FLORENCE COPPER INC.

FLORENCE COPPER INC.
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florencecopper.com

23 March 2018

Ms. Nancy Rumrill
U.S. Environmental Protection Agency
Region 9, Ground Water Office, WTR-9
75 Hawthorne Street
San Francisco, California 94105-3901

Re: Notification of Intent to Deviate from Permit Method – Abandonment of Corehole 133S Florence Copper Project, Florence Arizona

Dear Ms. Rumrill:

Florence Copper Inc. (Florence Copper) herewith conveys notice of intent to deviate from the methods for corehole abandonment at the Proposed Test Facility (PTF) at the Florence Copper Project Site (Site). This notification is provided in accordance with the terms of Underground Injection Control Permit R9UIC-AZ3-FY11-1 (Permit) which requires Florence Copper to provide the U.S. Environmental Protection Agency (EPA) notification of deviations from the field methods included in the Permit. The deviation is necessitated based on conditions observed when the Corehole 133S was re-entered in preparation of abandonment. The observations, conditions, and plan for the abandonment of Corehole 133S is summarized below.

Background

Corehole 133S is an exploration corehole located within the Area of Review for the PTF. The corehole was drilled in 1971 by Conoco who was the owner of the property at the time. The Corehole was left in place once completed. Under section Q.3.1 of Appendix C of the Permit, Florence Copper is required to abandon Corehole 133S by the following method:

a. *Locate and Inspect Well or Corehole: The well or corehole will be located using available survey coordinates. The condition and location of the well or corehole will be recorded. If the well or corehole is not visible from the surface, the area will be excavated to locate the collar of the corehole or expose the surface casing of the well.*

b. *Move in Workover Rig: A workover rig, capable of performing the required abandonment operations at the required depths will be moved in and set up over the well or corehole.*

c. *Equipment Removal: All pumps, tubing, wiring, and ancillary equipment within the well will be removed prior to abandonment of the well. Coreholes do not have such equipment.*

d. *Perforations: If records demonstrate that a well annulus is inadequately sealed, and its casing is not removed, the casing will be perforated to allow installation of cement grout in the annulus. If necessary and the casing extends that distance, perforations will extend from at least 20 feet below the bedrock-lower basin fill unit (LBFU) contact to at least 20 feet above the contact; from at least 20 feet below the base of the middle fine-grained unit (MFGU) to at least 20 feet above the top of the MFGU, and from 25 feet below ground surface (bgs) to 5 feet bgs.*

e. *Cleaning: Wells and coreholes will be cleaned out if necessary to a depth of at least 100 feet below the bedrock-LBFU contact to enable proper placement of cement seals. This will be accomplished by installing a workstring of tubing and circulating fluids, or drilling, or performing other remedial work as required to clean the well or corehole to the required depth.*

f. *Equalization of Wellbore Fluids: After cleaning the well or corehole, wellbore fluids (bentonite mud) may be circulated and treated as necessary to achieve equilibrium and stabilize the hole.*

Abandonment Work Completed at Corehole 133S

In April 2017 the collar for Corehole 133S was located and inspected. Both 3-inch intermediate casing and 5.5-inch surface steel casings were visible at the surface and open to access. On 11 April 2017, National Exploration Wells and Pumps set up a core drilling rig on Corehole 133S, re-entered and cleaned out the corehole past the minimum cleanout depth of 619 feet bgs to 637 feet bgs, where a hard bridge was encountered. A bentonite pellet plug extending from 628 to 637 feet bgs was installed to retain grout during abandonment.

Geophysical logs were run in Corehole 133S on 12 April 2017 in an attempt to determine the extent of the existing cement seal; the logs are included in Attachment 1. The geophysical data indicated that there is likely not a cement seal and there appeared to be potential voids behind the casing from approximately 120 to 140 feet bgs and 280 to 300 feet bgs. The logs also confirmed the depth of the 3-inch steel casing; records indicated it extended to 560 feet bgs, the geophysical data indicate that it extends to approximately 565 feet bgs.

In accordance with Section Q.3.3 of Appendix C of the Permit, an attempt was made to remove the 3-inch inner casing that was loose at the surface. Several horizontal cuts were made at depth to assist in pulling of the casing. After cutting and pulling 99.7 feet of 3-inch steel casing several additional horizontal cuts were made; however, no further casing could be removed by pulling.

Corehole 133S was tagged in July 2017 and determined to no longer be open to the cleanout depth. From 30 January to 2 February 2018 Layne made several attempts to clean out Corehole 133S using a corehole drilling rig to the minimum cleanout depth, however the corehole would not remain open below approximately 120 feet due to the dislodged 3-inch casing. After several attempts, the inside of the 3-inch casing either became deformed or was pushed into the borehole wall, becoming inaccessible. During their attempts to clean out the boring, the 5.5-inch casing slipped down the borehole so that it is no longer visible at the surface.

Plan for Completion of Abandonment of Corehole 133S

Due to the inability of the contractors to enter the 3-inch inch intermediate casing in Corehole 133S to perforate the casing per the permitted method, Florence Copper proposes to remove the casing. The casing will be removed using the alternate method described below:

a. Mobilize a drilling contractor to the site.

b. Remove the 45-feet of 5.5-inch surface casing from the corehole; this will be done by spearing the casing and retrieving it at the surface.

c. Use 5-inch casing to drill over the 3-inch intermediate casing; this will be accomplished by the drilling contractor advancing 5-inch drive casing down over the 3-inch casing in the borehole while rotating and circulating fluids.

d. Remove the 3-inch intermediate casing to the total depth of 565 feet bgs.

e. Clean out the borehole to the minimum cleanout depth of 619 feet bgs.

f. Emplace Type V neat cement grout from a minimum depth of 619 feet bgs to 5 feet bgs using the submerged tremie pipe method.

g. Backfill excavation at the surface with native soil.

Florence Copper believes this is the best approach to abandon Corehole 133S based on observed conditions at the corehole and that this method conforms to requirements of the UIC Permit.

Please contact me at 520-374-3984 if you require any additional information.

Sincerely,
Florence Copper Inc.

Daniel Johnson
Vice President – General Manager

cc: Audrey Johnson, U.S. Environmental Protection Agency
Maribeth Greenslade, Arizona Department of Environmental Quality