



# CERTIFICATION

STATE OF ARIZONA  
Clean Water Act Section 401 Water Quality Certification  
U.S. Army Corps of Engineers File No.: SPL-2014-00065-MWL  
ADEQ LTF No.: 65181

## 1. AUTHORIZATION

This State Water Quality Certification (Certification) is issued by the Arizona Department of Environmental Quality (ADEQ) under the authority of Section 401(a) of the federal Clean Water Act (CWA) (33 U.S.C. §1251 et seq.) and Arizona Revised Statutes Section 49-202. The conditions listed in Section 5 are in addition to conditions in the pending U.S. Army Corps of Engineers (USACE) Application No. SPL-2014-00065-MWL. These Certification conditions are enforceable by the USACE and are subject to civil penalties if these Certification conditions are violated. Criminal penalties may also be levied if a person knowingly violates any provision of the CWA.

Subject to the conditions in Section 5, ADEQ certifies that based on the information in Section 3, the activities proposed for the Lone Star Ore Body Development Project will not violate applicable Surface Water Quality Standards (SWQS) in Coyote, Watson, Talley, Peterson, Wilson and Lone Star Washes; Bear Spring Canyon; and other unnamed ephemeral washes that are tributaries to the Gila River.

Pursuant to A.R.S. 49-202C, ADEQ's review authority extends only to activities occurring within the ordinary high water mark of WUS. Not all of the project elements involve discharges of dredged or fill material to WUS requiring Section 401 certification.

## APPLICANT INFORMATION

Project Name: Lone Star Ore Body Development Project

Latitude: 32° 56' 30.12" Longitude: -109° 40' 18.22"

Applicant: Freeport-McMoRan Safford, Inc.  
Brian Musser, Permitting Manager  
P.O. Box 1019  
Safford, Arizona 85548

## AUTHORIZING SIGNATURE

\_\_\_\_\_  
Krista Osterberg  
Water Quality Division  
Arizona Department of Environmental Quality

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Date  
Reading file: SWGP16-0294

## 2. DESCRIPTION OF ACTIVITIES TO BE CERTIFIED

### PROJECT ACTIVITIES:

The Lone Star Project design includes a heap leach pad; development rock stockpiles; a conveyance route between the pit and crusher; and stormwater management facilities that will have activities within the ordinary high water mark (OHWM) of Waters of the U.S. (WUS). Construction of the new leach pad will require the cut or fill of the natural topography and compaction of the resulting subgrade prior to the liner installation. Fill materials discharged during preparation of the subgrade will consist of native soils.

Construction of the development rock stockpiles will involve the placement of native rock materials for the area of the Lone Star pit. Development rock materials will be transported from the pit by haul trucks and added to the stockpiles. The stockpiles will be constructed in approximately 50-foot lifts at an overall two and one half horizontal to one vertical (2.5H: 1V) slope. Construction of the conveyance route will involve the placement of native rock and soil materials, as well as the installation of high-density polyethylene (HDPE), concrete, and/or metal culverts at wash crossings.

Four stormwater diversion channels will be constructed to route flows around the new leach pad:

- The Coyote-Butler Diversion will be located upgradient of the new heap leach pad and will intercept potential flows in Coyote Wash and transport them west into an unnamed tributary of Butler Wash.
- The Lone Star Leach Pad (LSLP) Diversion will be located along most of the northeast edge of the new leach pad to route stormwater from upgradient of the leach pad to Watson Wash.
- The Watson-Talley Diversion will be located along the boundary of Watson and Talley Washes and will keep stormwater from significant storm events, captured by the LSLP Diversion from overwhelming Watson and Talley Washes.
- The Interim Diversion will be constructed above each phase of the leach pad as it advances to divert stormwater from the area downgradient of the LSLP Diversion until the leach pad reaches its design footprint. This diversion is entirely within the design footprint of the leach pad and does not have additional impacts to WUS.

Fill materials discharged for the construction of these diversions will include native soil, rock and concrete.

Construction and operation of the development rock stockpiles will require the construction of stormwater containment dams which will be located downgradient of the development rock stockpiles to prevent run-off of impacted stormwater. Fill materials discharged for the construction of these diversions will include native soil, rock and concrete.

Surface water diversions have been designed for the Lone Star leach pad. These channels will be placed upgradient of, and adjacent to, the leach pad to divert clean stormwater runoff around the site, preventing the water from being impacted by mining or processing activities. In locations where the diversion channels are located in erodible materials, riprap and energy dissipation structures will be utilized to provide armoring and energy dissipation. These areas include locations where the channel alignment is located in fill across small washes; where the channel is constructed in native erodible alluvium; and in apron locations where the diversion channels discharge into existing washes. The criteria for riprap sizing and apron designs will conform to industry standards. All surface water diversions will be designed to control stormwater runoff from the 100-year/24-hour storm event.

An integrated stormwater management system will be used to control stormwater run-on and runoff from the Lone Star Leach pad. The system will use lined collection channels; double-lined process solution impoundments; and a lined emergency overflow impoundment (non-stormwater) located below the leach pad. HDPE will be used for the lining systems. Stormwater collected by the leach pad perimeter channels and the solution collection channel will be conveyed to the process solution impoundments at the southeastern toe of the leach pad. Overflow from the process solution impoundments will be conveyed by a lined overflow channel to the non-stormwater impoundment.

The non-stormwater impoundment is designed to have a minimum storage capacity volume sufficient to contain both drain-down of pregnant leach solution and stormwater from the Lone Star leach pad that would occur if there were a 24-hour power outage at the mine during a concurrent 100-year/24-hour storm event, as calculated for the period of pad development that corresponds to the potential maximum stormwater runoff. The impoundment will be lined with a 60-mil HDPE liner. A small depression in the bottom of the impoundment will serve as a pump sump and will have a pumping system to convey non-stormwater solutions to the SX-EW plant for use as process water.

Stormwater runoff from the inert Lone Star development rock stockpiles will be controlled using a series of retention dams that will be installed below the footprints of the development rock stockpiles as they advance. New retention dams will be installed with successive phases of the stockpile advancement downgradient. Both the interim and final facilities are designed for the worst-case scenario of 100-year/10-day storm event without discharge, during the period of stockpile development that corresponds to the potential maximum stormwater runoff. Retention dams are designed to collect stormwater runoff from 8 drainages at the toe of the development rock stockpiles. The retention dams are located at 3 locations south of the Gila Mountain divide and 5 locations north of the Gila Mountain divide. Each dam is designed with 3H:1V upstream and 2.5H:1V downstream.

side slope with a 20-foot crest width. The dams will be constructed at a reasonable distance from the toe of the stockpile to avoid damage from raveling or deposition of development rock. Stormwater runoff retained behind the dams will either evaporate or seep into the ground.

Drainage crossings for the haul road would be constructed using culverts to allow stormwater flows within the ephemeral drainages to pass from the upgradient side of the haul road to the downgradient side. The construction of four diversions upgradient to the haul road would be necessary and would direct potential stormwater flows towards the proposed culverts.

### **CERTIFIED ACTIVITIES:**

The Lone Star Project area includes approximately 77 acres of ephemeral washes that are located in the Upper Gila watershed and are tributaries to the Gila River. Most of these ephemeral washes are unnamed, however Coyote, Watson, Talley, Peterson, Wilson and Lone Star washes, as well as Bear Springs Canyon are included in the project area.

Only activities occurring within the OHWM of the above described ephemeral washes are subject to the conditions in this certification.

### **3. INFORMATION REVIEWED**

During the development of this State Certification, ADEQ had access to and reviewed the following documents which are on file with ADEQ:

- A. U.S. Army Corps of Engineers (USACE), Los Angeles District Public Notice: SPL-2014-00065-MWL for Lone Star Ore Body Development Project; comment period January 5, 2015 – February 20, 2015
- B. USACE Draft Environmental Impact Statement dated June 9, 2016
- C. CWA Section 401 Certification application package including project descriptions and maps, dated December 6, 2016 and received by ADEQ on December 8, 2016; Applicant: Brian Musser
- D. CWA Section 404 Permit application, dated June 3, 2014; Applicant: Brian Musser
- E. State of Arizona Surface Water Quality Standards (SWQS), Arizona Administrative Code (A.A.C.) Title 18, Chapter 11, Article 1: Designated uses for the Gila River are: Agricultural – Irrigation (AgI), Agricultural - Livestock watering (AgL), Aquatic and Wildlife Warm (A&Ww), Full Body Contact (FBC) and Fish Consumption (FC).

### **4. NOTIFICATION PROVISIONS**

For any correspondence regarding this project, the ADEQ mailing address is:

Arizona Department of Environmental Quality  
Rosi Sherrill  
Surface Water Section / 401 Certifications / mailstop 5415A-1  
1110 West Washington Street  
Phoenix, Arizona 85007

For questions or general comments:

Email: ls7@azdeq.gov

Voice: (602) 771-4409

In any correspondence, reference:  
Lone Star Ore Body Development Project  
USACE File No.: SPL-2002-00055-JMR  
ADEQ LTF No.: 65181  
Reading file: SWGP16-0294

## **5. CONDITIONS FOR STATE 401 WATER QUALITY CERTIFICATION**

For the purposes of this Certification the following definitions apply:

- Waters of the U.S. (WUS) as defined by the USACE and U.S. Environmental Protection Agency (EPA) under the Clean Water Act. This Certification applies only to activities within a WUS.
- Fill material means soil, sand, gravel and other natural materials that are similar in physical, chemical and biological composition to existing natural materials in the project area and which are free from pollutants in quantities and concentrations that can cause or contribute to an exceedance of applicable Surface Water Quality Standards (SWQS).

### **SPECIAL CONDITION**

ADEQ's State 401 Water Quality Certification is based on the information shown in Section 3. If additional information becomes available that significantly changes the scope of the project or the impacts resulting from the project, you must resubmit your application and include the project changes / resulting impacts.

### **GENERAL CONDITIONS**

1. ADEQ's State 401 Water Quality Certification of these activities proposed by the applicable CWA 404 Permit, does not affect or modify in any way the obligations or liability of any person for any damages, injury, or loss, resulting from these activities. This Certification is not intended to waive any other federal, state or local laws.
2. If monitoring, by ADEQ or others, indicates that a discharge from the certified activities results in a violation of Arizona's surface water quality standards (numeric or narrative), ADEQ or a third party may notify the USACE, requesting an investigation of the situation.

3. Issuance of a State 401 Water Quality Certification does not imply or suggest that requirements for other permits including, but not limited to Aquifer Protection Permits, Arizona Pollutant Discharge Elimination System Permits, Construction General Permits, DeMinimis Permits and Reclaimed Water permits are met or superseded. Applicant should contact ADEQ to ensure all applicable permits are obtained.
4. This Certification applies only to the activities described in Section 2 and is based upon the information listed in Section 3. This Certification is valid for the same period as the CWA 404 permit issued by the USACE. The applicant must apply for renewal, modification or extension of this Certification if the CWA 404 permit is renewed, modified, extended or otherwise changed. This Certification may be reopened by ADEQ at any time due to a change (e.g., lowered or more stringent) in a SWQS for a parameter likely to result from certified activities. ADEQ may add or modify conditions in this Certification to ensure that the applicant's activities comply with the most recent SWQS.
5. The applicant shall provide a copy of this Certification to all appropriate contractors and subcontractors. The applicant shall also post and maintain a legible copy of this Certification in a weather-resistant location at the construction site where it may be seen by the workers.
6. The applicant shall notify ADEQ within 30 days of submitting the notice of completion of work required by the Section 404 permit for this activity.
7. The applicant is responsible to ensure that certified activities do not cause or contribute to any exceedances of SWQS in any WUS.
8. This Certification does not authorize the discharge of mining, construction or demolition wastes, wastewater, process residues or other potential pollutants to any WUS except as specified in the application, supporting documents, and/or in the CWA 404 permit.

### **SPECIFIC CONDITIONS**

Except as specified in the application and supporting documents, including those documents referenced in Section 3, and allowed in the Section 404 permit, the following specific conditions apply:

#### **Erosion Prevention and Hydraulic Alterations**

9. Clearing, grubbing, scraping or otherwise exposing erodible surfaces in WUS shall be minimized to the extent necessary for each construction phase or location.
10. Dredged or fill material shall be placed so that it is stable, meaning after placement, the material does not show signs of excessive erosion. Indicators of excess erosion include: gulying, head cutting, caving, block slippage, material sloughing, etc. Material shall not discharge (e.g., via leaching, runoff) pollutants into streams or wetlands.

11. Erosion control, sediment control and/or bank protection measures in WUS shall be installed before construction and pre-operation activities, and shall be maintained during construction and post-construction periods to minimize channel or bank erosion, soil loss and sedimentation. Control measures shall not be constructed of uncemented or unconfined imported soil, or other materials easily transported by flow.
12. The effectiveness of all pollution control measures for activities within WUS, including erosion and sediment control measures, shall be inspected, maintained and modified (as necessary) to reduce pollutants and ensure compliance with SWQS in any WUS.
13. Direct runoff of water used for irrigation or dust control for activities within WUS shall be limited to the extent practicable and shall not cause downstream erosion or flooding nor cause an exceedance of applicable SWQS in any WUS.
14. Except where the activities certified herein are intended to permanently alter any WUS, all disturbed areas within WUS shall be restored and (re)vegetated as indicated in the application documents if approved by the USACE (including offsite/in lieu mitigation). Denuded areas within WUS not intended to be permanently altered shall be revegetated as soon as physically practicable. Vegetation shall be maintained on unarmored banks and slopes to stabilize soil and prevent erosion. Fill used to support vegetation rooting or growth shall be protected from erosion.
15. If retention/detention basins are located within WUS, applicant will complete the grading necessary to direct runoff towards the basins as soon as practicable.
16. Activities herein certified shall, as much as practicable, be performed during periods of low flow (baseflow or less) in any perennial WUS, or no flow in any ephemeral or intermittent WUS. No work shall be done, nor shall any equipment or vehicles enter any WUS while flow is present, unless all conditions in this Certification are met.
17. When flow is present in any WUS within the project area, the applicant and any contractor will not alter the flow by any means except to prevent erosion or pollution of any WUS.
18. Any disturbance within the ordinary high water mark of a WUS that is not intended to be permanently altered shall be stabilized to prevent erosion and sedimentation.
19. Applicant will take measures necessary to prevent approaches to any WUS crossing from causing erosion or contributing sediment to any WUS.
20. The applicant shall implement control measures necessary to maintain designated used(s) in WUS both upstream and downstream of the project area.

### **Sediment Loads**

21. When flow in any WUS in the work area is sufficient to erode, carry or deposit material, activities certified herein shall cease until:
  - the flow decreases below the point where sediment movement ceases; or

- control measures have been undertaken; e.g., equipment and materials easily transported by flow are protected with non-erodible barriers or moved outside the flow area.
22. Silt laden or turbid water resulting from activities certified herein shall managed in a manner to reduce sediment load prior to discharging so as not to exceed SWQS in any WUS.
  23. Any washing or dewatering of fill material must occur outside of any WUS prior to placement and the rinsate from such washing shall be settled, filtered or otherwise treated to prevent migration of pollutants (including sediment) or from causing erosion to any WUS. Other than replacement of native fill or material used to support vegetation rooting or growth, fill placed in locations subject to scour must resist washout whether such resistance is derived via particle size limits, presence of a binder, vegetation, or other armoring.

### **Pollution Prevention**

24. If activities certified herein are likely to cause or contribute to an exceedance of SWQS in any WUS operations shall cease until the problem is resolved or until control measures have been implemented.
25. Except as approved in the 404 permit, construction material and/or fill (other than native fill or that necessary to support re-vegetation) placed in any WUS, shall not include pollutants in concentrations that will that will cause or contribute to a violation of a SWQS in any WUS.

Acceptable construction materials that will or may contact water in any WUS are: untreated logs and lumber; natural stone (crushed or not), crushed clean concrete (recycled concrete); native fill; precast, sprayed or cast-in-place concrete (including soil cement and unmodified grouts); steel (including galvanized); plastic and aluminum. Other materials allowed for this project, only if placed in accordance with application and supporting documents, are mining residues including tires, waste rock, gangue and tailings. Use of other materials may be allowed, but require prior written approval from ADEQ.

26. The applicant will erect any barriers, covers, shields and other protective devices as necessary to prevent any construction materials, equipment or contaminants/pollutants from falling, being thrown or otherwise entering any WUS.
27. Area(s) must be designated, entirely outside of any WUS, for equipment staging and storage. In addition, the applicant must designate areas, located entirely outside of any WUS, for fuel, oil and other petroleum product storage and for solid waste containment. All precautions shall be taken to avoid the release of wastes, fuel or other pollutants to any WUS.

Any equipment maintenance, washing or fueling that cannot be done offsite will be performed in the designated area with the following exception: equipment too large or unwieldy to be readily moved; e.g., large cranes, may be fueled and serviced in the WUS (but outside of standing or flowing water) as long as material specifically manufactured and sold as spill containment is in place during fueling/servicing. All



equipment shall be inspected for leaks, all leaks shall be repaired and all repaired equipment will be cleaned to remove any fuel or other fluid residue prior to use within (including crossing) any WUS.

A spill response kit will be maintained in this (these) area(s) to mitigate any spills. The kit will include material specifically manufactured and sold as spill adsorbent/absorbent and spill containment. The applicant will ensure that whenever there is activity on the site, that there are personnel on site trained in the proper response to spills and the use of spill response equipment.

28. Upon completion of the activities certified herein, areas within any WUS shall be promptly cleared of all forms, piling, construction residues, equipment, debris or other obstructions.
29. If fully, partially or occasionally submerged structures are constructed of cast-in-place concrete instead of pre-cast concrete, applicant will take steps; e.g., sheet piling or temporary dams, to prevent contact between water (instream and runoff) and the concrete until it cures and until any curing agents have evaporated or otherwise cease to be available; i.e., are no longer a pollutant threat.
30. Washout of concrete handling equipment must not take place within any WUS and any washout runoff shall be prevented from entering any WUS.
31. Any permanent WUS crossings other than fords, shall not be equipped with gutters, drains, scuppers or other conveyances that allow untreated runoff (due to events equal to or lesser in magnitude than the design event for the crossing structure) to directly enter a WUS if such runoff can be directed to a local stormwater drainage, containment and/or treatment system.

### **Temporary and Permanent Structures**

32. Permanent and temporary pipes and culvert crossings shall be adequately sized to handle expected flow and properly set with end section, splash pads, headwalls or other structures that dissipate water energy to control erosion.
33. Debris will be cleared as needed from culverts, ditches, dips and other drainage structures in any WUS to prevent clogging or conditions that may lead to washout.
34. All temporary structures constructed of imported materials and all permanent structures, including but not limited to, access roadways; culvert crossings; staging areas; material stockpiles; berms, dikes and pads, shall be constructed so as to accommodate overtopping and resist washout by streamflow.
35. Any temporary crossing, other than fords on native material, shall be constructed in such a manner so as to provide armoring of the stream channel. Materials used to provide this armoring shall not include anything easily transportable by flow. Examples of acceptable materials include steel plates, untreated wooden planks, pre-cast concrete planks or blocks; examples of unacceptable materials include clay, silt, sand and gravel finer than cobble (roughly fist-sized). The armoring must, via mass, anchoring systems or a combination of the two, resist washout.

36. No vehicles or equipment shall ford any unarmored WUS crossing when flow is present.
37. Any ford, other than fords on native material, shall be designed, and maintained as necessary, to carry the proposed traffic without causing erosion or sedimentation of the stream channel while dry or during a flow event equal to or less than the design event for the crossing.
38. No unarmored ford shall be subject to heavy-truck or equipment traffic after a flow event until the streambed is dry enough to support the traffic without disturbing streambed material to a greater extent than in dry conditions. Light vehicles (less than 14,000 pounds gross weight) are not restricted by this condition.
39. Temporary structures constructed of imported materials are to be removed no later than upon completion of the permitted activity.
40. Temporary structures constructed of native materials, if they provide an obstacle to flow, or can contribute to or cause erosion, or cause changes in sediment load, are to be removed no later than upon completion of the permitted activity.