HUDBAY

May 18, 2015

U.S. Army Corps of Engineers
Los Angeles District
915 Wilshire Blvd
Los Angeles, CA 90017

Attn: Colonel Colloton

Re: EPA Letter of April 14, 2015 regarding "Other Water Quality Aspects"

Dear Colonel Colloton:

Hudbay is in receipt of correspondence from Jared Blumenfeld, EPA Region 9 Administrator to your office dated April 14 regarding the issuance of the Certification under Section 401 of the Clean Water Act (401 certification) on February 3, 2015, by the Arizona Department of Environmental Quality (ADEQ). The 401 certification pertains to the permit for the discharge of fill material under Section 404 of the Act for the Rosemont Copper Project (Project). As explained in this letter, EPA's assertions are without merit (or unsupported by evidence) and constitute a threat to the State's responsibility to regulate water quality and its authority to allocate water resources.

Background on the 401 certification

Certification under Section 401 of the Clean Water Act ensures that a discharge permitted under Section 404 complies with applicable state water quality standards. *See* A.R.S. § 49-202(C). In this case, ADEQ concluded that "the activities proposed for the Rosemont Copper Project will not violate applicable surface water quality standards (SWQS) in the subject waterbodies, which include McCleary, Wasp, Trail, Barrel and Davidson Canyons, and Cienega Creek . . . ." The 401 certification is supported by ADEQ's detailed analysis set forth in a fact sheet explaining the basis for ADEQ's conclusion.[1]

Davidson Canyon Wash is ephemeral throughout virtually all of its length, and flows primarily in response to localized precipitation events. During its 401 certification process, ADEQ expressed concern about possible reduction in surface flows to the lower reach of Davidson Canyon, located approximately 12 miles downstream of the Project. A portion of this downstream reach has been designated an Outstanding Arizona Water (OAW) under Arizona law, and is therefore subject to stringent "anti-degradation" standards designed to protect existing water quality. Construction of Rosemont will remove the Project footprint from the regional watershed during operations, and result in a corresponding

[1] Fact Sheet, State 401 Certification Decision, Rosemont Copper Project, ACOE Application No. SPL -2008-00816-MB (Fact Sheet).

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temporary reduction in stormwater runoff from the Project site. (This reduction is attributable in part to Clean Water Act requirements for the discharge of stormwater.)

In the Final Environmental Impact Statement (FEIS) for the Project, the U.S. Forest Service (USFS) analyzed in detail the extent to which the Project would reduce stormwater flow in Davidson Canyon Wash. The USFS estimated that the impact at the OAW would be extremely small—about 4.3%.[2] Stormwater monitoring conducted by Hudbay and its predecessor indicate that few, if any, flows from the Project site actually reach the OAW under current conditions.[3] Again, it is important to remember that Davidson Canyon is ephemeral throughout its length. When water does flow in this wash and its tributaries, which are also ephemeral, much of the flow percolates into the wash-bed alluvium rather than flowing downstream.

ADEQ found no evidence that discharges from the Project will impact water quality within the OAW, but was concerned that reduced flows in the OAW reach could result in a corresponding reduction in the stream's assimilative capacity, i.e., the ability of the stream to absorb pollutants. A reduction in assimilative capacity is not prohibited under Arizona's antidegradation regulations. However, it can make a stream more vulnerable to degradation. Nevertheless, it would be improper to automatically equate a reduction in flow with a reduction in assimilative capacity, particularly in an ephemeral system. For example, some flow may actually be contributing pollutants, which if removed, increases the stream's assimilative capacity.[4]

In this instance, ADEQ found only that the modeled reduction in flow, "if realized, could result in a potential loss of assimilative capacity and therefore, potential degradation of water quality."[5] There is no affirmative finding by ADEQ that there will be a loss of flow, that the loss of flow will result in degradation of the water quality of the stream, or that discharges from the Project would cause such degradation to occur. Nor is there any credible scientific evidence that these impacts are likely to occur, despite years of study and analysis.

The OAW reaches in Davidson Canyon Wash and Cienega Creek are, as noted above, about 12 miles from the Project site, and there will be no direct discharges from the Project to these stream segments. Numerous existing activities and potential pollutant sources that are unrelated to the Project can affect the quality and quantity of water in the OAW reaches. These include downstream point or nonpoint source discharges, diversions of flow (such diversion to fill stock ponds), aquifer pumping in nearby areas (from residential and other wells), road crossings and off road vehicle use, agricultural use, and recreational activities.[6] As ADEQ notes in its Fact Sheet, flows in Cienega Creek declined by over 80% between 1990 and 2011, and Davidson Canyon exhibits a similar drying trend.[7] Consequently, it will be difficult to assess whether any observed future changes result from the Project or from other activities located much closer to the OAW.

ADEQ developed a 401 certification that combined pre-discharge monitoring to establish the range of baseline conditions with performance-based standards to protect the OAW segments if an effect that is

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[2] FEIS at pp. 429-30.

[3] Far less water is flowing through the system than was modeled. Modeling assumed that 1,407 acre-feet per year would flow through Barrel Canyon at the USGS gaging station, roughly ten miles above the Davidson Canyon OAW. Actual flow measurements from 2010 to 2013 ranged from 41 to 185 acre-feet per year. Surface Water Mitigation Plan at p. 9. Moreover, there is little correlation between flows in Barrel Canyon and flows in Davidson Canyon. In 2013, there were 23 total days of measured streamflow in lower Barrel Canyon compared to 2 days of measured streamflow in Davidson Canyon Wash four miles downstream (and nearly eight miles above the OAW). *Id.* at p. 16. For 2014, there were 47 days of streamflow in Barrel and 8 in Davidson Canyon. U.S. Forest Service, *Rosemont Copper Project Supplemental Information Report* (March 2015)(SIR), pp. 22-23.

[4] For example, it is just as possible that a reduction in stormwater runoff from the Project site could remove possible sources of lead that have caused exceedances of water quality standards for that metal in the watershed. Surface Water Mitigation Plan at p. 17.

[5] Fact Sheet at p. 10.

[6] The attached WestLand Resources, Inc. memorandum, Existing Stressors Contributing to the Current Compromised State of Davidson Canyon (April 29, 2015), specifically delineates stressors in Davidson Canyon with a potential to affect water quality.

[7] Fact Sheet, p. 11.

attributable to future Project activities is subsequently observed. To that end, ADEQ required Rosemont to submit a Surface Water Mitigation Plan to establish baseline conditions in the watershed, to monitor water flow and quality as the Project develops, and to develop and implement mitigation measures to address water quality issues if they emerge. Compliance with the Plan is a condition of the 401 certification. The Plan is necessarily flexible given the number of variables involved, but represents a cautious approach to ensuring that water quality in the Davidson Canyon watershed, and specifically the OAW reach, will be protected.

EPA's Letter

For purposes of the public interest review, the Corps is to consider a 401 certification by a state "conclusive with respect to water quality considerations unless the EPA Regional Administrator advises of other water quality aspects to be taken into consideration." 33 CFR §320.4(d). The Corps Regulatory Guidance Letter 90-04 states that "other water quality aspects" can consist of EPA's "disagree[ments] with the state's conclusions" in its certification or "water quality concerns beyond the state certification's scope." EPA's letter states that its purpose is to apprise the Corps of "water quality aspects which may be outside the scope of the State's 401 certification review," and to request the Corps' consideration of those "other water quality aspects" as part of its public interest review. The letter thus seeks to create the impression that EPA is not taking issue with "the state's conclusions" in the certification, but, rather, is simply bringing water quality issues "beyond the state's certification's scope" to the Corps' attention. The first half of the letter, however, is nothing more than a collateral attack on the the State's conclusions in the certification. EPA does not identify any "water quality concerns [that are] beyond the state's certification scope", "and that were therefore not considered by ADEQ." Instead, EPA merely states in conclusory fashion why it disagrees with the 401 certification.

The first half of the letter identifies three "water quality aspects" that were purportedly "beyond the certification's scope" and that, in EPA's view, remain "unaddressed by the final certification": 1) "water quality impact avoidance;" 2) water quality impact minimization;" and 3) "water quality impact mitigation." These three issues, however, were not "outside the scope of the state's 401 certification review;" instead, they were at the very heart of it. Rather than being "unaddressed" by ADEQ, as EPA claims, they were addressed in detail; indeed, the certification rests upon ADEQ's careful consideration and treatment of these three issues. ADEQ's certification contains 33 specific conditions with which the Project must comply, which are aimed directly at avoiding, minimizing, and mitigating the water quality impacts of the Project. Significantly, EPA offers not a single fact in support of its conclusory statement that "the specific conditions in the certification are highly unlikely to avoid potential water quality degradation, detect anticipated or unanticipated degradation, or mitigate for those impacts."

The second half of the letter comments on two issues that are not "other water quality aspects" of the Project's activities: 1) water supply and conservation, and 2) recreational and aesthetic values. The water supply and conservation issue concerns the question of how "the mine's water needs" and "the mine's projected water use" will "impact public and private water supplies." But the question of how much water the mine will be allowed to use (and the closely related question of how that use might affect other water users) is a question of water resource allocation, a question which is explicitly reserved to the states by the Clean Water Act itself. [8] The recreational and aesthetic values issue is simply another thinly veiled attack on the 401 certification; i.e, because EPA believes, contrary to "the state's conclusions" in the certification, that the Project's discharges will "lower[] ... water quality in OAWs," it speculates that there may also be some "[l]oss of recreational and aesthetic value" in the OAWs.

[8] 33 U.S.C. § 1251(g) ("the authority of each State to allocate quantities of water within its jurisdiction shall not be superseded, abrogated or impaired by [the Clean Water Act]); 33 C.F.R. § 320.4(d).

We understand that the Corps advised ADEQ on April 7, 2014, [9] that the water quality concerns raised by EPA's February 13, 2012 letter to the Corps "render any granted state Section 401 certification 'not conclusive' regarding water quality considerations, and necessitates the DE to make 'independent judgments regarding compliance with 40 CFR 230.10(b)(1) and the consideration of water quality issues in the public interest review process.'" These statements from EPA were made over two full years before ADEQ issued its draft certification, and nearly three years before ADEQ responded to EPA's comments on the draft certification. We would therefore request that the Corps take full account of the record that has been compiled by ADEQ and the Forest Service in the three years since EPA first raised its water quality concerns before concluding that EPA's April 14, 2015 letter "render[s] ... [the] state Section 401 certification 'not conclusive.'" Moreover, we note that, Corps guidance notwithstanding, EPA's collateral attack on the 401 certification is contrary to Section 401 of the Clean Water Act itself, which clearly contemplates a conclusive role for state certification decisions on the issue of compliance with the State's water quality standards; the Corps public interest regulation, which does the same; and the express purpose of EPA's own letter. [10]

Nevertheless, if the Corps concludes that the 401 certification is "not conclusive", we are confident that the Corps will accord the 401 certification appropriate deference. We believe that when ADEQ's decision-making is evaluated, it will withstand the unsupported assertions that EPA makes in its letter, and the Corps will find, like ADEQ, that the Project will not cause or contribute to a violation of State water quality standards.

We appreciate the opportunity to have our views heard. Please do not hesitate to contact me if you require any additional information.

Sincerely,

Patrick Merrin
Vice-President, Arizona Business Unit

Enclosure: WestLand Resources, Inc. memorandum, *Existing Stressors Contributing to the Current Compromised State of Davidson Canyon* (April 29, 2015)

cc:[A1] David Castanon, USACE
Sallie Diebolt, USACE
Marjorie Blaine, USACE
Henry Darwin, ADEQ
Trevor Baggiore, ADEQ
Jared Blumenfeld, EPA
Jamie Kingsbury, USFS
Steve Spangle, USFWS
Ray Suazo, BLM

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[9] Letter from Dave Castanon, Chief, Regulatory Division, USACE Los Angeles District, to Robert Scalamera, ADEQ (April 7, 2014) citing Regulatory Guidance Letter (RGL) 90-04.

[10] The Corps regulation provides that a 401 certification "will be considered conclusive with respect to water quality considerations unless the Regional Administrator, Environmental Protection Agency (EPA), *advises of other water quality aspects* to be taken into consideration." 33 C.F.R. § 320.4(d) (emphasis added). The RGL notwithstanding, "other" clearly refers to matters *not* addressed by the 401 certification.

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HudBay Minerals, Inc. (Hudbay)

Response to (1) Letter from Jared Blumenfeld, Regional Administrator, EPA Region 9 (April 14, 2015) regarding "'Other Water Quality Aspects' of permit issuance for the Rosemont Mine in light of state actions under §401 of the Clean Water Act" (Blumenfeld Letter); and (2) Letter from Jane Diamond, Director, Water Division, EPA Region 9 (April 7, 2014) regarding "State of Arizona Clean Water Act (CWA) Draft Section 401 Water Quality Certification for Rosemont Copper project, Pima County, Arizona" (Diamond Letter)

The following provides HudBay Minerals, Inc. (Hudbay) response to comments made by EPA in conjunction with the draft and final 401 Certification issued by the Arizona Department of Environmental Quality (ADEQ). The final 401 Certification was issued February 4, 2015. EPA comments or our paraphrase of those comments are in italics, followed by Rosemont's response.

1.0 RESPONSE TO BLUMENFELD LETTER OF APRIL 14, 2015

EPA Comment: "After careful review and consultation with the state, EPA has determined that the impacts of the project include substantial water quality aspects which may be outside the scope of the state's §401 certification review. Thus, EPA believes the certification alone is unlikely to provide sufficient measures to safeguard the water quality of the Cienega Creek watershed, including stream reaches meeting or exceeding existing water quality standards under CWA §303 (these CWA "Tier 3" waters in Arizona are designated "Outstanding Arizona Waters" or OAW).

Response: As discussed above, EPA's comments fail to identify a single water quality issue that was not addressed by the State in its review. EPA's comments are almost entirely a collateral attack on the 401 Certification and are not directed to "other water quality aspects" contemplated by the Corps' public interest review regulation addressing water quality. 33 C.F.R. §320.4(d).

We also note that EPA's comment seems to suggest that any water that meets all applicable standards is a Tier 3 water subject to the strictest antidegradation protection. In reality, only those 22 OAWs designated by rule at A.A.C. R18-11-112(G). (including portions of lower Davidson Canyon Wash and lower Cienega Creek) are subject to Tier 3 protection. The portions of Davidson Canyon Wash and its tributaries proximate to the Project are ephemeral, and thus are considered Tier 1 for antidegradation purposes.

EPA Comment: "The Rosemont Copper Project [FEIS] and other documentation concluded the Rosemont mine, if constructed, would adversely modify surface and groundwater hydrology, sediment transport, and pollutant loadings in the watershed." The state CWA §401 certification lacks sufficient, specific preventative actions to avoid these adverse impacts to water quality, creating a substantial risk to designated beneficial use standards set by the state for Davidson Canyon and Cienega Creek. In general, the certification relies upon limited, voluntary (i.e., non-enforceable) post-discharge monitoring that may detect water quality degradation after it occurs, and includes insubstantial corrective actions to be developed at a later time. Many of EPA's concerns identified in comments on the state's February 21, 2014 draft certification (letter attached) remain unaddressed by the final certification."

Response: EPA asserts in conclusory fashion that the Project would result in a "substantial risk" to water quality standards in downstream OAWs. This assertion is not consistent with the extensive analyses done as part of the EIS process. Two scenarios have been posited as to how the Project could potentially adversely affect water quality in the downstream OAWs (roughly 12 miles from the Project

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site): (1) by reducing flow in the downstream OAWs, which potentially could reduce assimilative capacity and result in higher pollutant levels if loadings remained the same; or (2) by discharging poor quality water that reached the OAWs and degraded water quality there. The first of these scenarios (reduced flow in the OAWs) is addressed below; the weight of evidence gathered to date suggests that the risk of significantly reduced flow in the OAWs is low, and the likelihood of adverse water quality effects based on that reduced flow is speculative. As to the second scenario (Project discharges adversely affecting water quality in the OAWs), the FEIS (p. 454 and Table 102) and the SIR (p. 26) note that existing, pre-Project stormwater discharges into Barrel Canyon have been documented to exceed applicable surface water quality standards for 6 pollutants, whereas runoff from Project facilities is modeled to exceed applicable standards for only one pollutant, and that could be avoided through waste rock segregation techniques (FEIS p. 472 and SIR p. 26). In sum, there is not a "substantial risk" to OAW standards.

EPA also claims that the certification "lacks sufficient, specific preventative actions to avoid ... adverse impacts to water quality" from modifications to "surface and groundwater hydrology, sediment transport, and pollutant loadings," but fails to explain why the many "specific preventative actions" that are, in fact, required by the 401 Certification are "insufficient," or to identify a single specific action that ADEQ should have required beyond those in the 401 Certification. As set forth in detail in the FEIS, the Project was carefully designed to minimize impacts to surface and groundwater hydrology. Building on that foundation, the 401 Certification contains at least 15 specific conditions that are designed to prevent and minimize sediment loading and transport in any water of the United States as a result of the Project's activities, and 7 specific conditions that are designed to prevent and minimize any harmful pollutant loadings to any water of the United States.

One of the specific preventative actions ADEQ has required is the implementation of the Surface Water Mitigation Plan. The Plan is necessarily flexible; before specific mitigation measures can be required, a water quality problem posed by the Project must be identified. The Surface Water Mitigation Plan provides an additional layer of protection over and above operational aspects of the Project (including compliance with the Aquifer Protection Permit and AZPDES stormwater permit requirements) to identify whether reductions in flow in the OAW are occurring, whether they are attributable to the Project, and whether they result in degradation.

EPA Comment: "Water quality impact avoidance: Without reasonable assurance of impact avoidance, the available information suggests Tier 3 antidegradation standards are very likely to be violated.

Water quality impact minimization: A specific and complete monitoring program is necessary at the outset to ensure rapid detection of impacts should a robust preventative program fail, and provide for the ability to deploy corrective measures;

Water quality impact mitigation: Specification of, and enforceable commitment to, available and sufficient corrective measures are needed to offset mine-related reduction of assimilative capacity, changes in downstream sediment yield, and other potential diminutions of water quality that may be detected. Presently, the corrective measures proposed in a "Surface Water Mitigation Plan" lack specificity regarding their ability to arrest and reverse water quality problems once water quality degradation of OAWs or other waters has been detected."

Response: These general statements, particularly the contention that Tier 3 antidegradation standards are "very likely to be violated," are not supported by the scientific studies and information in the record and are directly refuted by ADEQ's expert analysis of that record. Once again, EPA provides no specific support for these assertions. Again, it should be noted that the OAW is located approximately 12 miles downstream from the Project. An uninformed reader would erroneously assume that OAW is immediately downstream of the Project.

The Surface Water Mitigation Plan is in fact a "specific and complete monitoring program" which provides "for detection of impacts" in as quick a manner as practical. The system is ephemeral, and so impact detection is entirely reliant on rainfall and runoff. In deciding whether to deploy corrective measures, the first step is to identify whether there is a real and consistent impact. Based on geochemical characterization data, groundwater and seepage/infiltration modeling, baseline water quality monitoring, and baseline stormwater flow monitoring, impacts to Barrel Canyon Wash and Davidson Canyon Wash due to the Project are not anticipated. Should an anomaly in data become evident, i.e., a potential impact, specific corrective measures will be implemented.

EPA Comment: EPA generally asserts that the water quality concerns raised above are "other water quality aspects" that the Corps should independently evaluate, instead of accepting the 401 Certification as conclusive as to matter of water quality, citing to both the 404(b)(1) Guidelines and public interest review.

Response: As discussed above, Hudbay does not believe that EPA's collateral attack on the 401 Certification represents "other water quality aspects" to be reviewed by the Corps in conjunction with the public interest review or its evaluation of water quality impacts under the 404(b)(1) Guidelines. The 401 Certification should be accorded conclusive effect as to these matters. We are confident, however, that if the Corps were to evaluate more closely ADEQ's decision to issue the 401 Certification, it would conclude, like ADEQ has done, that the Project will not degrade existing water quality in Davidson Canyon Wash or Cienega Creek.

EPA Comment: EPA notes the Corps regulation regarding evaluation of water supply and conservation under the public interest review criteria, characterizes Rosemont's use of groundwater in the context of the regional dependence on groundwater and then notes that "[d]rought, climate change, and the significant uncertainty regarding the potential to successfully recharge subsurface supplies, only heighten EPA's concerns over Rosemont mine's projected water use in an aquifer already subject to groundwater overdraft." EPA goes on to describe purported impacts to well owners from Rosemont's water supply wells.

Response: The issue of how much water the Project will be allowed to use (and the related issue of how that will affect other water users) is not water "quality" concern but rather goes to the question of how Arizona allocates its water resources, something explicitly reserved to the States by the Clean Water Act itself. The Clean Water Act itself states that "the authority of each State to allocate quantities of water within its jurisdiction shall not be superseded, abrogated or impaired . . . ." 33 U.S.C. § 1251 (g). This admonition is repeated by the Corps' public interest review criteria. 33 C.F.R. § 320.4(d). Thus, EPA's concerns about the Project's water use, while important, are irrelevant to 401 certification and to the Corps' permitting decision.

Even though it is not required under Federal or Arizona law, Hudbay and its predecessor implemented an insurance program at no cost to the homeowners in the area that may be impacted by supply well pumping. Although to date no groundwater has been pumped, this insurance program has repaired and replaced water system components including pumps, pressure tanks, and piping for nearly five years and will deepen wells that are impacted by project pumping once it commences. Nearly all homeowners in the area that may be affected have taken advantage of the program.

EPA Comment: EPA argues that the Cienega Creek watershed "is located in a near pristine landscape rich in biodiversity" and then extolls the importance of the area for outdoor recreation before concluding with another collateral attack on the 401 Certification: "Loss of recreational and aesthetic value stemming from the mine's various adverse impacts to water quality are an important additional consideration in permit authorization." EPA then cites to the public interest review criteria.

Response: As a preliminary point, this is not an "other water quality aspect" of the Project which has not been addressed by the 401 Certification, but is in fact another collateral attack on that decision by ADEQ.

It is also very important to note that despite EPA's repeated assertions, [11] Davidson Canyon (part of the Cienega Creek watershed) is *not* located in a "near pristine" area but has, in fact, a history of human uses potentially impacting water quality in the OAW. Attached is a technical memorandum by WestLand Resources discussing the existing stressors affecting the OAW reach of Davidson Canyon. The memorandum concludes:

> The EPA refers to the Cienega Creek watershed (which includes Davidson Canyon) as a "pristine" environment that is under threat by the Rosemont Copper Project. However, even preliminary analysis of readily available public records show that the Davidson Canyon watershed has been significantly impacted by anthropogenic activities, both currently and in the past. Davidson Canyon Wash is crossed by 11 unpaved roads and is used as a thoroughfare itself for off-road vehicle use. In addition, the watershed has a long history of grazing use, including an in-stream diversion of surface water flows for livestock watering just 1.5 miles upstream of the OAW. Finally, human development in the watershed has resulted in the establishment of water development and wastewater systems that also have the potential to impact surface water quality. As such, it can be reasonably concluded that Davidson Canyon does not exist in a pristine condition. It has been impacted by a variety of land use activities in the past, and will continue to be impacted by a variety of activities, including mining, ranching and recreational uses.

WestLand Resources, Inc. *Existing Stressors Contributing to the Current Compromised State of Davidson Canyon* (April 29, 2015).

Finally, it should be noted that while the FEIS has an extensive discussion of socioeconomics and environmental justice including impacts on tourism (FEIS at pp. 1052-1130), EPA chose to cite from a Sonoran Institute study that is outdated and incomplete.

2.0 RESPONSE TO DIAMOND LETTER OF APRIL 7, 2014

Sediment Transport

EPA comment: EPA argues that sediment transport (and potential impacts on downstream OAWs) has not been adequately analyzed because the geomorphic assessment prepared by Patterson and Annandale (2012), and relied on by the Forest Service (in the FEIS) and ADEQ (in the 401 certification), does not consider "temporal variability" and does not account for the fact that "the impacts of mining activities on sediment transport are likely to change over time during the active mine life and after closure." As a result, EPA believes that additional analysis is required (suspended and bedload transport analyses).

Response: EPA provides no explanation for its assertion that the impacts of mining on sediment transport are likely to change over time, and is simply speculating about potential, future impacts that are unlikely to occur. In fact, a careful review of the FEIS discussion of the geomorphic analysis (FEIS pp. 465-66) shows that the conclusion that the Project would not be expected to significantly alter the fluvial geomorphology of the downstream OAW segments relies primarily on two factors: (1) Barrel Canyon is a sediment-transport limited system (meaning there is more sediment in the system than flowing water can transport in normal or even flood conditions), and this would be the case even after the Project is

[11] EPA's prior comment letters on the Project's 404 application contain the same mischaracterization of the watershed. See for example, EPA's detailed comments in response to the Corps Public Notice (Fe. 13, 2012), at p. 1 ¶6.

constructed; and (2) the presence of two grade control structures in Barrel Canyon downstream of the proposed Project (the bridge at SR-83, and the occurrence of bedrock within the streambed upstream of Davidson Canyon) limits the extent of erosion both upstream and downstream of the structures, and thereby prevents streambed degradation. These conditions would continue to exist both during and after Project operations. Therefore, there is no basis to conclude that additional analysis considering "temporal variability" would alter the core conclusions of the existing geomorphic analysis relied on by the Forest Service and ADEQ.

Furthermore, the FEIS includes monitoring measures (FS-SR-05 and FS-BR-22) that commits Rosemont to sediment transport monitoring and stream channel geomorphological monitoring in Barrel Canyon and Davidson Canyon. The final 401 certification refers to these monitoring requirements (Section 5, Specific Condition 1) and requires that Rosemont implement the ADEQ-approved Surface Water Mitigation Plan (December 2014) (the "Plan"). The Plan provides further details on the proposed sediment transport and stream channel monitoring (Sections 2.2.3, 2.2.4 and 2.2.5). Sediment mitigation is addressed in Section 5.2 of the Plan. Given that sediment is a pollutant and its discharge is regulated under the AZPDES program, [12] Rosemont cannot unilaterally commit to adding sediment to the stream in the event that ADEQ concludes that such addition is needed for geomorphic reasons—which, for obvious reasons, is extremely unlikely. Therefore, the Plan reasonably states that Rosemont will coordinate any mitigation response with ADEQ in the event that sediment—a pollutant—needs to be added to the system.

In short, ADEQ's approach to sediment in the 401 Certification is reasonable and should not be revised by the Corps.

Reduction in Available Assimilative Capacity

Background (antidegradation requirements): As a preliminary matter, it is necessary to precisely describe what watercourses are classified as Tier 1 waters and Tier 3 waters and what antidegradation requirements apply to those waters. Barrel Canyon and all of Davidson Canyon Wash above the OAW segments are ephemeral, and therefore considered Tier 1 waters for purposes of antidegradation analysis. A.A.C. R18-11-107.01(A)(c). As such, the antidegradation standard is that a regulated discharge must not cause a violation of an applicable surface water quality standard. A.A.C. R18-11-107.01(A)(2). By contrast, the OAW segments of lower Davidson Canyon Wash—— and lower Cienega Creek, which are located 12 miles or more from the Project, are Tier 3 waters. Existing water quality in Tier 3 waters must be maintained, although temporary water quality impacts (those occurring for a period of six months or less) are allowed. A.A.C. R18-11-107.01(C).

A reduction in assimilative capacity is not prohibited under Arizona's antidegradation regulations. Rather, if the reduction in assimilative capacity results in a violation of an applicable water quality standard (for Tier 1 waters, including Barrel Canyon and the upper 10 miles of Davidson Canyon) or results in a degradation of water quality (for Tier 3 waters, meaning the OAW segments of lower Davidson Canyon Wash and Cienega Creek), then there may be a violation of antidegradation requirements.

Furthermore, a potential reduction in flow should not automatically be equated with a reduction in assimilative capacity. For example, if the stormwater runoff that will no longer report to the OAW reaches currently exceeds applicable surface water quality standards for one or more pollutants, a reduction in flow could actually increase the assimilative capacity with regard to those pollutants. This may in fact be the case in the current situation. Baseline stormwater quality sampling in Barrel Canyon indicate

[12] The Mining MSGP, under which Rosemont is permitted, requires mines to implement erosion control measures during the construction and operational phases. *See* Parts 2.1.1.5 and 8.G.5.2 of the Mining MSGP. Furthermore, the final 401 certification itself includes measures to reduce sediment leaving the site (see Section 5, Specific Conditions 17-19).

exceedances of SWQSs for certain metals, particularly total lead and dissolved and total copper (Rosemont baseline stormwater quality database). Therefore, there may not be a direct correlation between reduction in flow, reduction in assimilative capacity, and resulting adverse changes to water quality.

EPA comment: EPA cites portions of the FEIS that estimate reductions in stormwater flows from the proposed mine site, ranging from 30-40% (during roughly the first 10 years of operation) to 17% (post-closure). FEIS, pp. 424-25 and Table 76. EPA criticizes ADEQ for focusing on the 17% figure, rather than the 30-40% figure, in discussing potential loss of assimilative capacity in the OAW reaches.

Response: The predicted reduction in stormwater runoff from the mine site does not directly correlate to a comparable reduction in flows in the OAW reaches of Davidson Canyon Wash and Cienega Creek, as those areas are fed by a much larger watershed. With respect to those areas, the FEIS concludes (recognizing the uncertainty inherent in the modeling) that stormwater flow would be reduced at the confluence of Davidson Canyon and Cienega Creek by approximately 4.3% for the Barrel alternative. FEIS, pp. 429-30 . Moreover, flow in the OAW also depends, at least in part, on springs that are not (or not wholly) dependent on stormwater flows. Therefore, a roughly 4.3% reduction in stormwater flows does not correspond to a 4.3% reduction in total flows in the OAWs. This (projected) figure is the more pertinent one for purposes of the 401 Certification.

Stream flow data collected since December 2012 in Barrel Canyon Wash and Davidson Canyon Wash indicate that stream flow measured at the lower Barrel Canyon Wash station does not directly relate to stream flow in Davidson Canyon Wash, measured 4 miles downstream from the Barrel Canyon Wash station. For example, as discussed above, there were 23 total days of measured streamflow in lower Barrel Canyon in 2013 compared to 2 days of measured streamflow in Davidson Canyon Wash four miles downstream (and nearly 8 miles above the OAW). For 2014, there were 47 days of streamflow in Barrel Canyon and 8 in Davidson Canyon.

EPA comment: EPA suggested that Rosemont be required to submit its surface water mitigation program to ADEQ for approval prior to issuance of the final 401 water quality certification, rather than after issuance of the certification (as had been proposed in the draft certification).

Response: Based in part on the original EPA comments, Rosemont did submit a mitigation plan for approval before the 401 Certification was finalized. The December 2014 Surface Water Mitigation Plan was reviewed and approved by ADEQ.

EPA comment: EPA did not believe that the activities described in the draft 401 certification for providing additional water to offset reduced flows, if needed, were certain to occur.

Response: Section 5, Specific Condition 1 of the 401 Certification requires Rosemont to implement the ADEQ-approved Plan. Sections 4 and 5 of that Plan make clear that replacement of water flows is tied to potential changes in water quality in the OAWs. In other words, if water quality in the OAWs is degraded as a result of reduced surface flow resulting from Rosemont's activities, [13] then Rosemont will undertake mitigation efforts to replace that flow as needed to restore water quality to pre-Project conditions. This is made clear in the introductory language of Sections 4 and 5 of the Plan. Because it is impossible to predict whether and to what extent flow supplementation will actually be required, it is impossible to predict exactly what mitigation efforts will be required. The Plan therefore lays out a series of steps that may be taken (Section 5.1), following ADEQ approval.

[13] Given the distance of the OAWs from the proposed mine (roughly 12 miles), and the potential for other sources to impact the OAWs, Rosemont cannot be an absolute guarantor of water quality in the OAWs because many other sources and activities can affect that water quality. Rosemont's mitigation obligations are tied to effects reasonably attributable to its activities.

Given the uncertainty regarding whether, when and how much flow supplementation will be required, the ADEQ 401 Certification and the approved Plan take a reasonable approach to potential mitigation. The certification clearly prohibits degradation in water quality in the OAWs based on Rosemont's activities, as required by Arizona's antidegradation rules, and makes it clear that ADEQ may ask the Corps to suspend the 404 permit if such degradation is observed and not remedied. This is a reasonable approach to a complex situation involving the effects of reduced surface runoff on areas 10 miles away, which are also affected by numerous other factors and sources. Under these circumstances, the Corps should not second-guess ADEQ's approach for dealing with this issue.

Degree of Confidence in Modeling

EPA comment: EPA argued that inevitable uncertainty inherent in modeling that attempted to model a complex system over periods up to 1000 years and beyond demands application of more protective standards.

Response: In making the 401 Certification, ADEQ reviewed the available model results and the FEIS analysis, and concluded that the best scientific evidence supported a finding that the proposed activities would not result in a degradation of current surface water quality standards. This is discussed on pages 13-15 of the Fact Sheet accompanying the 401 Certification decision. EPA apparently disagrees with ADEQ's conclusion, but has provided no credible scientific evidence that suggests the Corps should second-guess ADEQ and reach a different decision.

EPA comment: EPA asserts that pit dewatering will adversely impact approximately 20 miles of the Upper Cienega Creek OAW.

Response: Any long term effects of "pit dewatering" do not result from a discharge of dredged or fill material or any other discharge that is regulated under the Clean Water Act. ADEQ is therefore limited in its ability to consider certification conditions related to this alleged dewatering under A.R.S. § 49-202(C). Furthermore, these potential flow reductions—which are, again, highly uncertain and will occur, if at all, hundreds of years from now—are not "water quality" aspects that would justify the Corps reopening a state 401 certification decision pursuant to 33 C.F.R. § 320.4(d).

The Forest Service recently completed an extensive Supplemental Information Report (SIR) reviewing these specific possible effects, and EPA provided comments specific to those elements. This analysis showed that at the low end of the sensitivity analysis, even at 1,000 years dewatering had little to no effect on the baseline condition and, as expected, at the high end of the sensitivity range had varying degrees of effect on the OAW reach in Upper Cienega Creek. But in no case did all of the sensitivity runs show adverse effects over the entire 20-mile segment of Cienega Creek. In fact, only on the extreme range of time (1,000 years) and using the high end of all sensitivity runs were significant impacts predicted. [14]

Potential for Cumulative Impacts

EPA comment: Without elaboration, EPA asserted that "the scope and magnitude of impacts associated with the proposed Rosemont Copper Project, and the context in which these impacts will occur, have not been adequately presented" in the certification and Basis for Decision.

Response: ADEQ's decision (and the FEIS) discusses cumulative impacts. It is unclear what additional analysis EPA believes necessary. Rosemont has committed to extensive monitoring and

[14] SIR, pp. 28-108.

mitigation measures to address potential impacts from its activities, and ADEQ and the USFS have concluded that these measures are sufficient. EPA has not provided a sufficient justification for the Corps to make a different decision.

Monitoring

EPA comment: It is unclear whether corrective measures can be put in place to prevent the degradation of OAWs should scour or aggradation be detected, or whether these measures can be effective given the potential lag time between detection and implementation of potential remedies.

Response: Rosemont has agreed to conduct topographic surveys, as well as pebble count and particle-size analysis monitoring. Desert watercourses in the Southwest change naturally following flow events, especially turbulent summer monsoon flows and major winter storm events. In addition, there are numerous sources other than the Project that will affect portions of the wash located between the Project and the OAWs. Moreover, scour or aggradation in the 12 miles between the mine and the nearest OAW most likely will not have an effect on water quality in the OAWs. As noted previously, if it is determined that sediment needs to be added back into the system, then there are other programs to be considered (e.g., the AZPDES program, which generally requires permittees like Rosemont to reduce sediment being discharged in stormwater from a site). If work in channels is required, Section 404 permit authorization may be required. For all these reasons, as a practical matter, it is difficult, if not impossible, to be more specific about potential future sediment mitigation at this time.

EPA Comment: EPA suggests that Forest Service sediment monitoring to identify areas of scour or aggradation between the mine and State Route 83 will be ineffective for determining impacts to the OAW because these measures are only applicable on USFS lands, while the OAW is located downstream.

Response: In addition to the monitoring required under FS-SR-05 (referred to by EPA in its comments), Rosemont has committed to additional monitoring pursuant to FS-BR-22 related to protection of the Cienega Creek Watershed and endangered and threatened aquatic species potentially present in that watershed. This monitoring is designed to satisfy conservation measures identified on pp. 57-58 of the Fish and Wildlife Service's October 2013 Biological Opinion. Pursuant to FS-BR-22, Rosemont will establish 4 sites within Davidson Canyon to monitor (*inter alia*) geomorphic changes to Davidson Canyon, which would include physical changes such as scour and aggradation. This monitoring will help detect potential adverse impacts to the downstream OAWs.

EPA comment: EPA argued that the any adverse changes detected in water quality in OAWs should require immediate suspension of the 401 certification (and thus of the 404 permit).

Response: Because many other activities can affect the OAWs (located ~12 miles or more from the proposed mine), and because natural water quality may vary in the OAWs, automatic suspension of the certification based on any adverse change in water quality is not appropriate. The final certification (Section 5, specific condition 1) states that ADEQ will request that the Corps suspend the permit if monitoring detects that water quality in the OAWs has been degraded as a result of Project activities, in order to allow time to evaluate the issues and consider additional mitigation measures in the event that more than temporary degradation may occur. This is an appropriate and reasonable approach.

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