Terracon

November 2, 2015

Ms. Janet MacDonald
NCDEQ – Division of Waste Management
Inactive Hazardous Sites Branch – REC Program
1646 Mail Service Center
Raleigh, NC 27699-1646

Subject: Remedial Investigation Work Plan Addendum No. 1
Goldsboro Milling Company, Mill # 1 Property
938 Millers Chapel Road
Goldsboro, Wayne County, North Carolina
Terracon Project No. 72147025

Dear Ms. MacDonald,

Terracon Consultants, Inc. (Terracon), on behalf of Goldsboro Milling Company, is pleased to submit this Remedial Investigation Work Plan (RIWP) Addendum No. 1 for supplemental soil, groundwater and soil vapor sampling at the Goldsboro Milling Company, Mill #1 property in Goldsboro, NC. The site is managed under the North Carolina Department of Environmental Quality (NCDEQ), Division of Waste Management (DWM) Registered Environmental Consultant (REC) Program. This RIWP was developed in general accordance with the "*Registered Environmental Consultant (REC) Program – Implementation Guidance*", dated October 2015 (Guidelines).

Investigations conducted to date have confirmed the presence of multiple chlorinated compounds in the groundwater at depths extending 35 feet below land surface (bls). The impacts have not been linked to a specific area of concern (AOC). RIWP Addendum No. 1 serves as an addendum to the Phase I RIWP and allows for evaluation of AOCs as well as functioning as a Phase II RIWP for delineation of impacts and complete the requirements of the RI. RIWP addendum No. 1 includes the following activities:

- Collect additional soil samples for lithologic characterization, to support development of a site conceptual model;
- Collect additional soil samples as necessary to evaluate potential AOCs, attempt to identify source areas, and complete the horizontal and vertical delineation of soil contaminants to the protection of groundwater minimum leaching concentrations;
- Expand the RI to include direct-push technology (DPT) groundwater sample collection for analysis of volatile organic compounds (VOCs), to delineate the vertical and horizontal extent of groundwater impacts;

- Re-sample existing monitoring wells for analysis of VOCs and sample a subset of select monitoring wells for analysis of VOC tentatively identified compounds (TICs), 1,4-Dioxane, semi-volatile organic compounds (SVOCs), SVOC TICs and target analyte list (TAL) metals to determine if these analytes are present in groundwater at concentrations above their 15A NCAC 2L Groundwater Standards (2L Standards);
- Install and sample new groundwater monitoring wells on-site to delineate and monitor the horizontal and vertical extent of impacted groundwater above 2L Standards; and
- Evaluate the potential for vapor intrusion.

The potential and/or known AOCs that will require additional Phase I confirmation sampling or additional Phase II delineation are listed below;

- AOC-1: Feed Laboratory and Storage Warehouse;
- AOC-2: Feed Laboratory Septic Area;
- AOC-3: Former underground storage tank (UST) basin/silo concrete form wash area;
- AOC-4: Truck Decontamination Wash Station;
- ACO-5: Concrete Silos;
- AOC-6: Truck Maintenance Building; and
- AOC-7: Truck Maintenance Building Septic Area.

1.0 PROJECT INFORMATION

The site is located at 938 Millers Chapel Road in Goldsboro, Wayne County, North Carolina. The site is referenced as Goldsboro Milling Company, Mill # 1 Property and is improved with grain silos, grain elevators, offices, warehouses, truck and rail grain dump buildings, boiler buildings, electrical buildings, grain truck probe buildings and disinfectant truck wash areas.

The Mill # 1 property was used as farm land from at least 1940 until 1965. Reportedly, portions of Mill # 1 were initially constructed in 1968 as a hatchery. The facility has been utilized as a grain mill since 1972. Structures with similar shapes and in similar locations as the current grain silos are first depicted on a 1971 aerial photograph.

A former fuel dispenser/pump island was located on the Mill # 1 portion of the site west of the Mill # 1 office and warehouse. According to Goldsboro Milling Company personnel, the former fuel dispensers and diesel and gasoline USTs were utilized on the site as a fueling station for company vehicles. The USTs are reportedly located near the former fuel dispenser/pump island and have been abandoned in place with concrete.

1.1 Site Investigation History

Terracon conducted a Phase I Environmental Site Assessment (ESA) at the Mill # 1 property in August 2011. The ESA report identified two former USTs and an associated dispenser island. A site investigation was conducted in October 2011 to assess the UST system consisting of soil and groundwater sampling and analysis. The results of the sampling activities identified gasoline constituents in the area of the USTs as well as chlorinated compounds including tetrachloroethene (PCE) and trichloroethene (TCE) in soil and groundwater at concentrations above the NCDEQ DWM Inactive Hazardous Sites Branch (IHSB) Preliminary Soil Remediation Goals (PSRGs) and 2L Standards, respectively.

In November 2011, six shallow groundwater monitoring wells (MW-1 through MW-6) were installed at the site to further investigate the lateral extent of chlorinated compounds in the surficial aquifer. In addition, groundwater samples were collected from selected existing on-site water supply wells. PCE and/or TCE were detected in five of the six permanent monitoring wells.

Based on the findings and with permission from the NCDEQ, Goldsboro Milling Company entered into an Administrative Agreement (AA) with the Registered Environmental Consultant (REC) Program in compliance with 15A NCAC 13C .0300 on May 1, 2013.

Terracon met with representatives of Goldsboro Milling Company in April 2013 to discuss the REC Program and our plans for further assessment and remedial options. As a result of the meeting, Terracon developed a Work Plan for Remedial Investigation to conduct Remedial Investigation (RI) activities to augment the environmental investigation activities previously conducted at the site. The Work Plan was accepted by the NCDEQ in November 2013.

Five additional groundwater monitoring wells (MW-7 through MW-11) were installed and sampled in September 2014. In March 2015, one shallow groundwater monitoring well (MW-12) and one double cased (type III) groundwater monitoring well (DW-1) were installed at the site. Monitoring well DW-1 was installed near the former UST tank basin to evaluate the vertical extent of the contaminant plume in the groundwater. The sample collected from well DW-1 contained concentrations of chlorinated volatile organic compounds (CVOCs) in excess of 2L Standards including PCE, carbon tetrachloride and trichloromethane (chloroform).

2.0 RIWP ADDENDUM NO. 1 RATIONALE AND OBJECTIVES

2.1 Soil Sampling Objectives and Methods

Soil sampling will be conducted to further characterize the potential constituents of concern (COCs) and in an attempt to identify source areas of VOCs in soil. The initial remedial investigation objectives are to delineate soil contaminants to the NCDEQ Preliminary Health-Based Soil Remedial Goals (PSRGs) or to the Protection of Groundwater PSRGs, whichever are lower, for unrestricted land use. The PSRG delineation goals may be adjusted as the RI

progresses. Continuous soil core sampling will be conducted by DPT methods and/or hand auger methods at AOCs. Background soil borings will be advanced and samples collected for analysis of TAL metals.

Each soil boring location will have samples collected at multiple depths for field screening and potential laboratory analyses. Subsets of near surface (0-2 feet bls) and subsurface (2-4 feet bls) intervals of the soil column soil will be collected for visual inspection and screening. Metals and SVOCs analyses will be conducted on selected samples collected as shallow as 0-0.5 feet bls; however, samples submitted for VOC analyses will be collected from a minimum depth of 0.5 feet bls (i.e., not surface samples). Soil samples will not be collected below 4 feet bls due to the presence of shallow groundwater. Soils will be field-screened for total VOCs and for total chlorinated ethenes as PCE using a PID and/or ColorTec™ colorimetric testing methods, respectively, to assist with sample selection for laboratory analyses.

During the initial phase of the expanded soil sampling program, soil samples will be collected for the following analysis:

- VOCs (plus TICs) by Method 8260;
- SVOCs (plus TICs) by Method 8270;
- TAL metals by Methods 6010/7471; and
- Pesticides by Method 8081.

One equipment blank will be collected per 20 soil samples collected for VOC analysis. One duplicate sample will also be collected for TAL metals analysis per 20 soil samples. The soil borings will be surveyed for location and elevation and included on an updated Site survey plat. Soil boreholes will be abandoned with cement grout or bentonite pellets after sampling completion.

2.2 Groundwater Sampling Objectives and Methods

Groundwater at the site is known to be impacted by dissolved phase chlorinated VOCs, specifically carbon tetrachloride, PCE and their degradation compounds. Currently, there are both Phase I and Phase II groundwater data gap sampling requirements in order to complete the RI. The proposed groundwater assessment will have three major objectives that are necessary to address the data gaps and complete the RI as follows:

- Complete the vertical and horizontal delineation of the known VOC plume in groundwater to the 2L Standards;
- Sample a subset of selected monitoring wells for analysis of VOCs and TICs, 1,4-Dioxane, SVOCs and TICs, and TAL metals to determine if these analytes are present in groundwater at concentrations above their 2L Standards. If pesticides are detected in soils above IHSB protection of groundwater PSRGs, a subset of select monitoring wells will also be sampled for analysis of pesticides; and

- Delineate any detected VOCs, SVOCs, pesticides, and/or metals in groundwater to their respective 2L standards, or for metals to below the site-specific background levels.

Proposed methods for completing the groundwater investigation are discussed in the following sections. The groundwater investigation work will be performed sequentially in the order listed below.

2.2.1 Existing Monitoring Well Sampling

Groundwater samples will be collected for analysis of VOCs to further characterize the dissolved plume and evaluate constituent trends prior to initiating the DPT groundwater plume delineation (discussed in Section 2.2.2). The existing site monitoring well network consists of 12 surficial type II water table wells (MW-1 through MW-12) and one type III well (DW-1).

To date, VOC TICs have not been reported during past groundwater sampling events. Analysis of TICs will be performed on past VOC analyses from select monitoring wells following the DPT groundwater sampling event. The certified laboratory that performed the past VOC analyses will be instructed to conduct a library search for TICs using existing groundwater data that were previously collected.

Groundwater samples will be collected using low-flow sampling techniques. Prior to sampling, groundwater elevation measurements will be recorded from each monitoring well. Field water quality parameters of pH, dissolved oxygen, specific conductance, temperature and oxidation-reduction potential (ORP) will be measured during purging and sampling. Turbidity measurements will be recorded for monitoring wells sampled for analysis of metals. Groundwater samples will be collected for metals when turbidity measurements are less than 10 nephelometric turbidity units (NTU).

All non-dedicated sampling equipment and field instruments will be decontaminated after each sample is collected using a non-phosphate soap wash followed by a potable water rinse. Samples will be collected directly into laboratory-provided sample containers, placed in an ice-packed cooler, and shipped to a subcontract laboratory under chain-of-custody control.

2.2.2 Direct-Push Technology Groundwater Sampling

In-situ groundwater sampling using DPT methods (Geoprobe® or equivalent) will be conducted to continue screening the horizontal and vertical extent of the groundwater plume at the site. Results of this initial DPT groundwater survey will be used to confirm areas where groundwater is impacted with chlorinated VOCs.

Several continuous DPT core samples will be collected across this study area to establish the lithology of the aquifer(s).

Groundwater samples will be collected from 8 to 16 boreholes advanced by DPT drilling methods. The boreholes will extend up to 60 feet bls or DPT refusal. Up to three groundwater samples will be collected from each DPT boring location at depths of approximately 10, 30, and 55 feet bls.

Groundwater samples will be collected from a 4-foot retractable stainless steel screen sample point advanced using DPT drilling methods. Alternatively, groundwater samples may be collected by installing 1-inch diameter PVC temporary monitoring wells. The appropriate method for sample collection at each location will be dependent on the site aquifer characteristics and the sampling depths. If small-diameter temporary wells are used for sampling, they will be removed and abandoned at the end of the sampling program.

Groundwater samples will be screened in the field for total chlorinated VOCs using a ColorTec™ field kit with colorimetric gas tubes. Results of the ColorTec™ field screening will be used to determine the relative magnitude of chlorinated VOCs concentrations and as a means to select groundwater samples that will be submitted for laboratory analyses. The results of the ColorTec™ field screening will also be used to confirm or augment the location of DPT groundwater sample locations.

The samples will be analyzed for VOCs by EPA Method 8260. Analysis for VOC TICs will not be performed on DPT groundwater samples. Quality control/quality assurance samples will include one trip blank per cooler and one equipment blank and duplicate sample per event.

2.2.3 New Monitoring Well Installations

Additional permanent groundwater monitoring wells will be installed at the site after completion of the DPT groundwater sampling program. The number, location and depth of the monitoring wells are unknown at this time and will be determined based on the pending DPT sampling program.

Type II monitoring wells will be screened in the surficial aquifer and installed to maximum depths of 50 feet bls or to the top of a confining clay unit, if encountered. Hollow stem auger, mud rotary, and/or sonic drilling methods will be used to advance the boreholes and install the wells. Each type II monitoring well will be constructed with PVC materials, including ten feet of screen.

Type III monitoring wells will be screened beneath the surficial aquifer and installed using a combination of hollow stem auger, mud rotary, air rotary, and/or sonic drilling methods. Each type III monitoring well will be constructed with an outer PVC casing set at least 3 feet into the confining unit. The inner casing will be constructed with PVC materials, including ten feet of screen. The depths of the outer and inner well casings will be determined in the field based on samples and drill cuttings.

After installation, each newly installed monitoring well will be developed using a decontaminated submersible pump. The horizontal position and vertical elevation of the 13 existing wells and futures wells will be surveyed by a North Carolina licensed surveyor.

2.2.4 Additional Monitoring Well Sampling

After the new monitoring wells are installed, they will be gauged for depth to water and sampled for analysis of VOCs. A synoptic gauging of all existing and new monitoring well will be performed to obtain site-wide groundwater elevations. The groundwater samples will be collected using low-flow purging and sampling techniques. Prior to sampling, static groundwater elevation measurements will be recorded from each monitoring well. Field water quality parameters of pH, dissolved oxygen, specific conductance, temperature and ORP will be measured during purging and sampling.

Samples will also be collected from selected on-site monitoring wells for the following analyses:

- 1,4-dioxane by Method 8260 Selective Ion Monitoring (SIM) methods;
- SVOCs (plus TICs) by Method 8270;
- TAL metals by Methods 6010/7471; and
- Pesticides by Method 8081 (Only if concentrations of pesticides exceed IHSB protection of groundwater PSRGs in soil samples)

These wells will provide initial data from areas that are most impacted by VOCs to determine if 1,4-dioxane, SVOCs, metals, and/or pesticides are COCs in groundwater.

Quality control/quality assurance samples will be collected including: one trip blank per cooler with VOCs samples and one equipment blank and duplicate sample per event. Turbidity measurements will be recorded for monitoring wells sampled for analysis of metals. Groundwater samples will be collected for metals when turbidity measurements are less than 10 NTU.

2.2.5 Supplemental Groundwater Sampling

Additional phases of DPT groundwater sampling, monitoring well installation, and/or monitoring well sampling may be conducted as needed to compete the requirements of the RI. Supplemental groundwater sampling may also include on-site and/or off-site water supply wells. These additional actions may be conducted over multiple mobilizations to the site in accordance with the procedures presented in this RIWP Addendum.

2.3 Vapor Intrusion Evaluation

Constituents have been detected in groundwater samples at concentrations in excess of their applicable Division of Waste Management non-residential vapor intrusion screening levels. In

accordance with NCDEQ guidance documents, further evaluation of vapor intrusion is warranted.

Two temporary sub-slab soil vapor (SV) sampling points will be installed in the feed laboratory at locations selected in the field based on utility clearance, accessibility, and safety. Each temporary SV sampling point will installed by drilling a 5/8-inch diameter hole through the floor slab to a depth approximately 1 inch into the underlying soil. The SV sampling point will be completed with a Vapor Pin™ assembly consisting of a stainless steel barb fitting with a silicone sleeve to seal the 5/8-inch diameter hole. Sub-slab soil vapor points will be allowed to equilibrate for a minimum of two hours after installation before sampling.

Each sub-slab soil vapor sample will be collected using an inline purge/sampling manifold consisting of a 1.0-liter Summa® canister sampler and a 6.0-liter purge Summa® canister connected to a critical orifice flow restrictor (flow controller). The flow controller is used to reduce the vacuum induced on the tubing and soils to allow for purging and sampling at a controlled rate. Canisters will be fitted with a vacuum gauge, under a vacuum of 25 to 30 inches of Mercury (Hg).

Prior to sampling, a deadhead (i.e. shut-in) test and helium tracer gas leak test will be conducted as a quality assurance/quality control (QA/QC) method. The deadhead test is conducted to check for leaks in the above-ground purge/sampling manifold. The tracer helium tracer gas leak test serves to verify the integrity of the soil vapor probe seal. A field instrument capable of detecting helium will be used to verify the presence and concentration of tracer gas.

The deadhead test protocol is to seal the flow controller influent with a cap and open the purge canister valve to create a negative pressure reading on the manifold pressure gauge. If an observable loss of vacuum is observed, the fittings will be adjusted until the vacuum in the sample train does not noticeably dissipate.

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. Three volumes of the vapor point annulus and attached Teflon® lined tubing that extends from the slab-surface and exits the shroud will be purged. Purge samples will be screened for helium to assess for leaks in the well seal and with a PID to assess for VOCs. Sample collection will begin if the tracer testing indicates helium concentrations in the vapor point are less than 10 percent of the helium concentration in the shroud, indicating a sealed vapor point annulus.

Sub-slab soil vapor samples will and analyzed for VOCs per EPA Method TO-15. After completion of soil vapor sampling activities, the vapor sample points will be abandoned by removal of the Vapor Pin™ and silicone sleeve and patching with neat cement grout or hydrated bentonite to the slab surface.

2.4 Investigation derived waste management

Soil and liquid investigation derived waste (IDW) will be will be containerized in 55-gallon drums on the site. Alternatively, soil IDW may be containerized in roll-off containers. IDW will be placed on hold pending analytical results and characterization. The characterized IDW will be disposed off-site in accordance with state and federal guidelines.

3.0 DATA REVIEW AND SUBSEQUENT ACTIONS

Laboratory soil, groundwater, and soil vapor data will be evaluated to determine if additional investigation is required to meet RI requirements. If groundwater is not fully delineated after the RIWP Addendum No. 1 field program additional DPT groundwater sampling and/or monitoring well installation may be implemented without another RIWP addendum.

Results of the multi-phased RI sampling programs conducted under RIWP Addendum No. 1 will be included in the final RI report. A certified RI Report will be prepared and submitted at the conclusion of the investigations described herein.

4.0 SCHEDULE

The following schedule is anticipated for completing the RI. This schedule is contingent on subcontractor availability, weather and other factors that could alter the work schedule.

Work Item/Milestone	Estimated Start Date	Estimated Completion Date
Sample existing monitoring well network Install and sample sub-slab soil vapor points.	November 4, 2015	November 6, 2015
DPT soil and groundwater sampling	November 17, 2015	November 20, 2015
Install and sample additional on-site wells, as needed	Early December 2015	Mid-December 2015
Review, validate and compile lab data	Late December 2015	Early January 2016
Supplemental soil & groundwater sampling (if needed)	Mid-January 2016	Mid-March 2016
Review, validate and compile final lab data	Mid-March 2016	Late March 2016
Develop/Submit RI Report	Early April 2016	Late April 2016

If you have any questions regarding this Work Plan or the previous assessment activities, please contact Allen McColl at 252-353-1600 or Chris Corbitt at 704-594-8893.

Sincerely,
Terracon Consultants, Inc.

Allen McColl
Senior Staff Scientist
Environmental Services

Carl F Bomer
for: Christopher L. Corbitt, PG, RSM
Senior Project Manager
Environmental Services

cc: Mr. John Pike – Goldsboro Milling Company

REC PROGRAM DOCUMENT CERTIFICATION FORM - PAGE 1 OF 2
IHSB SITE NAME Goldsboro Milling Company, Mill No. 1
DATE & NAME OF DOCUMENT November 2, 2015 Remedial Investigation Work Plan, Addendum No. 1
TYPE OF SUBMITTAL (circle all that apply): Report, Work plan, Work Phase Comp. Statement, Schedule Change

Work Plan Addendum, No. 1

REMEDIATING PARTY DOCUMENT CERTIFICATION STATEMENT (.0306(B)(2))

"I certify under penalty of law that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this certification, and that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material and information contained herein is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for willfully submitting false, inaccurate or incomplete information."

Goldsboro Milling Company
Name of Remediating Party

John Pike
Signature of Remediating Party

11/2/15
Date

NOTARIZATION

NC (Enter State)

Wayne **COUNTY**

I, Donna T. Parker, a Notary Public of said County and State, do hereby certify that John Pike did personally appear and sign before me this day, produced proper identification in the form of NCDL, was duly sworn or affirmed, and declared that, to the best of his or her knowledge and belief, after thorough investigation, the information contained in the above certification is true and accurate, and he or she then signed this Certification in my presence.

WITNESS my hand and official seal this 2nd day of November, 2015.

Donna T. Parker
Notary Public (signature) Donna T. Parker

(OFFICIAL SEAL)

DONNA T. PARKER NOTARY PUBLIC WAYNE COUNTY, NC

My commission expires: 2-5-19.

Document Certification Form No. DC - I
(Revised 8/11)

REC PROGRAM DOCUMENT CERTIFICATION FORM - PAGE 2 OF 2
IHSB SITE NAME Goldsboro Milling Company, Mill No. 1
DATE & NAME OF DOCUMENT November 2, 2015 Remedial Investigation Work Plan, Addendum No. 1
TYPE OF SUBMITTAL (circle all that apply): Report, Work plan, Work Phase Comp. Statement, Schedule Change

REGISTERED SITE MANAGER CERTIFICATION OF SIGNATURES

As the Registered Environmental Consultant for the Site for which this filing is made, I certify that the signatures included herewith are genuine and authentic original handwritten signatures and/or true, accurate, and complete copies of the genuine and authentic original handwritten signatures of the persons who purport to sign for this filing. I further certify that I have collected through reliable means the originals and/or copies of said signatures from the persons authorized to sign for this filing who, in fact, signed the originals thereof. Those persons and I understand and agree that any copies of signatures have the same legally binding effect as original handwritten signatures, and I certify that any person for whom I am submitting a copy of their signature has provided me with their express consent to submit said copy. Additionally, I certify that I am authorized to attest to the genuineness and authenticity of the signatures, both originals and any copies, being submitted herewith and that by signing below, I do in fact attest to the genuineness and authenticity of all the signatures, both originals and copies, being submitted for this filing.

Christopher L. Corbitt, PG, RSM
Name of Registered Site Manager

Christopher Corbitt
Signature of Registered Site Manager

11/3/15
Date

REGISTERED SITE MANAGER DOCUMENT CERTIFICATION STATEMENT (.0306(b)(1))

"I certify under penalty of law that I am personally familiar with the information contained in this submittal, including any and all supporting documents accompanying this certification, and that the material and information contained herein is, to the best of my knowledge and belief, true, accurate and complete and complies with the Inactive Hazardous Sites Response Act N.C.G.S. 130A-310, et seq, and the remedial action program Rules 15A NCAC 13C .0300. I am aware that there are significant penalties for willfully submitting false, inaccurate or incomplete information."

Christopher L. Corbitt, PG, RSM
Name of Registered Site Manager

Christopher Corbitt
Signature of Registered Site Manager

11/3/15
Date

NOTARIZATION

North Carolina (Enter State)

Mecklenburg COUNTY

I, Clara A. Gary, a Notary Public of said County and State, do hereby certify that Christopher L. Corbitt did personally appear and sign before me this day, produced proper identification in the form of drivers license, was duly sworn or affirmed, and declared that, he or she is the duly authorized environmental consultant of the remediating party of the property referenced above and that, to the best of his or her knowledge and belief, after thorough investigation, the information contained in the above certifications is true and accurate, and he or she then signed these Certifications in my presence.

WITNESS my hand and official seal this 3rd day of November, 2015.

Clara A. Gary
Notary Public (signature)

(OFFICIAL SEAL)
CLARA A. GARY
NOTARY PUBLIC
MECKLENBURG COUNTY, N.C.

My commission expires: 3/25/2018

Document Certification Form No. DC - II
(Revised 8/11)