 4:28:00 PM
Methyl mercaptan	ND	20	ug/m3	1	11/6/2013 4:28:00 PM

Qualifiers:	**	Reporting Limit		Results reported are not blank corrected
	В	Analyte detected in the associated Method Blank	E	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit
	S	Spike Recovery outside accepted recovery limits		Pag

Date: 08-Nov-13

CLIENT:	Terracon - Columbia, SC	Client Sample ID: VP-3D
Lab Order:	C1311010	Tag Number: 312
Project:	USC Practice Fields	Collection Date: 10/31/2013
Lab ID:	C1311010-003A	Matrix: AIR

Analyses	Result	**Limit Qu	ial Units	DF	Date Analyzed	
SULFURS SERIES BY TO-15	TO-15				Analyst: WD	
1-Propanethiol	ND	32	ug/m3	1	11/6/2013 5:07:00 PM	
Carbon disulfide	ND	32	ug/m3	1	11/6/2013 5:07:00 PM	
Carbonyl sulfide	ND	25	ug/m3	1	11/6/2013 5:07:00 PM	
Dimethyl sulfide	ND	39	ug/m3	1	11/6/2013 5:07:00 PM	
Ethyl mercaptan	ND	26	ug/m3	1	11/6/2013 5:07:00 PM	
Hydrogen Sulfide	ND	13	ug/m3	1	11/6/2013 5:07:00 PM	
Isopropyl mercaptan	ND	32	ug/m3	1	11/6/2013 5:07:00 PM	
Methyl mercaptan	ND	20	ug/m3	1	11/6/2013 5:07:00 PM	

Qualifiers:	**	Reporting Limit		Results reported are not blank corrected	
	В	Analyte detected in the associated Method Blank	Е	Value above quantitation range	
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation	limits
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit	
	S	Spike Recovery outside accepted recovery limits			Page 3 of 5

Date: 08-Nov-13

CLIENT:	Terracon - Columbia, SC	Client Sample ID: VP-5D
Lab Order:	C1311010	Tag Number:328
Project:	USC Practice Fields	Collection Date: 10/31/2013
Lab ID:	C1311010-004A	Matrix: AIR

Analyses	Result	**Limit Q	Qual 1	Units	DF	Date Analyzed	
SULFURS SERIES BY TO-15	TO-15					Analyst: WD	
1-Propanethiol	ND	32	ι	ug/m3	1	11/6/2013 5:46:00 PM	
Carbon disulfide	40	32	ι	ug/m3	1	11/6/2013 5:46:00 PM	
Carbonyl sulfide	ND	25	ι	ug/m3	1	11/6/2013 5:46:00 PM	
Dimethyl sulfide	30	39	Jι	ug/m3	1	11/6/2013 5:46:00 PM	
Ethyl mercaptan	ND	26	ι	ug/m3	1	11/6/2013 5:46:00 PM	
Hydrogen Sulfide	6.5	13	Jι	ug/m3	1	11/6/2013 5:46:00 PM	
Isopropyl mercaptan	ND	32	ι	ug/m3	1	11/6/2013 5:46:00 PM	
Methyl mercaptan	ND	20	ι	ug/m3	1	11/6/2013 5:46:00 PM	

Qualifiers:	**	Reporting Limit		Results reported are not blank corrected	
	В	Analyte detected in the associated Method Blank	Е	Value above quantitation range	
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation	limits
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit	D 4 65
	S	Spike Recovery outside accepted recovery limits			Page 4 of 5

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CLIENT:	Terracon - Columbia, SC	Client Sample ID: VP-10S
Lab Order:	C1311010	Tag Number: 224
Project:	USC Practice Fields	Collection Date: 10/31/2013
Lab ID:	C1311010-005A	Matrix: AIR

Analyses	Result	**Limit Qu	ual Units	DF	Date Analyzed	
SULFURS SERIES BY TO-15	TO-15				Analyst: WD	
1-Propanethiol	ND	32	ug/m3	1	11/6/2013 6:25:00 PM	
Carbon disulfide	ND	32	ug/m3	1	11/6/2013 6:25:00 PM	
Carbonyl sulfide	ND	25	ug/m3	1	11/6/2013 6:25:00 PM	
Dimethyl sulfide	ND	39	ug/m3	1	11/6/2013 6:25:00 PM	
Ethyl mercaptan	ND	26	ug/m3	1	11/6/2013 6:25:00 PM	
Hydrogen Sulfide	ND	13	ug/m3	1	11/6/2013 6:25:00 PM	
Isopropyl mercaptan	ND	32	ug/m3	1	11/6/2013 6:25:00 PM	
Methyl mercaptan	ND	20	ug/m3	1	11/6/2013 6:25:00 PM	

Qualifiers:	**	Reporting Limit		Results reported are not blank corrected
	В	Analyte detected in the associated Method Blank	Е	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected at or below quantitation limits
	JN	Non-routine analyte. Quantitation estimated.	ND	Not Detected at the Reporting Limit
	S	Spike Recovery outside accepted recovery limits		Page
	3	spike Recovery outside accepted recovery minits		

APPENDIX E

Historical Site Use Documents



FARMER'S MARKET AERIAL PHOTO 1955

