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SCANA
Corporate Environmental Services
220 Operation Way
Cayce, SC 29033-3701

July 17, 2015

Mr. Lucas Berresford
Project Manager
South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management
2600 Bull Street
Columbia, South Carolina 29201

RE: Field Demonstration Project – Work Plan
SCE&G - Congaree River Sediments
Columbia, South Carolina

Dear Mr. Berresford:

SCANA Services, Inc., (SCANA), on behalf of their primary subsidiary, South Carolina Electric & Gas Company Inc. (SCE&G) has enclosed the attached document entitled, Field Demonstration Project (FDP) – Work Plan, which is being submitted for review and approval by the Department.

Overview

The Field Demonstration Project (FDP) is being proposed as a pre-removal action, "investigative" activity that must be completed prior to addressing the tar-like material (TLM) that is comingled with sediment within the Congaree River. As described in the attached work plan, the FDP will be conducted in a small area along the eastern shoreline of the Congaree River, just south of the Gervais Street Bridge. The primary objective of the FDP is to further investigate and remove the previously identified metal anomalies that **may potentially be** unexploded ordnance (UXO) from the Civil War era. The safe management of the potentially hazardous metallic anomalies is of paramount importance.

SCE&G and its consultants have been working with various offices of the USACE – (i.e., Huntsville, Alabama, Charleston, SC, etc.) to develop the appropriate plans and procedures to address the potential UXO issues related to completing the removal action. In summary, detailed plans have been developed by Explosive Ordnance Technologies, Inc. (EOTI) to be consistent with the same level of expertise and scrutiny as a typical military operation to address UXOs. These plans have been reviewed and approved by the appropriate USACE UXO personnel and are attached.

Implementation of the FDP within a relatively small area, located on "dryland", will provide an opportunity to demonstrate that the UXO screening/handling/removal plans and procedures are adequate or if improvements need to be made prior to entering the river for the actual sediment removal work.

FDP Description

The FDP project area is located at the end of Senate Street extension, in the "boat ramp area" adjacent to the river. This area has also been referred to as the "alluvial fan area" and based on existing data, the area is not impacted with TLM. This FDP basically entails further screening/removal of metallic anomalies located on the "landside" of the alluvial fan area. A qualified UXO contractor (EOTI) will conduct the

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screening, removal and UXO management activities. All work will be completed in accordance with the approved plans that are attached and include:

- Draft Final Work Plan for Munitions Response Removal Action and Construction Support;
- Explosives Safety Submission, Munitions and Explosives of Concern, Removal Action and Construction Support;
- Diving Operations Plan; and
- Diving Safe Practices Manual.

The USACE will also provide full-time oversight of UXO personnel during the actual implementation of the FDP. Obviously, safely managing the metallic anomalies (potential UXOs) takes precedence, but additional support components necessary for completing the FDP are required and described in the attached FDP Work Plan, which includes overall site operations, project support facilities, contingencies and other safety procedures.

Justification

The potential for encountering metal anomalies that are, in fact UXOs, presents a significant physical hazard to safely removing the TLM from the river. Also, there is a very real possibility that there could exist more metal anomalies/UXOs than currently identified. Therefore, conducting the FDP within the alluvial fan area, prior to entering the river for sediment removal is both practical and prudent. Anticipated benefits include:

- Providing valuable insight into the actual risks associated with the metal anomalies/UXOs.
- Increase safety and efficiency for the TLM-removal efforts.
- Successful procedures confirmed/developed during implementation of the FDP will be included in the Remedial Action Plan (RAP) for the Modified Removal Action (MRA).
- Further define roles and responsibilities of other team members associated with the project (i.e., management of culturally significant artifacts, water management and other support operations).
- Results in "clearing" the alluvial fan area of potentially hazardous UXO, which will facilitate the primary access way into the river for the full-scale sediment MRA.

We would appreciate an opportunity to review the attached documents with you at your earliest convenience and sincerely appreciate your interest and assistance in this project. If you have any questions or require any additional information, please call Rusty Contrael at 412-829-9650 or me at 919-819-2748.

Sincerely,

Robert M. Apple
Remediation Project Manager

cc: B. McKoy, C. Ridgeway – USACE (w/o enclosure)
T. Effinger – SCANA (w/o enclosure)
R. Contrael, B. Zeli, T. Wolf – Apex (w/o enclosure)

APEX

PHASE I - FIELD DEMONSTRATION PROJECT WORK PLAN

CONGAREE RIVER SEDIMENTS
SOUTH CAROLINA ELECTRIC & GAS COMPANY
COLUMBIA, SOUTH CAROLINA

June 2015

Prepared for:

SCANA Services, Inc.
220 Operation Way
Cayce, South Carolina 29033

Prepared by:

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1600 Commerce Circle
Trafford, Pennsylvania 15085

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1.0 INTRODUCTION

This Field Demonstration Project (FDP) Work Plan was prepared by South Carolina Electric & Gas Company (SCE&G) to provide additional details pertaining to a proposed Unexploded Ordnance (UXO) removal project located adjacent to the Congaree River in Columbia, SC. The general project area is shown on Figure 1. The FDP is the first phase of a two-phase project currently planned to address a tar-like material (TLM) that is commingled with sediment within the Congaree River downstream of the Gervais Street Bridge. The proposed phases consist of:

- Phase 1 - Field Demonstration Project (Phase 1 - FDP), described in this work plan; and
- Phase 2 - Modified Removal Action (Phase 2 – MRA), (plans to address sediment removal work from within the river and to be finalized and submitted following completion of Phase 1).

A cultural resource identification survey (CRIS) was conducted by TRC and is provided as Attachment D in the PCN. The CRIS covered the overall planned project area and the general vicinity including the Gervais Street Bridge and former Columbia Canal. In addition, potential historical sites were researched using ArchSite, which is a geographic information system (GIS) maintained by the State Historic Preservation Office (SHPO), and South Carolina Institute of Archeology and Anthropology (SCIAA). The CRIS identified a number of archeological sites located in the vicinity of the planned FDP area. These areas are shown on Figure 7 of the PCN.

The Civil War era dump site (site ID: 38RD286) located in the river where the TLM exists is of primary concern for the FDP and the overall sediment removal project. Concerns for safety attributed to the items that may be encountered from or within this historic dump site (i.e., unexploded ordnance [UXO]) have been a driving factor for planning and implementing this project.

Therefore, because the TLM-impacted sediment within the Congaree River has the potential to also contain UXO, the primary purpose of this FDP is to implement, evaluate and improve [if necessary] the UXO management plans on "dry-land" (adjacent to the planned TLM removal area) prior to implementation of the sediment removal action. As proposed, the Phase 1 – FDP project will be conducted in the location referred to as the "alluvial fan" area, situated at the end of the Senate Street Extension, as shown on Figures 2 and 3. This Work Plan will provide a brief overview of the project background information and the general plan for support activities for completion of the FDP.

1.1 Background Information

The South Carolina Department of Health and Environmental Control (SCDHEC) and SCE&G have completed a great deal of work for the Congaree River Sediment Project and a significant amount of background information and reports are available within the administrative record, which is maintained by SCDHEC (http://www.scdhec.gov/environment/CongareeRiver/index.asp). The following is a brief description of the overall project.

Figure 1 provides the location of the Huger St., former Manufactured Gas Plant (MGP) site and a general outline of the planned FDP area. Conceptually, TLM (also referred to as coal tar) was released from the former MGP site, migrated via an open drainage ditch and was deposited within the Congaree River over a long period of time. The Huger St. MGP operated from the early 1900's until the mid-1950s and it is

presumed that most of the coal tar likely migrated to the river during the operational period of the plant. Since the coal tar was likely deposited over 50 to 100 years ago and has been submerged within the river, the coal tar has undergone significant weathering, and therefore, it is referred to as a "tar-like material" (TLM). Based on the previously submitted delineation work, the extent of the TLM in the river has been defined. Following completion of the delineation activities and development of preliminary designs for several remedial alternatives, SCDHEC more recently directed SCE&G to proceed with revising the previously submitted plans to implement a "targeted" or Modified Removal Action (MRA) to address impacted sediment within the Congaree River.

1.2 FDP Purpose

Due to the potential presence of UXO, a reconnaissance and screening of the project area was conducted prior to implementing the sediment investigative activities. The magnetometer survey work was conducted by Tidewater Atlantic Research, Inc. (Tidewater) of Washington, North Carolina. In summary, a total of 570 magnetic anomalies were detected within the study area, with 425 of these anomalies exhibiting ***"signature characteristics that could be associated with ordnance"***. As shown on Figure 4, a total of approximately 74 metal anomalies are located within the proposed FDP boundary.

The potential for encountering metal anomalies that are, in fact UXOs, presents a significant physical hazard to removing the TLM from the river. Also, there is a very real possibility that there could exist more metal anomalies/UXOs than currently identified. Therefore, SCE&G believes that the "readily" accessible metal anomalies that currently exist within the alluvial fan area must be properly addressed prior to initiating any impacted sediment removal work within the river. The information obtained during the FDP will also likely increase the safety and efficiency of the Phase 2 removal effort.

Completion of the FDP will provide the project team and the regulatory agencies with valuable insight into the actual risks associated with the UXO management activities. Completion of the FDP will also result in "clearing" the alluvial fan area of potentially hazardous UXO, which will facilitate the primary access way into the river for the full-scale sediment MRA.

1.3 FDP Area Description

The FDP will be conducted within a small area of the "alluvial fan" as shown on Figures 2 and 3. The alluvial fan is a relatively flat portion of the project area that appears to have developed over time via sediment accumulation occurring as a result of erosion from urban landside activities and from depositional forces within the fluctuating river environment (during higher water level events). "Dry land" also referred to as the "landside" is defined as the alluvial fan area that extends from the edge of the low water level eastward to the normal high-water mark. The proposed FDP area is exposed and accessible during normal (lower) river levels, as seen on the photographic summaries provided as Figures 5 and 6. The precise area to be screened during the FDP will be determined in the field and will be largely dependent upon river conditions (water height), the weather forecast and shoreline characteristics at the time of implementation.

Due to its proximity to the river's edge, the alluvial fan is submerged during high water events. Overall, the alluvial fan is approximately 650 feet long and 110 feet wide at its widest point (during normal river water levels). The sediment/soil thickness within the planned FDP area (a smaller area within the alluvial

fan area) ranges from approximately 6 feet near the water's edge to approximately 10 feet at the furthest inland (eastern) point. Attachment A provides a number of geologic cross-sections that conceptually illustrate the subsurface characteristics of the alluvial fan.

Within the alluvial fan area, there were approximately 14 borings completed during the project delineation phase as shown on Figure 3. It is important to note that there were no TLM related impacts observed within the proposed FDP area. As a result, TLM is not expected to be encountered during completion of the FDP. However, if TLM is encountered it will be properly managed for disposal by SCE&G.

1.4 Access to the FDP Area

Access to the river in this area is provided by a semi-paved, asphalt road, which extends from the intersection of Senate and Gist Streets. The access road then transitions into a gravel ramp near the river's edge. It should also be noted that the toe of slope for the boat ramp is in need of improvements or repairs due to the effects of erosion. The repairs are to be completed as part of this scope of work.

A locked gate, adjacent to Gist Street, restricts vehicular access to the access road and the boat ramp area. The land between Gist Street and the river is private property, except for a public parking area that is located to the east, near the Gist and Senate Streets intersection. SCE&G also maintains a utility right-of-way in the project area, which will be used as a lay-down area. The easy access to the river results in significant public use of the area for fishing, swimming and a place to launch personal watercraft.

2.0 FIELD DEMONSTRATION PROJECT

The primary purpose of the FDP is to implement, evaluate and improve (if necessary) the UXO management plans on "dry-land", before expanding the work into the river. SCE&G and its consultants have been working with various offices of the USACE – (i.e., Huntsville, Alabama, Charleston, SC, etc.) to develop the appropriate plans and procedures to address the UXO issues. In summary, the following plans have been developed by Explosive Ordnance Technologies, Inc. (EOTI) to be consistent with the same level of expertise and scrutiny as a typical military operation to address UXOs. These plans have been reviewed and approved by the appropriate USACE UXO personnel and are included within the Pre Construction Notification (PCN) for this FDP. The approved UXO management plans will address metal anomalies in both the FDP and MRA areas and include:

- Draft Final Work Plan for Munitions Response Removal Action and Construction Support;
- Explosives Safety Submission Munitions and Explosives of Concern Removal Action and Construction Support;
- Diving Operations Plan; and
- Diving Safe Practices Manual.

The FDP basically entails screening the approximate alluvial fan area for the presence of metallic anomalies. A qualified UXO contractor (EOTI) will conduct the screening, removal and UXO management activities. All work will be completed in accordance with the approved plans referenced

above. The USACE UXO team will also provide full-time oversight personnel during implementation of the FDP.

Obviously, safely managing the metallic anomalies (potential UXOs) takes precedence, but additional support components necessary for completing the FDP are required and described below. The overall approach is meant to be flexible to allow for field personnel to adapt to changing conditions.

For the FDP Work Plan purposes, the unearthed metallic anomalies will likely fall into one of the three categories listed below (and will be handled accordingly):

- Potentially hazardous unexploded ordinance (UXO);
- Historically significant items or artifacts; or
- Other, inert metallic debris.

To briefly summarize the process, after a metal anomaly has been determined to be safe to move by the UXO experts, it will be evaluated by the on-site archeologist and eventually transferred to SCIAA or SHPO, as applicable in accordance with the approved Archaeological Data Recovery Plan, TLM-impacted material or other recovered debris will be properly disposed of by SCE&G.

2.1.1 Health and Safety

As with any SCE&G field project, the health and safety of the field personnel and the local residents will be of paramount importance. UXO disposal experts will be utilized for conducting the screening and metallic anomaly identification and removal operations in accordance with their USACE approved plans.

Previous investigative activities did not identify any TLM in the planned FDP area, however the potential for encountering TLM does exist. In addition to the requirements set forth in the UXO management plans, the UXO contractor personnel will be properly trained in accordance with 40 CFR 1910.120 (HAZWOPER) requirements.

The Health and Safety Plan (HASP) for the Huger Street MGP site has been revised to include specific details relating to working in or near the river and was utilized by investigative personnel to safely complete the sediment investigation work. The HASP contains detailed information regarding the constituents of concern in addition to Safety Data Sheets (SDSs) for constituents that remediation workers may potentially be exposed to during intrusive activities at the site. The HASP also includes emergency response procedures to be implemented by field personnel in the event of an emergency situation at the site. As currently planned, air monitoring activities, as set forth in the HASP, will not be performed during the implementation of the FDP, because the area will be an exclusion zone limited to essential UXO personnel only and the presumed absence of TLM. In the unlikely event that TLM is encountered during the FDP, the need for air monitoring and any upgrades to personal protective equipment will be re-evaluated by environmental personnel.

2.1.2 Site Preparation and Security

The currently anticipated site operations plan scenario is shown on Figure 4. SCE&G and/or its consultants reserve the opportunity to adjust, relocate, and/or improve any of the elements discussed in

this section, based on site conditions encountered and future planning discussions with the referenced project personnel.

Security fencing installation will be a vital component of this project because it will restrict the unauthorized or unknowing entry of third parties onto the site from the landside. This is especially important because the area is currently regularly utilized by the public for fishing, boating and swimming purposes. As currently envisioned, a chain link fence at least 6 feet in height with a security screen (visual barrier) will be installed at the approximate location shown on Figure 4. Other support and staging areas located further inland may also be fenced, as may be required. The fence will be equipped with gates or the temporary panels will be moved aside to permit personnel and equipment access. The gates or panels will remain locked during non-working hours and guarded while excavation operations are taking place. The appropriate signage will be affixed to the fence to communicate that access to the area is restricted to authorized personnel only.

City of Columbia police officers will be utilized to provide around-the-clock site security during the actual UXO work.

Two job trailers with electrical connections are currently planned to provide an area for shelter, meetings etc., and may potentially be used to further evaluate any recovered items. Temporary sanitary facilities will also be provided. Roll-off boxes will be staged on-site to store any debris or impacted sediment, if encountered. Frac tanks or other similar tanks, dewatering bags and pumps/hoses will be staged on-site as part of the water management plan detailed in Section 2.1.7. The trailer, roll-offs, water tanks and other equipment will likely be placed/staged in or near the utility right-of-way area shown on Figure 4. Use of this flat, previously graded and regularly mowed area will negate the need to conduct substantial clearing or other earth disturbing activities in support of the project. It is SCE&Gs intent to keep land disturbance activities to a minimum for this project.

Improvement (removing fallen trees and debris) of the access road that leads to the alluvial fan area will be required. Stone fill will also be placed at the end of the asphalt road extension to address previous erosion issues and facilitate access to the project area.

2.1.3 Survey

A licensed South Carolina surveyor will be employed to re-establish the previously identified anomaly locations shown on Figure 4 in the field based on coordinates provided by the geophysical contractor. Pin flags or stakes will be utilized to mark the locations and the corresponding anomaly number will be written on the stake or pin flag. [The UXO contractor will conduct a new and independent screening operation within the footprint of the FDP and the alluvial fan area.] However, marking the original locations will help correlate previously collected data with the findings of the FDP. This information will be useful in developing plans and evaluating potential anomalies during planning and implementation of the Phase 2 - MRA project.

2.1.4 Field Screening and Metallic Anomaly Identification and Management

Once the support zone, security components, access road improvements and water management system are in place, the UXO contractor will mobilize personnel and equipment to the area and begin preparations for the screening of the alluvial fan in accordance with USACE-approved plans and

procedures. As envisioned, USACE UXO personnel will also be on-site providing oversight while the field work is being completed.

"Screening", defined in simple terms, consists of evaluating an area using approved equipment such as a metal detector, etc. to determine the presence of a metal anomaly and carefully exposing the anomaly to ascertain its hazard potential and determining/rendering the object safe to move (i.e., the "mag and dig" approach). The UXO management plans attached to the PCN contain much more detail than this simplified summary. By design, SCE&G's approach to addressing the potential UXO issue is identical to how experts in the UXO field and at the USACE would conduct the work.

The sediment thickness within the planned FDP area ranges from approximately 2-10 feet before the underlying bedrock is encountered. FDP screening activities are expected to extend to the underlying bedrock. Depending on the screening depth capability of the specific equipment utilized by the UXO contractor, excavation will occur in lifts (with a thickness to be determined) down to the bedrock. The carefully excavated material will be temporarily set aside and replaced once the anomaly has been identified/removed. Conducting these activities efficiently in small, manageable areas will reduce the potential for water intrusion into the excavations. Hand tools will likely be used initially and depending on the depth, a small excavator may be used.

If TLM is encountered, it will be placed in the lined roll-off boxes and transported off-site for disposal as described in Section 2.1.6. The area where the TLM was encountered will then be re-graded using surrounding material. No imported fill sand or gravel will be utilized during the FDP project other than for access improvements.

Extensive photographic and written documentation of field activities will be completed and provided in the FDP Documentation Report described in Section 2.1.9.

2.1.5 Identification and Management of UXOs or Artifacts

Each metallic object encountered will be examined by UXO and archeological personnel, and their significance with respect to safety or historical value will be determined. If a potential live explosive device is encountered, it will be managed accordingly by UXO disposal personnel. Metallic, non-UXO related items or other artifacts of potential historical value that may be recovered will be evaluated by an archeologist and eventually transferred to SCIAA or SHPO, as applicable. **AFTER THE UXO PERSONNEL HAVE DETERMINED THE RECOVERED OBJECT IS SAFE TO MOVE**. The original location of any recovered objects will be carefully documented. Approved plans for addressing artifact recovery and conservation are provided in the PCN.

It should be noted that the Archaeological Data Recovery Plan contains significant details that were envisioned at the time when it was submitted and approved and was based on the original scope of work for the Congaree River project. Since the approval date, the scope of the project has been greatly reduced to the currently envisioned Phase 2 – MRA. Although the intent and objectives of the plan will be fulfilled during execution of the FDP, the magnitude of the originally planned artifact-recovery support infrastructure will not be installed on-site for the FDP. However, the recovery and conservation work will be conducted in TRC's conservation laboratory in Columbia, SC or other suitable off-site area, as required

2.1.6 Management and Disposal of Impacted Material

It is anticipated the majority of material evaluated from the alluvial fan area will be un-impacted (i.e., no TLM has been documented in this material). However, since the potential exists that TLM could be encountered, albeit unlikely, provisions will be in place to manage the material for proper disposal in accordance with SCDHEC-approved procedures.

Excavated material that is obviously impacted by tar or appears to contain other constituents of concern, will be containerized and transported off-site for disposal. A roll-off box or some other method for containerizing the material will be stationed nearby as a contingency measure. If the roll-off box cannot be placed near the project area, a loader or backhoe will be used to transport the material from the work area to the roll-off box.

Deleterious material generated from this project will be transported to the Richland County Landfill in Columbia, SC for disposal. For any TLM-impacted material, characterization and waste approval documentation have already been obtained from this location and the existing profiles will be utilized to dispose of investigative derived waste from the FDP activities.

2.1.7 Water Management and Excavation Dewatering

Sand bags and/or large filter socks will likely be placed at the western, (riverside) extent of the FDP project area to provide a buffer against minor river level fluctuations during completion of the project. A sand bag placement scenario is shown on Figure 4 and specifications for large sand bags is provided in Attachment B. The actual number and layout of the sandbags will be determined by field personnel at the time of implementation. Best Management Practices (BMPs) for Erosion and Sedimentation (E&S) controls will also be installed prior to starting intrusive work within the project area, as may be required.

River water or groundwater is expected to accumulate in the small excavations and require management in order to maintain visibility and suitable working conditions for the UXO management personnel. Excavation dewatering will be conducted and will likely entail use of an adequately sized pump to transfer water from the open/active work area to the adjacent landside support zone where it will be managed to remove sediment. It will be especially important to maintain a pumping and flow rate that controls the water level within the excavation during UXO investigation activities. Figure 4 provides the currently planned dewatering management scenario which includes the use of dewatering bags to filter out and collect sediment before the water is allowed to dissipate to the ground surface. As currently planned the filtered water will be allowed to infiltrate the ground surface in a vegetated area. Example specifications for the dewatering bags are provided in Attachment B

Other sediment collection and settling options may be utilized in conjunction with, or in lieu of, the dewatering bags based on the encountered conditions, the recharge volume or flow rate, and other project requirements. These options may include the use of settling tanks, such as weir tanks or frac tanks to allow for adequate residence time of the water to permit settling before being discharged to the upland vegetated ground surface. The dewatering bags or settling tanks will be cleaned out or replaced as needed to permit continued sediment filtering during completion of the project. Discharge water will be visually monitored to ensure proper sediment removal is occurring prior to discharge.

In the unlikely event that a sheen or odor is identified in excavation water, the water will be transferred directly to the frac tanks staged in the support zone. SCE&G will then conservatively manage this water

via off-site disposal. The appropriate disposal facility approvals have already been secured and the disposal manifests will be included in the FDP Documentation Report, if needed.

As currently planned, the completed investigation locations will be promptly backfilled once the specific metal anomaly has been identified in order to reduce the amount of water infiltration. Collected sediment, from the dewatering bags, settling tanks or other means of containment, will be transported off-site for disposal as described in Section 2.1.6.

2.1.8 Site Restoration

Once the FDP is completed, the disturbed area will be restored, as necessary, to its original conditions. However, improvements to the boat ramp area will remain. As currently planned, the fencing, trailer and other support zone facilities will also remain in-place to be utilized during Phase 2 operations.

2.1.9 Reporting

An FDP Documentation Report will be prepared to document field activities. The report will include:

- A discussion of field activities;
- A summary of metallic anomalies identified and their final dispositions;
- A summary of the total amount of excavated material removed for off-site disposal and the associated manifests (if required);
- A figure depicting the actual extent of FDP activities and the locations of the identified objects; and
- A discussion of the findings, conclusions and/or recommendations for improving the existing work plans and approach to improve safety and/or efficiency.

3.0 PROJECT SCHEDULE

SCE&G desires to implement this FDP Work Plan in August or September due to historically favorable river condition and lower water elevations. Coordination with the appropriate project personnel is expected to take place over the next few months and details associated with this plan will likely evolve. However, site preparation activities can begin soon after the final access agreement has been executed. SCE&G anticipates that the actual UXO fieldwork will be completed within one week, depending upon the actual river conditions encountered.