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**From:** EFFINGER, THOMAS N <TEFFINGER@scana.com>
**Sent:** Monday, March 19, 2018 2:07 PM
**To:** Reece, Myra; Taylor, G. Ken; Neel, Daphne G.; Berresford, James; Cassidy, Greg; Siron, Don; 'Bill Stangler (CRK@congareeriverkeeper.org)'; Catherine Wannamaker; ejones@selcsc.org
**Cc:** BIERY, PAUL KIM; cpearson@scana.com; HAMILTON, J. HAGOOD JR; Rusty Contrael
**Subject:** FW: Congaree River project

Everyone,

Attached is a courtesy copy of the letter that was sent to the Army Corps of Engineers earlier today. The letter is responsive to the path forward that was discussed during our meeting on January 24th, 2018.

Thanks,
Tom

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SITE ASSESSMENT, REMEDIATION & REVITALIZATION

March 19, 2018

Mr. Brice McKoy
Northwest Regulatory Branch Chief
U.S. Army Corps of Engineers
Strom Thurmond Federal Building
1835 Assembly Street, Room 865 B-1
Columbia, South Carolina 29201

RE: **USACE Permit - P/N 2011-01356-6NO**
**SCE&G - Congaree River Site**
**Columbia, South Carolina**
**Cofferdam Approach for a Removal Action**

Dear Brice:

Since receiving Nationwide Permit Authorization from your office on October 18, 2017, SCE&G submitted its Sediment Capping Work Plan (SCWP) to the SC Department of Health and Environmental Control (SCDHEC) on November 30, 2017. Submittal of the SCWP started the review process of the proposed remedy under the SCDHEC Voluntary Cleanup Contract (VCC) program. During the VCC review, there have been several inquiries about the issues that precluded SCE&G from obtaining a permit to utilize a cofferdam as part of a project to remove tar like material and sediment (collectively referred to as TLM) from the Congaree River. More specifically, the questions raised in those inquiries have been in regards to the evaluations and determinations made which concluded that a cofferdam installed in the Congaree River would present more risk than is allowed under the Individual Permit program administered by the U.S. Army Corps of Engineers (USACE). In order for the SCDHEC review process to move forward, SCE&G respectfully requests further clarification from the USACE regarding the criteria that prevented issuing a permit for the proposed cofferdam in the Congaree River.

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## BACKGROUND

Beginning with the pre-application meeting request submitted in December 2011, SCE&G has pursued a permit from the USACE that would allow us to install a cofferdam in the Congaree River in order to safely remove TLM. Originally, an area of approximately 8 acres with an estimated 40,000 tons (27,000 CY) of TLM was identified and delineated for removal. The need for and design of the cofferdam was based on the characteristics of the project area, the variable nature of river flow rates, the irregular river rock bottom contours, and the potential presence of unexploded ordnance (UXO) and historic artifacts within the work area. In 2011, the belief among SCE&G and SCDHEC was that the cofferdam removal approach would be able to effectively remove TLM sediment while also meeting the constraints of other agencies regarding how to safely manage river hydrology as well as potentially co-mingled ordnance and artifacts. For these reasons, the cofferdam removal approach was selected as the preferred remedy by SCDHEC in its May 2013 correspondence.

During the ensuing two years, the USACE provided much guidance and direction on the analyses and submittals that were necessary to achieve compliance with the rules and regulations that govern what can be installed in the River. Ultimately, the USACE identified significant risks and concerns during the permitting process and communicated those concerns in a January 2015 meeting with SCDHEC and SCE&G. The USACE's concerns related to the risk and potential for: (1) increased shoreline erosion and flooding on the west bank of the Congaree River; (2) cofferdam overtopping; (3) backwater effects on adjacent property owners during storm events; and (4) catastrophic failure which would lead to material being spread in the River that would be impossible to remove. In light of these concerns, the USACE questioned the feasibility of constructing a cofferdam that would meet the conditions necessary to obtain a permit. Because SCE&G was unable to completely address USACE concerns after multiple submittals, SCE&G began to explore other project alternatives in collaboration with the resource agencies.

In an effort to minimize the USACE's concerns and still develop a feasible plan that would include removal of TLM, SCE&G sought and received approval to evaluate a Modified Removal Approach (MRA) which included approval of a Field Demonstration Project (FDP) whereby actual testing of techniques in areas adjacent to the river would be conducted to determine their potential for large scale use as part of a MRA. The MRA was designed to target a smaller removal area (approximately 2 $^{1}/_{3}$ acres) in the more shallow areas of the river that hold the greatest amount of TLM with the goals of reducing the previously identified risks to a level acceptable for receiving a permit, and removing as much TLM as possible. The objective of the FDP, which started in late September 2015, was to evaluate the safe management of UXO and historic artifact recovery on dry land (above the ordinary water elevation) as well as to evaluate the use of large sand bags as a method to isolate smaller sections of the river bank from water intrusion.

The FDP would show the actual effects of rapidly changing water levels in the demonstration project area for the agencies to use in their review to determine if the risks previously identified during SCE&G's prior submittals would be mitigated with the MRA. Unfortunately, the results of the FDP, as discussed in more detail below, were not encouraging.

Of significance was that the October 2015 flood coincided with the FDP. As a result of the high flood water, SCE&G was forced to stop work several times between October 1 and December 31, 2015. The FDP report describes the severe flood event in pertinent part as follows:

> It rained steadily over several days and the City of Columbia received 12.5 inches of rain within a 5-day period. On October 4, the river crested at 31.81 feet (based on the river gage located directly across from the FDP area), which corresponds to an approximate elevation of 145 feet (NGVD '29). The general elevation of the FDP area is between 116 feet to 122 feet, which means that **the previously dry work area was under approximately 29 feet of water at the peak river flow**.

In addition to inundation of the actual project area, the work support compound on the riverbank was under approximately three feet of flood water. Nonetheless, when the River elevation subsided, work to test whether the large sandbags would be effective during full-scale implementation of the MRA removal (Phase 2) resumed as planned under the FDP. The FDP proved that the 1 cubic yard sandbags were able to be moved relatively quickly, but were not able to withstand water ingress, even during low flow, low river conditions.

The FDP also provided valuable information on the process necessary to clear the area of potential ordnance. Tidewater contractors had previously conducted magnetometer and side-scan sonar survey work (back in 2010 and 2012) which resulted in the identification of approximately 570 total magnetic anomalies within the entire 8-acre area, with 101 being located within the general FDP area. Tidewater cautioned… ***"those anomalies should be considered potentially hazardous until material generating the signatures can be identified."*** This caution was echoed by the USACE Huntsville, Alabama office that controlled oversite responsibility for the safe management of UXO during the project. To that end, Explosive Ordnance Technologies, Inc. (EOTI) - a full-service military munitions contractor from Oak Ridge, Tennessee – was hired to provide UXO management and clearing support activities. "Clearing" consisted of field locating the subsurface object believed to be generating the original magnetic anomaly signal, positively identifying and/or recovering the object and declaring the localized area to be safe (i.e., free and clear of any potential UXO). What we learned from the FDP clearing process is that it takes a 7-man crew at least an hour to clear on average 127 square feet. Scaling this observation up to the full 8 acres means that it will require about 274, ten-hour days (using a 7-man crew) to clear the project area. With only 180-days allowed each year to work in the River, the time required to clear potential ordnance would be a significant consideration in any removal project timeline.

In summary, the lessons learned during actual work performed in the river under the FDP revealed that the techniques proposed in the MRA would not work under normal river conditions because of the extended time that would be required to clear ordnance coupled with the inability of the sandbags to prevent river water ingress during ordnance clearing and subsequent TLM removal. Adding to that, the catastrophic breach of the Columbia Canal dike immediately upstream of the 8-acre project site in October 2015 placed an additional 60,000 to 100,000 tons of fresh sediment on top of the 40,000 tons of the targeted TLM sediments. The additional sediment overburden would not only significantly add to the time required to achieve removal of any TLM but would also impede the UXO clearing work required of EOTI.

The FDP concluded in December 2015. At the time, it was SCE&G's understanding that the USACE had concluded that the previously proposed cofferdam would have suffered a catastrophic failure during the 2015 flood event and affirmed that any cofferdam and thus, any removal would create too much risk in the River. Because of the strong reservations expressed by the agencies for the use of a cofferdam, by mid-2016, our discussions with the agencies began to focus on the next best alternative of installing a cap on top of the fresh sediment deposited from the Columbia Canal dike breach.

SCE&G submitted an FDP Documentation Report in July 2016 which summarized the results and agency analysis of the work performed under the FDP. The FDP concluded with the following:

> Due to numerous project-related circumstances (i.e., negative effects of a proposed cofferdam, new sediment deposition in the project area and direct experience working in this dynamic river project area), it is anticipated that SCDHEC will direct SCE&G to proceed with a capping approach to address the TLM-impacted sediment.

After review of the FDP Documentation Report, SCDHEC responded with a letter dated August 16, 2016. In the August letter, SCDHEC re-iterated the risks and concerns previously identified by the USACE with the following statement:

> In light of the 2015 flooding event and its impacts to the Congaree River, as well as the constraints with excavation of sediment from the Congaree River, the Department of Health and Environmental Control (Department) has reevaluated the alternatives from the 2013 Engineering Evaluation / Cost Analysis (EE/CA) for cleanup of the tar like material (TLM) in the Congaree River. Based on the current conditions, and the ability to obtain proper permits and safely conduct a removal action without adverse impacts to human health and the environment, the Department is requesting SCE&G pursue EE/CA Alternative 3 – Sediment Capping and Institutional controls instead of the removal alternative previously envisioned.

As stated in SCDHEC's letter, the same factors identified earlier by the USACE, which were substantiated by the flood event, caused a re-evaluation of alternatives resulting in SCDHEC's request that SCE&G pursue a sediment capping and institutional controls approach.

In effect, SCDHEC requested that SCE&G pursue and obtain a USACE permit for a sediment cap before they would move forward with the VCC process to obtain final SCDHEC approval of the remedy. SCE&G complied by following the revised USACE permit path forward and obtained the NWP 38 Authorization for installing a sediment cap in the Congaree River.

## QUESTIONS REQUIRING CLARIFICATION

Since receiving the NWP authorizing a sediment cap to be placed in the Congaree River and submitting the SCWP to SCDHEC, multiple stakeholders have expressed their belief that removal is the only acceptable remedy and that the information that SCE&G has already submitted for the cofferdam removal approach should have been pursued further to obtain a permit. Therefore, it appears SCE&G's efforts to implement any remedy are stalled indefinitely until it can be proven that a method and design for obtaining a permit from the USACE to utilize a cofferdam as part of a project to remove TLM presents too much risk and is infeasible. Although, SCE&G has persistently tried to address these concerns without speaking on behalf of the USACE, to date, we have been unable to achieve agreement from the stakeholders without the direct input of the USACE. Therefore, any clarification or insight provided by the USACE regarding the following questions would be helpful.

1. In SCE&G's original cofferdam approach with a berm height of 123.5 feet NGVD29, a "no rise" certification for the 100-year flood was provided. ***Why did the USACE request a "lower flow sensitivity study" to evaluate the impact that the installation of a cofferdam would have under "normal" river conditions (lower than 100-year, 50-year, and 10-year flows)? Is there a FEMA requirement or some other regulation that requires it?***

2. SCE&G commissioned a "lower flow sensitivity study" from Rizzo Associates in response to the USACE request that SCE&G determine the impact that the installation of a cofferdam would have under "normal" river conditions (lower than 100-year, 50-year, and 10-year flows). The Rizzo study, dated August 14, 2014, calculated a projected river rise during Phase 2 of the cofferdam of 6.4 feet and increased channel width of 124 feet. ***Why did the USACE conclude that the river rise of 6.4 feet and increased channel width of 124 feet during normal river conditions were not acceptable?***

3. Between September 2014 and January 2015, SCE&G and the USACE communicated about the low flow sensitivity study concerns several times which caused SCE&G to inform SCDHEC that it may not be able to adequately address the USACE's comments. However, in a continued effort to gain approval for a removal action while addressing concerns with the western shore rise (flooding) issue at lower river flow rates, SCE&G proposed a modified removal action (letter to SCDHEC dated February 18, 2015). In pursuit of the MRA, SCE&G commissioned Rizzo to perform a lower flow sensitivity study on two options using smaller removal area footprints in the Congaree River. Rizzo hypothesized that the USACE concerns regarding flooding could be reduced by optimizing the size of the removal cells with multiple removals/reinstallations that responded to imminent weather forecasts. In an April 30, 2015 letter to the USACE, SCE&G presented two of these modified removal options and requested information about the maximum allowable water level increase at lower flows so that it could finalize a design of these two options accordingly. ***Would a water level change that did not exceed 1.0 foot be acceptable? If not, what would be an acceptable river rise and channel width increase during lower flows? Are these criteria or relevant guidance specified in any regulation or other document?***

4. Note that if the USACE indicates that a removal of TLM from the Congaree River is potentially approvable if the "correct approach or technique" is selected, SCE&G fully intends to pursue this removal design as well as the USACE permit to authorize its use. However, SCE&G also seeks to preserve the efforts, including those of USACE, that resulted in authorization of the sediment capping and institutional controls approach under NWP 38 so that there will be little delay in the event that the revised removal effort is ultimately unsuccessful in reducing the risk to acceptable levels for a permit to be obtained. ***Would the USACE suspend the sediment cap authorization (i.e. extend the permit expiration date) under NWP 38 until such time as the revised removal approach evaluation could be completed?***

Thank you for your help in addressing these stakeholder issues and questions so that we may be able to move a remedy forward under the VCC for the Congaree River. If you have any questions, please don't hesitate to give me a call at 803 217-9367.

Sincerely,

Thomas N. Effinger
Director, Corporate Environmental Services
SCANA

Cc: Lucas Berresford, Ken Taylor, Don Siron, Myra Reese (DHEC)
Rusty Contrael (ACE, Inc.)
Bill Stangler (CRK)
Catherine Wannamaker, Liz Jones (SELC)
Paul Biery, Craig Pearson, Hagood Hamilton (SCANA)