

**Attachment 16**

**Technical Requirements – Closure and Post-Closure Plans (Item 19J)  
Application to Amend APP No. P-101704**

**Florence Copper Project  
Florence Copper Inc.**

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## Table of Contents

Table of Contents .....	1
List of Exhibits .....	1
16.1 Introduction .....	2
16.1.1 Background .....	2
16.1.2 FCP Facilities .....	2
16.1.3 PTF Facilities Description .....	3
16.1.4 Existing Facilities .....	4
16.1.5 Closure Objective .....	5
16.2 Description of Closure Activities .....	5
16.2.1 Closure Activities in the ISCR Well Field .....	5
16.2.1.1 Groundwater Restoration Process .....	6
16.2.1.2 Well Closure .....	7
16.2.1.3 Closure of Surface Facilities .....	7
16.2.2 Materials Management .....	8
16.2.3 Soil Management .....	8
16.2.4 Closure Monitoring .....	8
16.2.5 Post-Closure Monitoring .....	9
16.3 Closure/Post-Closure Schedules .....	9
16.3.1 Closure Schedule .....	9
16.3.2 Post-Closure Monitoring Schedule .....	13
16.4 Closure/Post-Closure Cost Estimates .....	13

## List of Exhibits

Exhibit No.	Title
16-1	UIC Permit Attachment E – Plugging and Abandonment Plan

# **Application to Amend Aquifer Protection Permit No. P-101704 Florence Copper Project**

## **Attachment 16 (Item 19J): Technical Requirements — Closure and Post-Closure Plans**

### **16.1 INTRODUCTION**

#### **16.1.1 Background**

This Attachment conveys information describing the closure and post-closure plans for Florence Copper Project (FCP) discharging facilities in support of the application for significant amendment (application) of Aquifer Protection Permit (APP) No. P-101704 requested by Florence Copper Inc. (Florence Copper) in accordance with Arizona Administrative Code (A.A.C.) R18-9-A211(A)(1). The information presented in this Attachment is provided in response to Item 19J (Closure and Post-Closure Plans) of the application form.

This Attachment includes information that describes the closure and post-closure activities proposed by Florence Copper for the planned full-scale in-situ copper recovery (ISCR) facility which will include an ISCR well field, pregnant leach solution (PLS) pond, raffinate pond, runoff pond, water impoundments, and related infrastructure.

Information presented in this Attachment is more appropriately described as a closure strategy than a closure plan. Arizona Revised Statute (A.R.S.) § 49-243.A.8 requires applicants for individual permits to submit “closure strategies” with their applications, whereas A.A.C. R18-9-A209.B.3 requires an owner or operator of a permitted facility to submit a “closure plan” within 90 days after announcing an intent to permanently close all or part of the permitted facility.

In addition to this closure and post-closure strategy, Florence Copper is required to develop and comply with closure and post-closure plans in accordance the United States Environmental Protection Agency (USEPA) Underground Injection Control (UIC) regulations and to comply with the reclamation requirements of the Arizona State Land Department (ASLD) as specified in its regulations and in Mineral Lease No. 11-26500. The focus of this plan is to close the FCP components in a manner that will protect groundwater in accordance with APP and UIC regulations and that will be consistent with ASLD requirements.

#### **16.1.2 FCP Facilities**

The facilities listed below will be required for commercial ISCR operations, which will include development of the entire ISCR using a process of simultaneous development, operation, and closure of multiple resource blocks in sequential order. The proposed ISCR facility is generally described in Attachment 1 and is described in detail in Attachment 9.

ISCR operations will include:

- Existing office building and septic system, warehouse and shop facilities, core storage building, roads, and associated infrastructure.
- A variable number of bermed well field units which will vary in size and will contain a number of injection and recovery wells based on the site extraction plan and operational requirements.

Both the number and size of the units remaining at closure are dependent on the stage of development and operation within the ISCR area. Approximately 597 injection and recovery wells are estimated to be in existence at the commencement of closure.

- In addition to the injection and recovery wells, each well field unit will include a proportional number of perimeter and observation wells for monitoring and maintaining hydraulic control.
- Pipelines connecting each well head, including secondary containment such as lined pipe corridors, double walled pipe, or similar containment.
- Field offices and control facilities in the ISCR and water treatment and water impoundment area.
- Beneficiation area including:
  - Commercial-scale solvent extraction and electrowinning (SX/EW) plant with associated tanks;
  - Sulfuric acid delivery area, tank, transfer pump;
  - Dry lime delivery area, mixing tank, slaking system, transfer pump; and
  - PLS, raffinate, and runoff ponds.
- Five new water impoundments in addition to the existing BHP Copper Inc. (BHP Copper) water impoundment and the Production Test Facility (PTF) runoff pond and water impoundment described below.
- An expanded water treatment facility and tank farm.
- An expanded pad to accommodate the expanded water treatment facility and the expanded water treatment tank farm, multiple tank farms in the ISCR area, and additional pipelines and lined containment channels.
- Security fencing for the ISCR area, tank farms, and water impoundments.
- Upgraded power lines, an expanded electrical substation, and other infrastructure to support full-scale commercial operations.
- Thirty-two Point of Compliance (POC) wells.

In addition to these planned facilities, all facilities associated within the PTF will be incorporated in the full scale ISCR operations. The PTF-related facilities will be closed in the same manner as the full-scale ISCR facilities. The PTF well field will be incorporated into one of the well field units of the full scale ISCR facility and will be closed with the remainder of that unit when operations are completed in that unit.

### 16.1.3 PTF Facilities Description

Components of the PTF include:

- PTF well field including four injection wells, nine recovery wells, seven observation wells, four multi-level sampling wells, well heads, piping, and liners.
- Pipeline corridor including liner, sumps, a pipeline for PLS, and a pipeline for raffinate.
- Beneficiation area including:
  - Sulfuric acid delivery area, tank, transfer pump;
  - Dry lime delivery area, mixing tank, transfer pump;

- Raffinate tanks, transfer pumps;
- PLS tanks, transfer pumps;
- Runoff pond;
- Water impoundment;
- Modular trailers for offices, control rooms, etc.; and
- Pilot scale SX/EW plant.

**\*\*Note:** All components listed under “Beneficiation Area” are located on impermeable liners and either drain directly to the runoff pond or drain to lined sumps for collection and return to the runoff pond.

- Seven POC wells.

#### 16.1.4 Existing Facilities

Existing discharging facilities within the proposed Pollutant Management Area (PMA) include those currently permitted under the terms of APP No. P-101704 and APP No. P-106360. A list of these discharging facilities is provided in Tables 1-1 and 1-2 of Attachment 1. It is important to note that most of the discharging facilities permitted under APP No. P-101704 were never constructed but are planned for construction following issuance of the amended APP pursuant to this application. Facilities (APP No. P-101704) that were not constructed include:

1. Majority of permitted injection and recovery wells. The only injection and recovery wells constructed under APP No. P-101704 were associated with the BHP Copper well field which included 21 UIC Class III injection, recovery, and observation wells. The ISCR well field contemplated under this permit includes more than 2,000 UIC Class III wells.
2. Raffinate pond. The planned beneficiation facility was not constructed, and consequently this pond was not needed or constructed. This application includes a request to permit a newly redesigned raffinate pond.
3. PLS pond. The planned beneficiation facility was not constructed, and consequently this pond was not needed or constructed. This application includes a request to permit a newly redesigned PLS pond.
4. Runoff pond. The planned beneficiation facility was not constructed, and consequently this pond was not needed or constructed. This application includes a request to permit a newly redesigned runoff pond.
5. Majority of water impoundments. A total of 13 water impoundments were originally contemplated for construction under APP No. P-101704. However, the planned operations by the previous owner did not proceed, which eliminated the immediate need for these impoundments, and only one impoundment was constructed. That impoundment remains active and is currently permitted and operated under the terms of APP No. P-101704. Florence Copper has redesigned the planned water impoundments and implemented operational efficiencies that have reduced the number of water impoundments required. This application includes a request to permit the newly redesigned water impoundments.

All of the facilities associated with APP No. P-10630 listed in Table 1-1 of Attachment 1 have been constructed and are currently in operation under the terms of that permit.

There are no known additional discharging facilities located within the proposed PMA. However, there are existing features (wells, coreholes, and underground workings) shown on Figures 8-1 and 8-2 that are associated with exploration activities that were conducted by previous owners in the 1970s and 1990s. All of the existing wells and coreholes within 500 feet of planned injection and recovery wells will be abandoned prior to commencement of injection as described below. All other features will be unaffected by the development and operation of the ISCR facility and will remain subject to the general closure and post-closure requirements of APP No. P-101704 and UIC Permit No. R9UIC-AZ3-FY11-1.

All wells and coreholes will be abandoned in accordance with the Plugging and Abandonment Plan that is included as Appendix C of UIC Permit No. R9UIC-AZ3-FY11-1. The Plan is included in this attachment as Exhibit 16-1. As shown on Figure 8-1 and 8-2, all wells and coreholes to be abandoned in advance of ISCR well field operations are located on Florence Copper property on the State Land parcel leased to Florence Copper.

#### 16.1.5 Closure Objective

The closure objective is to ensure compliance with the requirements of A.R.S. §§ 49-243 B.2 and B.3 by preventing discharges of any pollutant that will cause or contribute to a violation of an Aquifer Water Quality Standard (AWQS) at the applicable POC, or that will further degrade at the applicable POC the quality of any aquifer that at the time of permit issuance violates the AWQS for that pollutant. To achieve these objectives, Florence Copper proposes to restore groundwater in each portion of the formation after injection and recovery of ISCR has been completed. Groundwater will be restored to a quality where constituents with AWQS meet the AWQS or pre-operational background concentrations if those concentrations exceed AWQS values. Restoring groundwater to this high quality results in a reduction in the concentration of all groundwater constituents, not just constituents with AWQS. Florence Copper also proposes to close surface facilities in a manner that will prevent contamination of the soil to prevent an exceedance of the pre-determined Soil Remediation Levels (SRL) for residential property as listed in Appendix A of the Arizona Soil Remediation Standards and the Groundwater Protection Limits (GPL) established by the Arizona Department of Environmental Quality (ADEQ).

This closure strategy addresses all components of ISCR operations, including APP-exempt facilities, to provide a comprehensive understanding of all proposed closure activities. This strategy and the related cost estimates provided in Attachment 3 address closure activities required by the APP, UIC, and ASLD programs. To avoid duplicative financial assurance, it is anticipated that the total amount of financial assurance provided to ADEQ will be reduced by the amounts covered by any requests made by the USEPA and ASLD for separate financial assurance instruments.

### 16.2 DESCRIPTION OF CLOSURE ACTIVITIES

The proposed closure ISCR facility activities are described below.

#### 16.2.1 Closure Activities in the ISCR Well Field

Closure activities in the ISCR well field will occur in three steps: (1) restoration of groundwater quality to levels meeting AWQS or pre-operational concentrations if the pre-operational concentrations exceed AWQS; (2) closure (abandonment) of all ISCR wells in accordance with the Plugging and Abandonment Plan; and (3) closure of related surface facilities in the well field, including pipelines and tanks.

Once the injection has begun, the APP and the UIC Permit will require that hydraulic control be maintained in the well field from the time that injection begins until groundwater quality has been restored to meet the closure criteria specified. Groundwater restoration will begin after the scheduled operations have been completed and after a notice is given in accordance with A.A.C. R18-A209.B.2.

The groundwater restoration process involves rinsing the formation to reduce constituent concentrations to levels that meet AWQS or pre-operational concentrations if the pre-operational concentrations exceed AWQS. The groundwater pumped during rinsing will flow through the same tanks, piping, and equipment used during ISCR operations and will serve to rinse these components with increasingly high-quality water over the rinsing period. As a result, tanks, piping, and equipment will have been thoroughly rinsed by the time that ADEQ and USEPA approve the restoration and authorize abandonment of the wells. This will allow the removal of all tanks, piping, equipment, and liners from the well field to the runoff pond to commence simultaneously with the abandonment of the wells. For contingency purposes, however, the last FCP components to be dismantled will be, in order, the runoff pond and the water impoundment.

#### **16.2.1.1 Groundwater Restoration Process**

The following groundwater restoration process assumes a notice of permanent cessation has been given in accordance with A.A.C. R18-A209.B.2 and a closure plan has been submitted in accordance with A.A.C. R18-A209.B.3.

1. Restoration of groundwater will begin after injection for copper recovery has been discontinued. Restoration will be accomplished by using groundwater, or appropriately treated recycled water, to sweep residual ISCR solutions into recovery wells. The groundwater may be pulled from the aquifer surrounding the well field or it may be pumped from nearby wells and then injected. Injection may occur with or without buffering agents such as sodium bicarbonate or other non-hazardous neutralizing agents. The duration, rate, and extent of injection and neutralization will vary as the concentrations of sulfate and other constituents detected in ISCR solutions in the recovery well manifold change during the process. Because all ISCR wells are permitted as UIC Class III injection wells, all injection and recovery wells may be used to either inject rinse water with buffering agents or to extract rinse water. Each injection well may be converted for use as a recovery well, and vice versa, in order to enhance restoration efficiency.
2. As groundwater restoration nears completion, all injection wells will be converted to recovery wells to ensure that concentrations in recovery well manifold(s) are representative of groundwater quality in the ISCR well field.
3. Rinsing will continue and sulfate concentrations in the recovery well manifold solution will be periodically sampled until the sulfate concentration declines below 750 milligrams per liter (mg/L).
4. When sulfate concentrations in the recovery well manifold solution decline below 750 mg/L, a sample of manifold water will be collected and analyzed for the Level 2 parameters listed in APP No. P-101704.
5. Samples will be periodically collected from the recovery well manifold(s) and analyzed for Level 2 parameters until all constituents with AWQS either meet the AWQS or pre-operational concentrations if the pre-operational concentrations exceed the AWQS. Hydraulic control will continue until the sulfate concentration at each well is determined to meet the indicator sulfate concentration or alternate concentration as explained below. Provided that hydraulic control is maintained, pumping from any well may be suspended when groundwater quality at that well is determined to meet the indicator sulfate concentration or alternate concentration.

6. Once the sulfate concentration at each well is less than the indicator sulfate concentration or alternate concentration, hydraulic control will be suspended for 30 days.
7. After 30 or more days have elapsed, the recovery wells will be restarted and the sulfate concentration in solutions in the recovery well manifold(s) will be analyzed for sulfate. If the sulfate concentration(s) are equal to or below the indicator sulfate concentration or alternate concentration, the closure criteria will be deemed to have been met and the rinsing and maintenance of hydraulic control will be discontinued.
8. A closure report documenting the results of the restoration process will be submitted to ADEQ and USEPA, and closure (abandonment) of the ISCR wells will commence promptly after ADEQ and USEPA have authorized abandonment of the wells.

The concept of using a well-specific alternate to the sulfate indicator concentration is based on the recognition that the sulfate concentration in some wells will likely be higher than the sulfate indicator concentration due to well-to-well variability in sulfate concentrations based on natural formation conditions. A well would be eligible for an alternate concentration only if the sulfate concentration is less than 750 mg/L and the constituents meet AWQS or pre-operational concentrations if they exceed the AWQS.

#### **16.2.1.2 Well Closure**

Wells within the ISCR well field will be closed in accordance with the schedule described in Section 16.3 below. All wells will be abandoned in accordance with procedures included in the Plugging and Abandonment Plan, attached as Exhibit 16-1. The Well Abandonment Plan is based on requirements of A.A.C. R12-15-816, administered by the Arizona Department of Water Resources, and the Code of Federal Regulations Title 40 Part 146.10, administered by the USEPA.

#### **16.2.1.3 Closure of Surface Facilities**

Once the ISCR wells have been abandoned, all well field equipment will be removed. Such equipment may include electrical equipment, power lines and poles, tanks, pipes, and all well head and pipe channel liners within the well field. Similar removal activities will occur throughout the FCP facility. During the removal process, some liquid and solid residues may be generated such as the removal of accumulated dust from liners. Such liquids and solid residues will be placed in the water impoundments or shipped to appropriately licensed off-site disposal facilities.

Because of the extensive use of secondary containment including liners, containment sumps, and other devices, it is anticipated that soil contamination will be minimal and that soils will qualify for clean closure in accordance with A.A.C. R18-9-A209.B.3. As liners are removed, they will be inspected for evidence of holes, tears, or defective seams that may have leaked. Soil in the area beneath the liner will be inspected and samples will be collected and analyzed in accordance with a site investigation plan previously submitted to and approved by ADEQ, as required by A.A.C. R18-9-A209.B.3. It is anticipated that the plan will require more intense sampling and analysis in any area where visible contamination is apparent (e.g., moist spots beneath liners) and a broader grid sampling approach where contamination is not apparent. Estimates of sampling costs are included in the closure cost estimates provided in Attachment 3. The soil investigation plan will require that ADEQ be promptly provided a remediation plan if the soil sampling and analysis described above provides verification of an exceedance of an SRL or a GPL, and that ADEQ approval be obtained prior to implementing the plan.



Decommissioned power poles, lines, and electrical equipment may be salvaged. Clean liners and pipes may also be salvaged or sent to facilities that recycle such material. All material that cannot be reused or salvaged will be transported to an appropriately licensed facility for disposal. Although the salvage of liners and piping is anticipated, the cost estimates in Attachment 5 include the cost of disposal for those items.

Once all equipment, liners, and other materials have been removed from the well field, pipeline corridors, and other FCP components, disturbed areas will be tested, backfilled as needed, disked, and a grader or other suitable equipment will level and contour the areas and any related berms to grades that are consistent with pre-development grades. The areas will then be prepared for seeding.

### 16.2.2 Materials Management

Closure of the ISCR components will require safe handling and disposal of all associated solutions. Process tanks and the runoff pond will be emptied of any remaining solution. All solutions will be shipped off site for use or disposal in accordance with applicable regulations, or they will be neutralized and placed in the water impoundments. As the restoration process proceeds, the emptied tanks and PLS and raffinate ponds will have been rinsed with water produced during the restoration process and the rinse water will be placed in the water impoundments.

Unused electrowinning reagents, fuels, lubricants, and other chemicals along with warehoused materials will be packaged in accordance with Department of Transportation regulations and shipped off site or disposed of in accordance with applicable regulations. The closure objective is to have all chemicals removed off site and disposed of in a manner that meets all applicable codes and regulations.

### 16.2.3 Soil Management

Consistent with the ADEQ Clean Closure Guidance (December 2004) and A.A.C. R18-9-A209.B.3, a site investigation plan for evaluating the quality of the soil and the vadose zone after facilities have been removed will be developed for ADEQ review and approval before closure begins.

All closure activities will be designed and conducted in accordance with applicable criteria in the Best Available Demonstrated Control Technology Guidance Manual. All closure activities will be conducted in a manner to prevent spillage of contaminants onto soil and, as tanks and underlying liners are removed, underlying soil will be inspected for signs of leakage. The same process will apply to the pipeline channel liners, PLS pond, raffinate pond, runoff pond, and water impoundments. Soil samples will be collected and analyzed in accordance with the approved site investigation plan. Soil cleanup (remediation) plans will be submitted for ADEQ approval in areas where residential SRL or GPL exceedances are verified. The remediation plans will be designed to achieve constituent levels that will be consistent with the expected post-closure use.

After remediation plans have been implemented and residual soil conditions are approved by ADEQ, the excavated area will be backfilled, disked, and leveled consistent with the pre-development grade.

### 16.2.4 Closure Monitoring

Closure monitoring will consist of physical inspections of surface facilities and monitoring of groundwater quality at the POC wells during the closure period.

Inspection monitoring of surface facilities will continue through the closure period at each of the locations and at the frequencies specified in APP No. P-101704 until liquid and solid residues have been removed from the facilities being monitored. POC well monitoring will be in accordance with the requirements of the APP at the 32 proposed POC wells described in Attachment 12. The POC well monitoring program will include two components (Level 1 and Level 2). Level 1 and Level 2 monitoring refer respectively to sampling and analysis of groundwater for the parameters listed in the APP. The monitoring will occur quarterly for Level 1 parameters and annually for Level 2 parameters. The contingency plan will be implemented in accordance with the APP (Attachment 13) throughout the closure period with respect to inspection monitoring as long as liquids and solid residues remain in the facilities being monitored. The contingency plan will be implemented with respect to the exceedance of Alert Levels and Aquifer Quality Limits (AQL) throughout the closure period.

#### 16.2.5 Post-Closure Monitoring

Post-closure monitoring will include groundwater monitoring at the 32 POC wells. No ISCR well will be monitored because, during closure, all injection and recovery wells will have been properly abandoned. All other ISCR facility components used to store or manage ISCR solutions will also have been dismantled and removed after all material contained in the components have been rinsed and removed. Inspection of the closed areas will occur during POC well monitoring events and will focus on POC wells, signage, fences, re-vegetated areas, and storm water control measures. The inspections will also focus on the maintenance of conditions required to support disturbed areas to conditions existing prior to the development and operation of the ISCR facility or to such other conditions as specified in ASLD Mineral Lease 11-26500, as may be amended.

Groundwater monitoring at the POC wells will be conducted quarterly throughout the post-closure period with Level 1 monitoring conducted three quarters per year and Level 2 monitoring conducted one quarter per year. Data generated from each monitoring event will be promptly reviewed and the contingency plans will be followed in the event of an exceedance of an AQL.

### 16.3 CLOSURE/POST-CLOSURE SCHEDULES

#### 16.3.1 Closure Schedule

During ISCR facility operations, a site investigation plan and closure plan will be developed and submitted to ADEQ in accordance with A.A.C. R18-9-A209(B)(1) and A.A.C. R18-9-A209(B)(3), respectively, in advance of the scheduled closure so that ADEQ will have the opportunity to approve the plans on or before the scheduled date of closure operations. After Florence Copper formally gives notice to ADEQ in accordance with A.A.C. R18-9-A209(B)(2) of intent to permanently cease ISCR facility operations, injection will be discontinued. Florence Copper will maintain hydraulic control at the ISCR well field until closure criteria specified in the APP and UIC Permit have been met.

1. At least 60 days before commencement of closure of the first well field unit to be closed as part of ISCR facility operations, the site investigation plan will be submitted to ADEQ for review. Any modification of the plan indicated by the review will be submitted to ADEQ for approval before closure commences at the first well field unit.
2. Full ISCR facility closure will formally begin when notice of intent to permanently cease operations is given in accordance with A.A.C. R18-9-A209.B.2.

3. If injection has not been previously discontinued, it will be discontinued after the permanent cessation notice is given but hydraulic control will be maintained until closure criteria have been met. Enhanced evaporation at the water impoundment will continue until the volume of water in the impoundment(s) is such that it is no longer required.
4. All monitoring required by the APP and the UIC Permit will continue.
5. Groundwater restoration in the well field unit(s) still requiring closure after commercial operations cease will begin after injection has been discontinued. Injection of formation water, with or without neutralizing material such as sodium bicarbonate, may be used to facilitate the restoration process. The schedule for such activities will depend on the concentration of sulfate and other constituents detected in solutions in the recovery well manifold(s).
6. As groundwater restoration nears completion, injection wells will be converted to recovery wells to ensure that concentrations in recovery well manifold solutions are representative of groundwater quality of the unit(s) being closed. The schedule for converting injection wells to recovery wells will depend on the injection schedule described above.
7. Within 90 days of submitting the notice of intent to cease operation, a closure plan will be submitted to ADEQ pursuant to A.A.C. R18-9-A209.B.3.
8. Rinsing of the well field unit(s) being closed will continue and sulfate concentrations in the recovery well manifold solutions will be periodically monitored.
9. After ADEQ reviews the closure plan, a post-closure plan and an application for APP amendment will be submitted to ADEQ if the closure plan is determined not to achieve clean closure and ADEQ requires closure and post-closure activities to be addressed pursuant to A.A.C. R18-9-A209.B.4. It is anticipated that 2 months will be required for ADEQ to review the closure plan. The post-closure plan and application to amend the permit are required to be submitted within 90 days following ADEQ notice.
10. When sulfate concentrations in recovery well manifold solutions decline below 750 mg/L, samples of manifold water will be collected and analyzed for the Level 2 parameters listed in the APP. It is estimated that up to 2 years will elapse after injection is ceased before sulfate concentrations in the manifolds decline to 750 mg/L.
11. Samples will be periodically collected from the recovery well manifolds and analyzed for Level 2 parameters until all constituents with AWQS either meet AWQS or pre-operational background concentrations if pre-injection concentrations exceeded AWQS. Before injection begins at a resource block, pre-operational background data will be collected from recovery manifolds and from one or more recovery wells within the resource block for analysis of Level 2 parameters.
12. The indicator sulfate concentration will be the sulfate concentration in the recovery well manifold(s) existing at the time that the Level 2 analysis indicates that constituents with AWQS meet AWQS (or meet pre-operational background concentrations if those concentrations exceeded AWQS).
13. After an indicator sulfate concentration has been determined, each well will be sampled for sulfate. Hydraulic control will continue until the sulfate concentration at each well is below the indicator sulfate concentration. Pumping from individual wells may be suspended when groundwater quality in samples from those wells is determined to meet the indicator sulfate concentration. It is estimated that the indicator sulfate concentration will be met in all wells within 24 months after sampling begins.
14. Once the sulfate concentration at each well is less than the indicator sulfate concentration, hydraulic control will be suspended at all wells in the resource block for 90 days.

15. After 90 or more days have elapsed, the recovery wells will be re-energized and the sulfate concentration in solutions taken from the recovery well manifold(s) will be analyzed for sulfate. If the sulfate concentrations are equal to or below the indicator sulfate concentration, the closure criteria for the block being closed will be deemed to have been met and the rinsing and maintenance of hydraulic control of the block will be discontinued.
16. Once the closure criteria have been met, a closure report documenting the results of the closure process will be submitted to ADEQ and USEPA with the quarterly report required by the respective permits, or earlier. Closure of the wells in the units in which the closure criteria were met (closed operational unit) will commence within 30 days of the filing of the report, unless ADEQ or USEPA object.
17. If ADEQ and USEPA do not object to well closure within 30 days following the submission of the closure report, closure of the ISCR wells will begin. Closure of surface facilities outside the closed operational units that are required to stay functional for well closure will not begin until the requirements for well closure have been met. Closure of surface facilities not required for well closure may commence any time after cessation notice is given.
18. Closure of the wells in each closed operational unit will be conducted in accordance with the approved Well Abandonment Plan (Appendix C of the UIC Permit). It is anticipated that a total of 597 injection and recovery wells in the final operational units will be closed in a period of approximately 18 months. FCP closure costs do not include closing the 21 BHP test wells and the 59 miscellaneous wells included because these will have been closed as part of commercial operations, as described above.
19. Once the wells have been closed in accordance with the Well Abandonment Plan, the well sites will be closed. It is estimated that all sites can be prepared for final revegetation within 9 months after the wells are closed.
20. All facilities subject to general permit closure criteria will be closed in accordance with those criteria.
21. Closure of the PLS and raffinate ponds will begin after they are no longer needed to support ISCR or SX/EW closure operations. Closure of the PLS and raffinate ponds will begin by removing all liquids and solid residues from the upper liner. The removed liquids will be placed in the water impoundments. The upper liner will be removed and placed aside. Any liquid observed on the lower liner and in the leachate collection and removal system (LCRS) will be removed and placed in the water impoundment. Residues recovered from above the liner and/or the LCRSs will be tested to verify they are non-hazardous and will be either placed in the water impoundment or removed off site for landfill disposal according to state and federal regulations. The lower liner and underlying soils will be inspected for visual signs of liner damage, liner defects, and leakage through the lower liner. The lower liner will be removed and soils will be sampled in accordance with the approved site investigation plan; any exceedance of an SRL or of a GPL detected as a result of the investigation will be addressed in accordance with the site investigation plan.
22. Piping and related containments between the ISCR well field area, the PLS and raffinate ponds, and the SX/EW plant will be rinsed, and the rinse water and associated sediments will be placed in the water impoundment. Soil beneath the containment liners will be sampled in accordance with the approved site investigation plan, and any exceedance of an SRL or of a GPL detected as a result of the investigation will be addressed in accordance with the site investigation plan.

23. The SX/EW plant, warehouse, and all other storage areas will be inspected for fuel, oil, process materials, and chemicals. All such material will be collected, packaged, and transported off site for use in other facilities or for disposal in accordance with state and federal regulations. No material regulated as a hazardous waste will be placed in the water impoundment. Tanks and piping removed from the plant or from other areas will be emptied and rinsed. The tanks and piping will be shipped to other facilities for use, to recycling facilities, or to a disposal facility in accordance with applicable regulations.

Closure of the SX/EW plant will begin after the PLS and raffinate ponds have been emptied and rinsed. The tanks, processing equipment, and piping in the SX/EW plant will be emptied, cleaned, and stored on site until shipped to another operating facility, to a salvage facility, or to a disposal facility in accordance with applicable regulations. The rinse water will be placed in the water impoundment. The SX/EW plant building will be retained if it can serve a post-closure use. Otherwise, it will be demolished and the demolition debris will be salvaged, used for on-site fill, or shipped to off-site disposal facilities in accordance with applicable state and federal regulations.

24. Closure of the SX/EW plant runoff pond will begin after all tanks and piping within the SX/EW plant have been emptied and rinsed, and the rinse water and residues have been placed in the water impoundment. The pond liner will be rinsed, and the rinse water and sediments will be placed in the water impoundment. As the liner is removed, it will be inspected for visual signs of liner damage and liner defects. The underlying soil will be inspected for signs of leaks through the upper liner. Samples will be collected in accordance with the approved site investigation plan and any exceedance of an SRL or of a GPL detected as a result of the investigation will be addressed in accordance with the site investigation plan. Liners and LCRS materials and equipment from the plant runoff pond and from the PLS and raffinate ponds will be sold, shipped to a recycling facility, or shipped to a disposal facility in accordance with state and federal regulations. Liners and associated decommissioned equipment may be buried in place only if they will not interfere with a designated post-closure use of the property.
25. Closure of the tank farm associated with the water impoundments, including the neutralization circuit and the water treatment facilities, will begin after the water impoundment is no longer needed to support closure activities. After the tanks in the tank farm have been emptied and cleaned, they will be moved off the pad so that the liner may be removed, and the underlying soil tested in accordance with the sampling plan. The underlying soil will be managed in accordance with Section 16.3.1.3 guidelines. The tanks will be stored on site until they are shipped off site for salvage or recycling.
26. All piping and tanks (previously emptied) in the tank farm, and in pipelines between the ISCR area and the tank farm adjacent to the water impoundment, will be rinsed and the rinse water conveyed to the water impoundment. The rinsing process is estimated to take approximately 1 month.
27. Closure of the water impoundments not previously closed will begin after PLS and raffinate ponds, tanks, and containment areas have been emptied and rinsed with water. It is estimated that 6 months will be required to evaporate the water in the impoundment and to dewater the sediment.

28. After sediment in the water impoundment has dried sufficiently to support earth-moving equipment, the liners will be removed from the anchor trenches and folded inward to partially cover the sediment. The excavated area will be backfilled and the area leveled. A 3-foot cap will then be placed over the liner and any exposed sediments and onto the leveled area. After capping has been completed, the area will be prepared for seeding.
29. A report detailing the closure activities and the results thereof will be submitted to ADEQ and USEPA within 90 days following completion of all closure activities.

### 16.3.2 Post-Closure Monitoring Schedule

The post-closure monitoring schedule will begin in accordance with the schedule set forth in the UIC Permit immediately after closure activities have been completed, and will be continued as described in Section 16.2.5 above until post-closure requirements have been met.

During POC monitoring events, visual inspection of surface facilities will be conducted. Inspections will include, as appropriate, POC wells, signage, fences, re-vegetated areas, and storm water control measures. Conditions noted during inspections will be documented using inspection forms. Photographs and written reports will be used to document completion of indicated repairs. Repairs will be performed as indicated by the inspection monitoring program and will be documented in quarterly reports submitted to ADEQ. Florence Copper will submit a notice and report, with documentation, in accordance with the requirements of A.A.C. R18-9-A209(C) within 30 days following completion of the post-closure plan.

## 16.4 CLOSURE/POST-CLOSURE COST ESTIMATES

Attachment 3 includes closure cost estimates and post-closure cost estimates for FCP discharging facilities and related infrastructure. The post-closure costs included in Attachment 3 assume that the 32 POC wells will be monitored for 30 years.

Florence Copper is proposing to close individual operational units as they are depleted during the sequential development of the project and considers these closures as part of FCP operational costs. The closure and post-closure cost estimate included in Attachment 3 reflects this approach.