February 25, 2016

Via email and FedEx

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Re: Proposed Arroyo Grande Oil Field Aquifer Exemption: Request for Denial

Dear Mr. Albright,

On February 8, 2016 the California Department of Conservation, Division of Oil, Gas and Geothermal Resources ("DOGGR") recommended an aquifer exemption for Class II injection wells in the Arroyo Grande oil field ("AGOF"), operated by Freeport McMoRan ("FMOG"). Under the Safe Drinking Water Act ("SDWA"), the EPA must approve this exemption before it is valid.[1] On February 11, 2016, the Center for Biological Diversity ("CBD" or "Center") sent comments to EPA requesting a formal rulemaking process under 40 C.F.R. section 145.32(b)(2), on the basis that the exemption is substantial, complex, and controversial.[2]

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[1] 40 C.F.R. § 144.7(a)(2).

[2] Letter from Maya Golden-Krasner, Center for Biological Diversity, to US EPA (Feb. 11, 2016) ("CBD, Feb. 11 letter to EPA"), attached. Recent documents produced by EPA demonstrate that it is EPA's understanding that aquifers with zones with TDS less than 3,000 mg/l should go to, and involved, EPA Headquarters. *See e.g.,* email from George Robin to Michele Dermer (March 1, 2013) Re: (Substantial/Non-Substantial; Major/Minor)(Discussion

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Now, the Center hereby requests that US EPA deny the aquifer exemption, because FMOG and DOGGR have failed to demonstrate that the aquifer meets the federal or state criteria for exemption. Neither FMOG nor DOGGR have met their burden of demonstrating that the aquifer cannot be used for beneficial or domestic purposes, or that it is hydraulically isolated from other current or future beneficial use or domestic water sources.

I. Background

The SDWA is an important safeguard for our nation's drinking water, a precious resource. Water is presumed protected unless exempted.[3] The EPA may not approve an aquifer exemption if the water is currently or could be used as a source of drinking water.[4] In some cases, EPA has delegated primary responsibility for initial review of applications to the states, such as in the case of the California Primacy Agreement.[5]

Over the past couple of years, it has come to light that in direct violation of both the Primacy Agreement and the SDWA, DOGGR permitted up to 5,625 potentially unlawful Class II injection wells to inject waste water, steam, chemicals, and other pollutants into aquifers without exemptions.[6] These include 90 wells at the AGOF: 14 waste disposal wells and 76 enhanced oil recovery wells that primarily inject steam underground, sometimes at high volumes. Subject to an agreement with the EPA, DOGGR has issued "emergency regulations" requiring all non-compliant injection wells to obtain aquifer exemptions by certain deadlines, depending on the quality of the water in the aquifer. FMOG and state regulators request this exemption in order to both legitimize these illegal injections and accommodate a planned massive expansion of production, which will involve drilling or reworking up to 450 wells, including new injection wells.

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before Response to Jerry) UIC Guidance 34. In addition, EPA has expressed concern over the 45-day period provided in 40 CFR 144.7 for EPA to conduct a thorough technical review, especially if it requires additional information from the operator. *See e.g.,* email from Jerry Salera (CA DOC) to George Robin (US EPA), cc: Michele Dermer (US EPA) (March 8, 2013) Re: (Preliminary) (TechReview) Cat Canyon Aquifer Exemption Application - Sisquoc Zone (part of a longer email chain titled RE (2nd Try) (Final)(Tech Review) Cat Canyon Aquifer Exemption Application - Sisquoc Zone (last date in email chain: Mar. 21, 2103)). This need for more information could trigger an additional Public Comment period. *Id.* Furthermore, EPA has indicated that conversations between DOGGR, the Regional Board "are more technically in depth than those from the Public's scrutiny." *Id.* If this is the case, we are entitled to an additional public comment period both because the TDS is less than 3,000 mg/L and in order to be provided the opportunity to respond to all of the documentation for this project.

[3] 40 C.F.R. § 144.7(a); 42 U.S.C. § 300h(d)(2).

[4] 40 C.F.R. § 146.4.

[5] Underground Injection Control Program, Memorandum of Agreement Between California Division of Oil and Gas and the United State Environmental Protection Agency, Region 9 (Sept. 9, 1982) ("Primacy Agreement"), *available at:* http://www.conservation.ca.gov/dog/for_operators/Documents/MOU-MOA/MOA_EPA_UIC_1982.pdf.

[6] Letter from Steve Bohlen, State Oil and Gas Supervisor, DOGGR, and Jonathan Bishop, Chief Deputy Director, State Water Resources Control Board, to Michael Montgomery, U.S. EPA (July 31, 2015) ("July 31, 2015 letter"), p. 1.

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The Center and AGOF's neighbors are concerned that aquifers currently used for drinking water will be harmed by the exemption. If EPA grants this exemption request for the AGOF, operators will inject into an expanded area of the underlying aquifer beyond that in which they have been illegally injecting for decades. This application rests on the assertion that the aquifer does not currently serve as a source of drinking water and cannot now or in the future serve as a source of drinking water because it is hydrocarbon producing.[7] In addition, DOGGR asserts that this injection will not affect the quality of water that is, or may reasonably be, used for any beneficial use, and that the injected fluid will remain in the proposed exempted aquifer because the aquifer is zonally isolated.[8]

Neighbors of the AGOF, nonprofits, and experts have submitted comments disputing the basis for these claims.[9] Instead of responding to the specific, technical deficiencies brought up by commenters, DOGGR simply maintains that the public should trust that the state agencies have been diligent in reviewing the necessary data and are satisfied the aquifer meets state and federal exemption criteria.[10] DOGGR's history of ineffective UIC regulation makes its assertion that the public should simply trust DOGGR's baseless conclusions particularly egregious and intolerable. DOGGR's insistence that it is right cannot erase the fact that it and FMOG have failed to demonstrate that this aquifer meets the criteria for exemption from the Safe Drinking Water Act. As a result, the Center requests that you deny this request to sacrifice still more of California's dwindling and precious groundwater resources to the oil industry.

II. The Presumption is in Favor of Protecting Groundwater[11]

Congress passed the SDWA to protect public health by regulating and protecting the nation's public drinking water supply. The federal underground injection control program, part C

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[7] DOGGR, California State Water Resources Control Board ("Water Board"), Statement of Basis, Arroyo Grande Field ("Statement of Basis"), *available at:* ftp://ftp.consrv.ca.gov/pub/oil/Aquifer_Exemptions/County/San_Luis_Obispo/Arroyo_Grande_Oilfield/Dollie_Sands_Pismo_Formation/Arroyo%20Grande%20Statement%20of%20Basis%20Final.pdf; 40 C.F.R. §§ 146.4(a), (b)(1).

[8] Statement of Basis, p. 6; California Pub. Resources Code § 3131.

[9] *See attached*: Comments on FMOG Arroyo Grande Oil Field Aquifer Exemption from Maya Golden-Krasner, Center for Biological Diversity (September 21, 2015) ("AE Comments"); Comments on FMOG Arroyo Grande Oil Field Aquifer Exemption Supplement from Maya Golden-Krasner, Center for Biological Diversity (December 16, 2015) (with attachments) ("Supplemental AE Comments"); Comments on the Arroyo Grande Aquifer Exemption Application by Matt Hagemann (Dec. 14, 2015; Attachment A to Supplemental Comments) ("Hagemann Comments"); and, Proposed Aquifer Exemption letter from Natalie Smith-Risner (Dec. 16, 2015). *See also* Cross Section showing location of water well adjacent to proposed aquifer exemption zone created by Rob Hesse (Dec. 16, 2015) ("Hesse Cross Section") and Rob Hesse, Aerial Image Overlay Showing Results of CBD's Public Records Act Request for Well Information (Feb. 10, 2016); Supplement AE Comments, p. 10, citing Natural Resources Defense Council, Aquifer Exemption Comments, (Sept. 21, 2015) ("NRDC AE Comments").

[10] See CBD, Feb. 11 Letter to EPA, pp. 6-7 for some examples of DOGGR's refusal to address commenters' legitimate concerns.

[11] The Center described the presumption in favor of protecting California's water in its AE Comments (pp. 5-8), but it is worth repeating here.

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of the SDWA, was established to safeguard underground drinking water sources endangered by underground injections.[12] The SDWA and its attendant regulations ("Federal Regulations") protect not only existing public water systems;[13] crucially, they also safeguard any drinking water source that supplies, or can reasonably be expected in the future to supply, any public water system.[14] In other words, the SDWA and the Federal Regulations preserve future sources of drinking water by prohibiting their contamination *before* they are drawn upon.

The primary purpose of the regulations promulgated pursuant to the Safe Drinking Water Act is to protect drinking water and potential sources of drinking water. It does not seek to balance the protection of drinking water and potential drinking water sources with industrial use of those sources. Rather, the statutory language, purpose and intent safeguard water sources from Class II well injection activities. As the court found in *United States v. King*,

> The injection provisions of the SDWA are "preventive." 1974 U.S.C.C.A.N. at 6463. Congress concluded that the most effective way to ensure clean drinking water was to prevent pollution of underground aquifers in the first place, rather than to clean up polluted aquifers after the fact. Under the SDWA, the danger posed by proposed injections to an underground aquifer is determined during the permitting process. As noted above, the SDWA puts the burden on a permit applicant to show that a proposed injection will not endanger an USDW. If an applicant fails to show that a proposed injection is safe, the SDWA requires that the permit be denied. That is, in the absence of a showing by the applicant that a proposed injection is safe, the SDWA presumes that the injection will endanger an USDW.[15]

Thus, here, the burden is on FMOG to prove that the aquifer will not endanger a USDW, and this application fails to do that.

III. The EPA Must Consider DOGGR's Failure To Effectively Administer the UIC Program in California, as Well as Current Technology and Climate Conditions, in Weighing that Presumption Against FMOG's and DOGGR's Burden to Demonstrate the Aquifer Meets the Exemption Criteria

If DOGGR's illegal permitting of thousands of wells to inject into federally protected water is not enough, US EPA must consider that, even while DOGGR has ardently pledged to

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[12] *Legal Envtl. Assistance Found., Inc. v. United States EPA*, 118 F.3d 1467, 1475-76 (11th Cir. 1997) (quoting House Report, H.R. Rep. No. 93-1185 at 29, reprinted in 1974 U.S.C.C.A.N. 6454, 6481).

[13] A public water system is a system for the provision of public water for human consumption through pipes or other constructed conveyances, which has at least 15 service connections or regularly serves at least 25 people. *See* 40 U.S.C. § 300f(4).

[14] 42 U.S.C. § 300h(d)(2).

[15] *United States v. King*, 660 F.3d 1071, 1079 (9th Cir. 2011).

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reform its UIC oversight, it has continued to permit wells at AGOF into non-exempt areas of the aquifer.[16] Further, DOGGR has failed to keep its commitments to EPA that would demonstrate that it is becoming a more responsible agency.[17] For instance, DOGGR committed, by February 15, 2016, to submit 90% of proposed aquifer exemptions for all Category II wells that had been illegally injecting into non-exempt aquifers.[18] This deadline has passed, and DOGGR has not submitted anywhere near 90% of these aquifers to EPA.[19] In fact, it has submitted only one aquifer exemption package for public comment so far: the AGOF.

EPA must consider whether it is willing to readily forfeit this groundwater to an agency that has proven itself to be unable and/or unwilling to comply with or enforce its own laws and regulations. What is more, EPA must take a hard look at the fact that conditions in California and the available technology have changed in the decades since it adopted the exemption criteria. As the agency charged with protecting our environment, EPA must consider these factors in weighing the presumption in favor of protecting groundwater against FMOG's and DOGGR's attempts to legitimize illegal activity that has resulted in the injection of over 63 million gallons of wastewater and steam, along with unknown quantities of toxic chemicals, into a protected aquifer.[20]

If EPA grants the exemption, it would be sanctioning such activity based on antiquated criteria.[21] The Safe Drinking Water Act was passed 40 years ago, and the technical criteria for USDWs and attendant exemptions are decades old. Technology has advanced significantly in the intervening time, with the result that it is now feasible to use lower-quality water for beneficial use. For example, California's first desalinization plant recently went online--a feat that seemed impossible when EPA adopted the criteria for exempt aquifers.[22] Moreover, the current drought

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[16] See Supplemental AE Comments, pp. 10-11, for a discussion and references, including documents produced by DOGGR on Dec. 8, 2015, of AGOF permits to drill injection wells in non-exempt aquifer, conditioned on receipt of exemption, in 2014, and AGOF permits to rework injection wells in non-exempt aquifer, *not* conditioned on receipt of exemption, in 2013-2014.

[17] See, for instance, an email from a new DOGGR employee that was recently produced by EPA that confirms a culture of avoiding compliance at DOGGR: "Yes, the aquifer exemption would have to be carefully thought out, and I think there's a good case for it. I interpret what I hear from others not 'there would have to be a good case for it', I hear 'we've found ways to avoid that for 20 years, I think we can find a way around it this time as well'." Email from Kathleen Andrews (DOC) to George Robin (EPA) (March 20, 2013) RE: For Discussion.

[18] Letter from Jane Diamond, Director, Water Division, EPA Region 9, to Jonathan Bishop, California State Water Resources Control Board, and Steven Bohlen, Division of Oil, Gas and Geothermal Resources (March 9, 2015) ("March 9, 2015 EPA letter"), p. 2.

[19] DOGGR also committed to complete screening for Category 3 wells by February 15, 2016, and failed to comply with that commitment as well. *Id.*

[20] Supplemental AE Comments, p. 10, *citing* NRDC AE Comments, p. 6, Table 2.

[21] See Supplemental AE Comments, pp. 8-11, for a discussion of the antiquated criteria and changes in California's water use due to drought.

[22] *See e.g.*, Bradley J. Fikes, "$1-Billion Desalination Plant, Hailed as Model for State, Opens in Carlsbad," *Los Angeles Times* (Dec. 14, 2015), *available at:* http://www.latimes.com/local/california/la-me-desalination-20151215-story.html.

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conditions in California have necessitated new wells that are deeper and tap into previously unused aquifers.[23] With global warming-induced climate change, California (like other states) is likely to continue to experience deep drought cycles,[24] which will necessitate a long-term view toward protecting the state's drinking water.

The EPA should consider updating the technical criteria for aquifer exemptions and USDWs but, in the meantime, the assertions made by DOGGR in its Statement of Basis for the AGOF aquifer exemption should be considered in light of current technology and drought conditions. It is clear that the DOGGR has failed to adequately consider and balance the current and future potential that the water in this aquifer will be used as drinking water. California's historic drought puts the necessity of protecting its precious groundwater into even more stark relief and makes it much more urgent than when the criteria were first adopted, especially as climate change is likely to increase the frequency and severity of such droughts.

IV. FMOG and DOGGR Have Failed to Demonstrate That the Aquifer is Not Currently Being Used For, or Affecting, Domestic or Beneficial Use Water

Even if EPA wishes to turn a blind eye to DOGGR's unwillingness or inability to oversee its underground injection program, the antiquated criteria used to determine whether an aquifer should be exempted, and the fact that current and future droughts mean that previously untapped sources of water will be used for domestic and beneficial uses,[25] EPA cannot approve this exemption because it fails to meet both state and federal criteria for exemption.

The federal regulations require that FMOG demonstrate that the aquifer does not or cannot now or in the future be used as a source of drinking water because it is: (1) hydrocarbon producing or contains hydrocarbons that are commercially producible, (2) it is situated at a location or depth that makes it economically or technologically impractical to use for drinking water, or (3) it is so contaminated that it would be economically or technologically impractical to drink it.[26] Alternatively, an aquifer can receive an exemption if (4) the TDS is over 3,000 and it is not reasonably expected to supply a public water system.[27] State law prohibits aquifer exemptions unless the exemption meets the federal criteria *and* the injection will not affect the quality of any current or potential future beneficial use water and is zonally isolated.[28] DOGGR and FMOG have not shown that the entire exempted area is not currently being used for, or

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[23] AE Comments, pp. 3-4, 18-20, describing the effects of the drought on water usage in the state.

[24] *See e.g.*, Williams, Park A. et al., "Contribution of Anthropogenic Warming to California Drought During 2012-2014," *Geophysical Research Letters*, Vol. 42, Issue 16 (Aug. 28, 2015), pp. 6819-6828.

[25] "Beneficial uses" "include, but are not limited to: domestic, municipal, agricultural, and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves." Cal. Water Code § 13050(f).

[26] 40 C.F.R. §§ 146.4(a), (b).

[27] 40 C.F.R. §§ 146.4(c).

[28] Public Resources Code § 3131(a).

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affecting, domestic or beneficial use water, nor have they demonstrated that the aquifer is zonally isolated. As a result, the Center requests that EPA reject this exemption.

First, FMOG and DOGGR have not met their burden of demonstrating under state and federal law that this aquifer is undrinkable or otherwise unusable for beneficial purposes; in fact, evidence contradicts this. For instance, water from the aquifer is already being put to beneficial use: produced water is being treated and discharged into Pismo Creek, and there helps maintain the habitat for the endangered California steelhead and tidewater goby.[29] On that fact alone this exemption must be denied--regardless of whether the Water Reclamation Facility ("WRF") could financially operate without FMOG's concurrent oil operations.[30] The relevant inquiry under state law, Public Resources Code section 3131(a), is whether an exemption will affect the quality of water that is, or may reasonably be, used for any beneficial use. Clearly, this water can be put to beneficial use, and if an oil company can pay for the operation of the WRF, if necessary, so can another entity. Further, the aquifer is already used, albeit indirectly, as drinking water, since water from Pismo Creek also helps recharge the Santa Maria water basin, the principal water source for thousands of residents and landowners.[31] This belies the assertion that it cannot now or in the future be used as a source of drinking water.[32] Indeed, the TDS in this aquifer is well below 3,000 mg/l – as low as 1,000 mg/l in some regions[33] -- a key indicator under the federal Safe Drinking Water Act (SDWA) of higher quality water."[34] In other words, there is clear evidence that this aquifer is being and can be used for beneficial and domestic uses.

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[29] Freeport McMoRan, Application for Aquifer Exemption, Arroyo Grande Oil Field ("FMOG AE Application"), pp. 20-21, *available at*: ftp://ftp.consrv.ca.gov/pub/oil/Aquifer_Exemptions/County/San_Luis_Obispo/Arroyo_Grande_Oilfield/Dollie_Sands_Pismo_Formation/Arroyo%20Grande%20Oilfield%20Edna%20Member%20Dollie%20Sands%20Pismo%20Formation%20Aquifer%20Exemption%20Application%20Complete.pdf.

[30] *See e.g.*, FMOG AE Application, p. 21, asserting that the only way to use this otherwise "stranded" water for beneficial purposes is to use the oil company's infrastructure to separate out the oil and treat the groundwater. The Center disagrees, however, that FMOG is the only entity capable of operating the WRF, considering the variety of water treatment plants, including a desalinization plant, constructed or operated throughout the state.

[31] AE Comments, pp. 20-21 (including references).

[32] 40 CFR § 146.4(b).

[33] *See e.g.,* FMOG AE Application, p. 20, *available at:* ftp://ftp.consrv.ca.gov/pub/oil/Aquifer_Exemptions/County/San_Luis_Obispo/Arroyo_Grande_Oilfield/Dollie_Sands_Pismo_Formation/Arroyo%20Grande%20Oilfield%20Edna%20Member%20Dollie%20Sands%20Pismo%20Formation%20Aquifer%20Exemption%20Application.pdf. *See also*, Aquifer Exemption Application, Appendix D 1-a, *available at:* ftp://ftp.consrv.ca.gov/pub/oil/Aquifer_Exemptions/County/San_Luis_Obispo/Arroyo_Grande_Oilfield/Dollie_Sands_Pismo_Formation/Arroyo%20Grande%20Oilfield%20Edna%20Member%20Dollie%20Sands%20Pismo%20Formation%20Aquifer%20Exemption%20Application%20Appendices.pdf.

[34] Memorandum, CalEPA Review of UIC Program, from Matthew Rodriguez, Secretary of CalEPA to Cliff Rechtschaffen, Senior Advisor, Office of the Governor, and John Laird, Secretary, California Natural Resources Agency (March 2, 2015) ("March 2, 2015 CalEPA Memorandum"), p. 1, *available at*: http://www.calepa.ca.gov/Publications/Reports/2015/UICFindings.pdf. FMOG and DOGGR, therefore, cannot rely on 40 CFR § 146.4(c) (TDS is over 3,000 and is not reasonably expected to supply a public water system) for an exemption.

Therefore, it cannot meet the federal or state requirements for exemption, and the exemption must be denied.

DOGGR nonetheless continues to maintain that the aquifer cannot be used as a source of drinking water because it is hydrocarbon producing.[35] EPA, however, has already found that some of the area that would be exempted is, in fact, *not* hydrocarbon producing. EPA wrote to FMOG: "The reported injection zone water (receiving water) is less than 3,000 mg/L TDS, and although much of the area that is requested for exemption is hydrocarbon producing, there are portions of the requested exemption area that are no longer productive."[36] EPA thus told FMOG that to support an exemption, FMOG would need to demonstrate that the aquifer is too deep, located too far, or too contaminated to make it practical to use for drinking water.[37] Although, again, the Center pointed this correspondence out in its comments, DOGGR failed to respond and instead continues to insist that FMOG should receive the exemption because the aquifer is hydrocarbon producing.[38] As EPA itself has pointed out, this is simply not the case.

Second, despite DOGGR's inexplicable insistence that the application includes a thorough survey of water supply wells, and that none are drawing from the Dollie Sands (which is not surprising, according to DOGGR, because this formation contains a lot of oil), neither assertion has been substantiated.[39] There was not a thorough, or even adequate, survey of the nearby domestic and beneficial use water wells, and in fact, more recent information reveals that there may be wells drawing from the aquifer proposed for exemption.[40] In spite of the fact that at least 105 drinking water wells are within one mile of the aquifer, the fact that dozens of water wells have been built in the Edna Member, and repeated requests for more detailed and accurate water well records (especially given that half of the known wells "surveyed" were lacking complete records), DOGGR has yet to provide a maps and cross sections showing the locations

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[35] Statement of Basis, pp. 2-3.

[36] Letter from Patricia Abel, District Deputy, DOGGR, to Kenneth R. Bork, Agent, Freeport-McMoRan Oil & Gas, LLC Re: Arroyo Grande Oil Field, Aquifer Exemption, Dollie Zone of Pismo Fm (June 8, 2015) ("DOGGR, June 8, 2015 Letter"), p. 3. *See also* Supplemental AE Comments, p. 4. DOGGR stated in its Responses to Comments that "[a]dditional information, including proposed expanded areas of production, has confirmed the presence of hydrocarbons in the new expanded area." (DOGGR, Responses to Comments, p. 9.) If that is the case, however, DOGGR has failed to provide this unknown "additional information" to the public.

[37] *Id.*

[38] *See e.g.*, DOGGR, Responses to Comments, pp. 21, 23

[39] *See e.g.,* DOGGR, Responses to Comments, pp. 17, 23, 35, 37. As noted above, EPA has stated that there are areas of the proposed exempt aquifer that do not contain hydrocarbons. *See also* NRDC AE Comments, pp. 10-11, explaining why FMOG has not met the burden of demonstrating the entire aquifer is hydrocarbon producing.

[40] Matt Hagemann, PG, C. Hg., Comments on the Arroyo Grande Aquifer Exemption Response to Comments (February 12, 2016) ("Hagemann, February 12, 2016 letter"), attached; Letter from Rob Hesse to Maya Golden-Krasner, Re: Location of Existing and Future Water Supply Wells in Areas Surrounding the Arroyo Grande Oilfield, San Luis Obispo County, California (Feb. 24, 2016) ("Hesse, February 24, 2016 letter"), attached; Hagemann Comments, pp. 1-3; AE Comments, pp. 18-20.

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of water wells vis-à-vis the proposed exempted area.[41] Indeed, even though DOGGR and the Central Coast Regional Water Quality Control Board ("Regional Board") requested more information on surrounding water wells from FMOG, testing on nearby water wells has not been performed, and the agencies have declined to follow up.[42]

DOGGR failed to investigate indications that wells may be accessing the same aquifer, despite the Center pointing out the possibility in its December 2015 comments.[43] Had the agencies required a more thorough survey of water wells and data, they might have found recent evidence that directly contradicts DOGGR's conclusion that no water wells are accessing this aquifer. A recent look at the area's water wells indicates that there may be at least one well inside the tar seal.[44] It appears that new water wells are being drilled in the area that have not been examined, including at least one drilled in 2015, either inside or immediately adjacent to the proposed exemption boundary.[45] Current and probable future drought conditions mean that new wells like this one are increasingly likely in the future.

Third, even if EPA believes that water wells are not drawing from the same formation as the exempted area, DOGGR and FMOG have not shown that the exempted area is zonally isolated from, and will not affect, other domestic or beneficial water uses. This is particularly concerning given evidence that water wells are extremely close to and potentially inside, the aquifer.[46] As the Center, hydrogeologist Matt Hagemann, and others have pointed out, FMOG's (and now DOGGR's) assertions that the tar seal, fault, and Miguelito boundaries restrict water flow are based on highly interpretive assertions, rather than conclusions supported with a numerical groundwater model, pump tests, or aquifer tests, as they must be.[47] For example, the exact location of the tar seal is merely inferred.[48] If water wells are inside or immediately adjacent to the tar seal, lack of certainty about the tar seal boundary combined with lack of knowledge of the exact location of water wells and depths means that DOGGR has no idea

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[41] Hagemann, February 12, 2016 letter, pp. 1, 2; Hagemann Comments, pp. 2-3; Hesse February 24, 2016 letter. See also Supplemental AE Comments, pp. 7-8 (discussing inadequacies of the Miguelito Member and the tar seal acting as barriers or aquitards); NRDC AE comments, pp. 8-9, 14-15.

[42] Supplemental AE Comments, p. 7, citing the Regional Board's 13267 Order to FMOG and documents submitted by FMOG in response, found at: http://geotracker.waterboards.ca.gov/profile_report.asp?global_id=T10000006979.

[43] Supplemental AE Comments, p. 6 (noting that at least 24 wells are known to have been completed in the Edna member of the Pismo Formation, the same geologic unit that is proposed for exemption (with explanation and references)).

[44] Hesse, February 24, 2016 letter, and Attachments.

[45] *Id.*, Attachment A.

[46] *Id. See also* Hesse Cross Section.

[47] *Id. See also* Supplemental AE letter, pp. 5, 8 (explaining inconsistencies and unsubstantiated conclusions regarding the aquifer's barriers as well as the need for numerical modeling and aquifer tests); Hagemann Comments; Hagemann, February 12, 2016 letter. In addition, even though DOGGR insists this is a bowl and that the dewatering project means that the injection fluids will stay inside the bowl, it has not provided any tests to substantiate this assertion or to address the comments raised that dewatering the aquifer could cause water from other water sources to flow into the bowl. *See also* NRDC AE Comments, pp. 15-17.

[48] Supplemental AE Comments, p. 5; Hagemann Comments, p. 5; NRDC AE Comments, p. 17.

whether water wells are hydraulically isolated from this aquifer. In fact, there are no actual surveys or survey maps of the aquifer boundaries at all. For instance, different maps provided by DOGGR show different aquifer boundaries, including where the fault lies.[49] Precision is critical, however, when water wells sit adjacent to, on, or possibly inside the boundary borders. DOGGR, however, failed to respond to, or investigate, these real problems with FMOG's application.[50]

The public--especially those whose water wells sit next to the AGOF--should not be forced to rely on the best guess of an agency with a history of failing to protect the state's water. Without numerical groundwater models and clear water well data demonstrating hydraulic isolation, EPA must deny this application.

V. FMOG and DOGGR Have Not Demonstrated that the Aquifer Will Not Be Used for, or Affect, Domestic or Beneficial Use Water in the Future

FMOG is contemplating a massive expansion of its operations in the AGOF--up to 450 new or reworked wells, and up a ten-fold increase in production.[51] The aquifer exemption application, however, improperly ignores this clearly foreseeable, planned expansion, and the changes in water quality and hydrogeology that could result from it. Thus, not only do DOGGR and FMOG fail to provide current groundwater models and aquifer tests to demonstrate the effects of pressure on the aquifer and surrounding groundwater, but they then claim that this massive expansion project, which will affect groundwater flow, is irrelevant.[52] The problem with this logic is that, once the aquifer has been exempted, that water has been sacrificed to FMOG or future oil companies, and no further review of its hydraulic connection to other groundwater will take place.

Fundamentally, the assertion that this process is only about whether to sacrifice the water and, therefore, the expansion is unrelated, makes little sense. The expansion will affect pressure, groundwater flow, and zonal isolation, in addition to potentially increasing seismic risk and subsidence. These operations will also vastly increase the volume of wastewater produced at the

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[49] Compare, e.g., the maps on slides 7 and 13 of DOGGR's September 21, 2015 public presentation (*available at:* ftp://ftp.consrv.ca.gov/pub/oil/Aquifer_Exemptions/County/San_Luis_Obispo/Arroyo_Grande_Oilfield/Dollie_Sands_Pismo_Formation/Arroyo%20Grande%20Aquifer%20Exemption%20Presentation%209.21.15.pdf). The aquifer boundaries are not identical.

[50] Hagemann, February 12, 2016 letter.

[51] San Luis Obispo Planning, Phase V Initial Study, p. 2. In addition, there are current efforts to build 31 new wells under a Phase IV expansion project. The Conditional Use Permit ("CUP") for that project expired last year, and FMOG is currently applying for a CUP extension. The Center submitted comments and an appeal of the San Luis Obispo Department of Planning and Building's decision to grant the extension. *See* CBD Comment letter from Maya Golden-Krasner to the San Luis Department of Planning ("SLO Planning") Re: Freeport McMoRan Application to Extend Phase IV CUP #D010386D (Oct. 21, 2015) and CBD Comment letter from Maya Golden-Krasner to SLO Planning re: Freeport McMoRan Application to Extend Phase IV CUP #D010386D - Supplemental Information (Nov. 11, 2015). *See also* CBD Appeal from Planning Commission Decision on November 12, 2015 to San Luis Obispo County Supervisors, File Number DRC20150002 (Nov. 25, 2015).

[52] DOGGR, Responses to Comments, pp. 7, 14-15, 34

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site, beyond the capacity of the site's Water Reclamation Facility and FMOG's NPDES permit to discharge treated water into Pismo Creek. This raises the likelihood that large amounts of untreated wastewater would be injected into the Dollie Sands. As a consequence, this exemption should not be approved until adequate data is collected to ensure that, even after expansion, the injected fluids will remain hydraulically isolated.

Indeed, FMOG's own actions call into question the separate nature of the exemption and the future project. FMOG has requested that the DEIR for the Phase V expansion be put on hold until the aquifer exemption process is complete.[53] The Phase V expansion project and the aquifer exemption are intricately related; FMOG needs the exemption to legitimize its current illegal injection and accommodate future expansion.

Worse yet, DOGGR casually dismisses concerns about the effects of this expansion on the aquifer and surrounding water quality by disingenuously asserting that future injection project applications will be subject to a "detailed review of the project area and the project would be open. . . to the public for additional comments and requirements."[54] Contrary to DOGGR's unwarranted, repeated assertion that there will be an opportunity for the public to comment on specific injection projects, there is, in reality, little to no public engagement in the injection approval process.[55] Furthermore, the CEQA process for the expansion project will not provide the public the opportunity to comment on the project's effect on groundwater pressure and flow because there is no adequate baseline understanding or model of current pressure and flow. Additionally, if EPA grants this aquifer exemption to FMOG, the oil company will--in the EIR process--simply assert that any discussion of groundwater modeling, flow, and pressure took place in the AE process, when DOGGR and EPA decided to exempt the aquifer. This is the public's only real opportunity to express its displeasure with and deep concerns about DOGGR's cavalier forfeiture of our state's precious groundwater resources.

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[53] Phase V Conditional Use Permit (DRC2012-00035) Ongoing Status Report (2012), *available at:* http://www.slocounty.ca.gov/Assets/PL/environmental/plains/OngoingStatusReport.pdf.

[54] Responses to Comments, pp. 8; *see also* pp. 12, 13, 16, 27, 28, 29, 37, 39, 40-41, 42, 44 ("The public will be a part of the approval process and will have an opportunity to submit comments and concerns" and "The approval process is also open to the public for comments and concerns.")

[55] According to the primacy agreement, *supra* note 5, p. 5, DOGGR must, "at a minimum," "provide a 15 day public comment period, and make the non-confidential portions of the project plan and the representative Report on Proposed Operations available for review. If the Supervisor determines that a public hearing is necessary, public notice shall be provided at least 30 days prior to the public hearing." However, in reality, few people see the notices posted for three days in the local paper and comments and hearings occur rarely, if ever. *See* Horsley Witten Group, Final Report, *California Class II Underground Injection Control Program Review* (June 2011), *available at:* ftp://ftp.consrv.ca.gov/pub/oil/uic%20files/fullreport.pdf, pp. 58 ("Most District 1 UIC staff have never gone through the hearing process"), 91 ("No public hearing has ever been conducted in this District [2]"), 123 ("We [District 3] have never had a need to hold a public hearing as part of the approval process"), 162 ("The last public hearing in this district [4] was on December 4, 1986"), 194 ("No public hearings have been conducted [District 5"), 227 ("[District 6] *Have any hearings been held in the past ten years?* None").

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Finally, DOGGR cannot punt a complete groundwater, hydrogeologic analysis to future review processes and ignore the proposed expansion because the aquifer exemption regulations specifically contemplate future uses of water. The federal SDWA regulations require DOGGR to demonstrate that the aquifer "cannot now *and will not in the future* serve as a source of drinking water . . . or supply a public water system."[56] State law requires that DOGGR show that the "injection of fluids will not affect the quality of water that is, *or may reasonably be*, used for any beneficial use."[57] In order to assess whether injection will or may in the future affect any drinking or beneficial use water, DOGGR and EPA must take into account foreseeable projects that will affect the aquifer pressure and flow.

DOGGR is treating this exemption as if the presumption is in favor of injection, rather than the presumption lying in favor of protecting groundwater.[58] It is as if obtaining an exemption is merely a procedural hurdle to allowing injection: "[t]he Safe Drinking Water Act requires that an aquifer that meets the definition of a USDW be exempted before injection is permitted."[59] We trust that EPA will take this exemption application and the protection of California's water more seriously, and deny the exemption.

VI. In Addition to Ignoring Any Need for Groundwater Models Under Current and Future Conditions, DOGGR Has Failed to Require FMOG to Address Concerns About the Effects of Seismic Activity and Subsidence on this Aquifer

The exemption application entirely fails to take into account potential effects of earthquakes, even small ones, to create new pathways to other groundwater sources, and to damage wells.[60] This includes wells that are idle or plugged, which can become pathways to contamination. In addition, recent research has confirmed that waste water disposal can induce earthquakes in California oil fields, depending on the geologic conditions.[61] It recommends a detailed analysis of seismicity records to "lower magnitudes and by analyzing waveform relocated catalogs as well as hydrogeologic models."[62] As explained above, however, no such hydrogeologic models exist for the AGOF, nor does any analysis of seismicity on this aquifer. Given this uncertainty, EPA should not approve the exemption.

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[56] 40 CFR §§ 146.4(b), (c) (emphasis added).

[57] Pub. Resources Code § 3131(a)(2) (emphasis added).

[58] For a discussion on the presumption favoring protecting drinking water and against exemption, see AE Comments, pp. 5-8.

[59] Responses to Comments, p. 16

[60] AE Comments, p. 16 (with references).

[61] Goebel, T. H. W. et al., "Wastewater Disposal and Earthquake Swarm Activity at the Southern End of the Central Valley, California," 43 *Geophys. Res. Lett.* (January 22, 2016).

[62] *Id.* at 7.

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VII. Conclusion

This application is DOGGR's first submission of an aquifer exemption intended to legitimize illegal Class II well injection activity in California to EPA. For the reasons set forth above, however, DOGGR has failed to demonstrate that the aquifer meets federal and state criteria for exemption. In addition, DOGGR has not shown that it has the will or ability to effectively ensure that wastewater injection will not affect nearby water wells or beneficial use water. Furthermore, California's historic drought and need for water call into question the antiquated criteria used to determine whether groundwater should be sacrificed to the oil industry. The Center therefore asks that EPA protect the health and environment of Californians, especially those living near the AGOF, and deny this exemption.

Sincerely,

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