

I. DISCOVERY

1. This case is an appeal of an administrative agency's decision. To the extent discovery is warranted in this matter, discovery should be conducted under Level 3, in accordance with Texas Rule of Civil Procedure 190.4.
2. Plaintiffs affirmatively plead that this action is not governed by the expedited actions process in Texas Rules of Civil Procedure 169, because Plaintiffs seek non-monetary relief. Tex. R. Civ. P. 47(c) & 169.

II. NATURE OF THE CASE

3. This is an administrative appeal from a decision of the Texas Commission on Environmental Quality, approving a Water Pollution Abatement Plan— Edwards Aquifer Protection Program ID No. 13001906—by Vulcan Construction Materials, LLC for a proposed Quarry to be located in Comal County, Texas.
4. Plaintiffs are property owners based around the area of the proposed Quarry who would be affected by the proposed activities.
5. The TCEQ's Executive Director approved a WPAP submitted by Vulcan Construction Materials, LLC. The Executive Director mailed notice of the signed approval to Vulcan on July 8, 2024. The Notice is attached to this Petition as Exhibit A. Plaintiffs timely filed Motions to Overturn the Executive Director's Decision on July 31, 2024, which was extended by the General Counsel until September 26, 2024. A copy of those Motions to Overturn, without attachments thereto, are attached to this Petition as Exhibits B (Motion to Overturn of Robert Carrillo, Cheryl Johnson, John Casimir Kucewicz Jr., Kira Olson, and Douglas E. Smith), Exhibit C (Motion to Overturn of

Kira Olson), and Exhibit D (Motion to Overturn of Milann and Prudence Guckian). Pursuant to Tex. Water Code § 5.351, Plaintiffs timely file this Original Petition for judicial review of the Commission's decision.

6. By their Original Petition, Plaintiffs seek an order reversing the Executive Director's July 8, 2024 decision approving Vulcan's WPAP.

III. PARTIES

7. **Plaintiff Robert Carrillo.** Mr. Carrillo owns property at 111 Marlena Drive and ranchland with cattle along FM 3009, adjacent to the proposed Quarry to the south. His ranchland includes a spring-fed pond that has only run dry a few times within the last 25 years, despite the occurrence of record-breaking droughts. The pond is used as a source of water for Mr. Carrillo's cattle. Mr. Carrillo is affected by the Commission's July 8, 2024 decision approving Vulcan's WPAP. In making that decision, the Commission violated Mr. Carrillo's due process rights. Furthermore, Mr. Carrillo owns groundwater which will be polluted as a result of the Commission's approval of Vulcan's WPAP.
8. **Plaintiff Cheryl Johnson.** Cheryl Johnson owns property at 1422 Tramonto, approximately 1.6 miles southeast of the proposed Quarry. Her property is situated above a collection of groundwater and underlying aquifers. Ms. Johnson's property is one of many in her subdivision that relies on water from the Texas Water Company's wells. Ms. Johnson is affected by the Commission's July 8, 2024 decision approving Vulcan's WPAP. In making that decision, the Commission violated Mrs. Johnson's

due process rights. Furthermore, Mrs. Johnson owns groundwater which will be polluted as a result of the Commission's approval of Vulcan's WPAP.

9. **Plaintiff John Casimir Kucewicz Jr.** John Casimir Kucewicz Jr. owns property at 1270 Trailhead, approximately 3.5 miles northeast of the proposed Quarry. Mr. Kucewicz Jr. is a retired geologist and previously licensed Texas Geoscientist (License 6172), with a master's degree in geology including a concentration in hydrology and sedimentology. His property is located above a collection of groundwater and underlying aquifers. Mr. Kucewicz Jr.'s property is one of many in his subdivision that relies on water from the Texas Water Company's wells. Texas Water Company's groundwater wells draw water from the Edwards Aquifer. Mr. Kucewicz Jr. is affected by the Commission's July 8, 2024 decision approving Vulcan's WPAP. In making that decision, the Commission violated Kucewicz Jr.'s due process rights. Furthermore, Kucewicz Jr. relies upon groundwater provided to him by Texas Water Company to serve his domestic needs. Texas Water Company's groundwater wells draw water from the Edwards Aquifer. The operations authorized by the approval have the potential to contaminate this groundwater.

10. **Plaintiff Douglas E. Smith.** Douglas E. Smith owns property at 419 Bridle Trail, approximately three miles southeast of the proposed Quarry. His property is situated above a collection of groundwater and underlying aquifers. The groundwater underneath his property is directly adjacent to the Edwards Aquifer, which flows southeast. Mr. Smith's property is one of many in his subdivision that relies on water from the Texas Water Company's wells. Texas Water Company's groundwater wells

draw water from the Edwards Aquifer. Mr. Smith is affected by the Commission's July 8, 2024 decision approving Vulcan's WPAP. In making that decision, the Commission violated Mr. Smith's due process rights. Furthermore, Mr. Smith relies upon groundwater provided to him by Texas Water Company to serve his domestic needs. The operations authorized by the approval have the potential to contaminate this groundwater which he uses.

11. **Plaintiffs Milann and Prudence Guckian.** Milann and Prudence Guckian reside at Durst Ranch 1, Lot 1, Acres 5.01, 30954 FM 3009, New Braunfels, Texas 78132, downstream of the proposed Quarry. Their property's fence line is 107.02 feet from Vulcan's eastern fence line. Their front porch is 258.01 feet from Vulcan's fence line and 358.16 feet from the applicant Mining Area #7. Their water well that serves as the exclusive source of water for their property is approximately 4800 to 5000 feet from Vulcan's industrial water well.



Figure 1, Showing Guckians' fence line (foreground) 107 feet from Vulcan's fence line.



Figure 2, Showing Guckians' fence line (foreground) 151 feet from her fence line.

12. Milann and Prudence Guckian purchased this property in April 1996 with a dream and a vision. The dream was to build a home and retire to the Texas Hill Country. Now, their home and their quality of life are threatened by the inappropriate location of Vulcan's quarry. Mrs. Guckian and Mrs. Guckian are extremely concerned about the impact of the proposed Quarry on the groundwater below her property and the underlying aquifers.
13. Milann and Prudence Guckian are affected by the Commission's July 8, 2024 decision approving Vulcan's WPAP. In making that decision, the Commission violated Milann and Prudence Guckian's due process rights. Furthermore, Milann and Prudence Guckian own groundwater which will be polluted as a result of the Commission's approval of Vulcan's WPAP.
14. **Plaintiff Kira Olson.** Kira Olson is an adjacent landowner to the site where Vulcan proposes to conduct the Quarry operations authorized by the WPAP. Ms. Olson is adversely affected by the Commission's July 8, 2024 decision approving Vulcan's WPAP. In making that decision, the Commission violated Ms. Olson's due process rights. Furthermore, Ms. Olson is the owner of groundwater in close proximity to the proposed activities, and the quality of that groundwater is placed at risk by TCEQ's wrongful approval of Vulcan's WPAP.
15. **Defendant Texas Commission on Environmental Quality.** The Texas Commission on Environmental Quality is the state agency responsible for regulating water pollution; it operates the Edwards Aquifer Protection Program pursuant to which the WPAP approval at issue in this suit occurred. Defendant TCEQ can be served with

citation by serving its Executive Director, Ms. Kelly Keel, at 12100 Park 35 Circle, Building F, Austin, Texas 78753.

IV. JURISDICTION AND VENUE

16. This Court has jurisdiction over Defendant TCEQ as an agency of the government of the State of Texas.
17. This Court has jurisdiction over the controversy because this action is brought under Tex. Water Code § 5.351.
18. Plaintiffs timely filed Motions to Overturn the Executive Director's Decision on July 31, 2024. On August 13, 2024, the TCEQ General Counsel issued an Order extending the time for the Commission to act on those Motions until September 26, 2024. This Original Petition is timely filed within 30 days after the date those Motions to Overturn were overruled by operation of law in accordance with Commission Rules. All other conditions precedent have been performed or have occurred.
19. Venue properly exists in Travis County, Texas, under Tex. Water Code § 5.354.

V. FACTUAL AND PROCEDURAL BACKGROUND

20. On February 20, 2024, Vulcan submitted a request to TCEQ for approval of a Water Pollution Abatement Plan (WPAP) for construction of the proposed Vulcan Comal Quarry. The proposed permit area encompasses approximately 1,515 acres, with nine mining areas totaling approximately 956 acres in the Kainer (Edwards Group) and Upper Member of the Glen Rose (Trinity Group) Formations.
21. The Edwards Aquifer is a unique groundwater resource, extending 180 miles over eight counties, including Comal County. The Edwards Aquifer provides water for over

two million people in south-central Texas and serves the domestic, livestock, irrigation, industrial, municipal, and recreational needs of the area. The Edwards Aquifer is the source of the two largest springs remaining in Texas—Comal Springs and the San Marcos—which are the headwaters of the San Marcos and Comal Rivers, tributaries to the Guadalupe River.

22. Comal Springs and its ecosystem is home to threatened and endangered aquatic species that are dependent upon sufficient water quantity and quality for their continued survival, including the fountain darter (*Etheostoma fonticola*), Comal Springs dryopid beetle (*Stygoparnus comalensis*), Comal Springs riffle beetle (*Heterelmis comalensis*), and Peck's Cave amphipod (*Stygobromus pecki*). In 2013, the U.S. Fish & Wildlife Service enlarged the critical habitat for the Comal Springs dryopid beetle, Comal Springs riffle beetle, and the Peck's Cave amphipod that live in the Comal Springs complex to specifically include subsurface critical habitat.
23. The property contains a 100-year floodplain and is entirely within the Edwards Aquifer Recharge Zone, as shown by Figure 3 below:

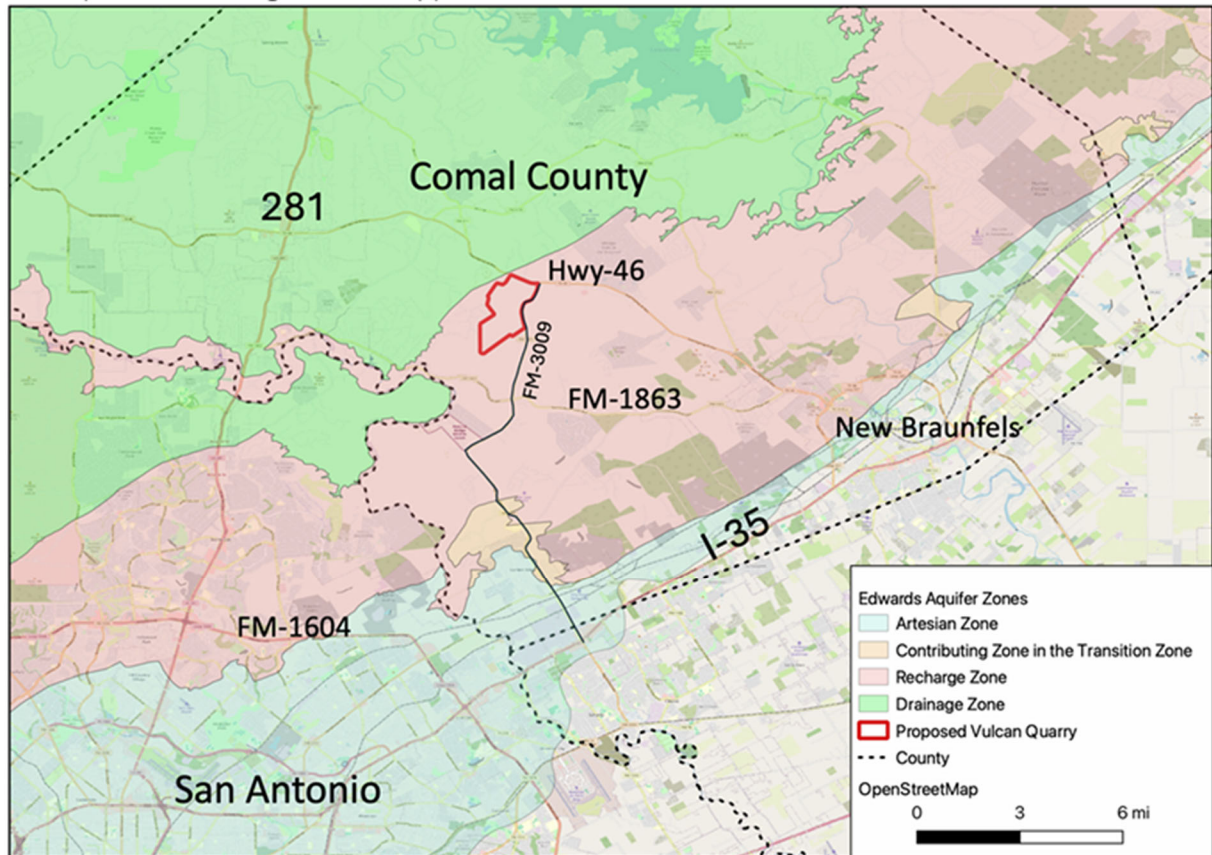


Figure 3, Illustrating that Vulcan’s Property is entirely within the Edwards Aquifer Recharge Zone

24. In addition to the impact of the Quarry upon the environment and property of individual landowners, the Quarry will have a broad economic impact upon the community. Comal County’s tourism and hospitality industry, which is based on water-related activities, generated over \$1.3 billion in revenue according to a 2023 economic impact study completed by Impact Datasource. The proposed Quarry will compromise the availability of water to support such activities.
25. Also, the Quarry could lead to a significant decrease in the property values and the county’s tax base. The Quarry is being proposed in an area with high-dollar property and home values. This will potentially significantly adversely impact the value of

those nearby properties. For properties located 0 to 5 miles from a quarry fence line, the potential decrease in property value is in excess of 27%, based on a study by the W.E. Upjohn Institute. The Quarry provides no offsetting benefit, since Vulcan does not contribute high-paying jobs to the area economy.

26. Vulcan's permit application sought regulatory permission to extract rock within the proposed mining area, and to conduct activities associated with this extraction.
27. On March 21, 2024, the Executive Director declared the WPAP administratively complete and on March 22, 2024, the Executive Director distributed the WPAP to local governmental entities and posted the WPAP on the agency website to receive public comment for a period of 30 days. The Executive Director commenced technical review of the WPAP.
28. On April 16, 2024 and April 23, 2024, state legislators in the area of the proposed Quarry submitted requests for TCEQ to hold a public meeting on the WPAP.
29. Between May 20, 2024 and July 3, 2024, the Executive Director issued a series of Notices of Deficiency (NODs) and requests for additional information to Vulcan and Vulcan provided a series of responses to the Executive Director's requests.
30. On July 8, 2024, the Executive Director mailed notice of the approval of the WPAP to Vulcan.
31. Plaintiffs did not receive notice of Vulcan's pending WPAP application until after the July 8, 2024 decision by the Executive Director to approve the WPAP.
32. As a result of TCEQ's failure to provide members of the public and nearby property owners with notice and a meaningful opportunity to participate in the permitting

process, Plaintiffs were unable to submit comments on the WPAP prior to the April 22, 2024 comment deadline and prior to the July 8, 2024 decision.

33. On July 31, 2024, Plaintiffs filed timely Motions to Overturn the Executive Director's Decision regarding the Executive Director's approval of the WPAP. Those Motions to Overturn are Exhibits B, C, and D to this Petition and are incorporated herein for all purposes.
34. By Order dated August 13, 2024, the TCEQ General Counsel extended the time for the Commission to act on those Motions to Overturn to September 26, 2024, and requested additional briefing on those Motions to Overturn from the TCEQ Executive Director, the TCEQ Office of Public Interest Counsel, and Plaintiffs.
35. The Commission overruled, by operation of law, Plaintiffs' Motions to Overturn on September 26, 2024.
36. Pursuant to Tex. Water Code § 5.351, Plaintiffs timely file this Original Petition for judicial review of the July 8, 2024 decision approving Vulcan's WPAP.

VI. ERRORS OF DEFENDANT TCEQ

37. **Error No. 1. TCEQ's Approval of the WPAP authorizes an activity which will pollute and drain groundwater owned by area landowners without compensation, thereby constituting an unconstitutional taking.**
38. In Texas, landowners have a vested property right in groundwater beneath their land. Tex. Water Code § 36.002(a) ("The legislature recognizes that a landowner owns the groundwater below the surface of the landowner's land as real property."); *see also Edwards Aquifer Auth. v. Day*, 369 S.W.3d 814, 833 (Tex. 2012). Landowners are

further entitled to their “fair share” of groundwater. *Stratta v. Roe*, 961 F.3d 340, 357 (5th Cir. 2020). Landowners therefore “have a constitutionally compensable interest in groundwater,” where a taking of groundwater without due process is prohibited under the U.S. and Texas Constitutions. *Day*, 369 S.W.3d at 838; *Roe* 961 F.3d at 357.

39. As further described below, the Commission’s decision to approve Vulcan’s WPAP constitutes the authorization of an activity which would result in the contamination of groundwater beneath nearby properties.
40. This contamination of area groundwater owned by nearby landowners will reduce—and potentially destroy—the usefulness of that groundwater for purposes such as domestic and livestock uses. The authorization of such a destruction in the value of groundwater owned by nearby landowners, without compensation, constitutes a taking in violation of the Fifth Amendment rights of nearby landowners. The Commission’s approval of the WPAP also has the impact of authorizing an activity which will result in an increased withdrawal of groundwater.
41. If Vulcan uses groundwater to operate the quarry, nearby landowners may be deprived of the opportunity to produce their “fair share” of groundwater. The quality of Plaintiffs’ groundwater would be reduced as a result of groundwater pollution caused by Vulcan’s operations. The quantity of groundwater available for Plaintiffs to produce would also be reduced as a result of Vulcan’s operations. Issuance of the WPAP authorization without compensation for these impairments and reduction in value of Plaintiffs’ property constitutes an unlawful taking.

42. The Vulcan WPAP does not consider the amount of water needed to maintain operations at permissible dust levels, nor does it identify where that water is going to come from. Vulcan has not secured water from the Texas Water Company, so it can be concluded that water required to support Quarry development and production operations will be acquired from an existing on-site well or future to-be-drilled and completed wells.
43. Materials submitted by Vulcan as part of the WPAP show a Water Well (potable) near the Main Office, a Water Well (Industrial) in Mining Area #2, and a Water Well (Industrial) near the Fuel Island. These wells currently do not exist but will be installed and operational in association with the Quarry enabled by approval of the WPAP.
44. Based on the amount of material to be quarried, and based on knowledge and belief, Plaintiffs estimate that the proposed Quarry would potentially use approximately 383 acre-ft (125,000,000 gallons) of groundwater per year.¹ This is a massive amount of groundwater use that would have extensive impacts on the surrounding area and landowners.
45. Since approval of the WPAP will result in a taking of the groundwater of PHCE's members, TCEQ's approval of the WPAP was: (1) in violation of a constitutional or statutory provision; (2) in excess of the agency's statutory authority; (3) made through unlawful procedure; (4) affected by other error of law; (5) not reasonably supported

¹ Don Everingham Declaration (included here as Exhibit E)

by substantial evidence considering the reliable and probative evidence in the record as a whole; and (6) arbitrary or capricious or characterized by abuse of discretion or clearly unwarranted exercise of discretion.

46. **Error No. 2. The TCEQ’s approval of Vulcan’s WPAP violated the federal constitutional due process rights and the Texas due course of law rights of Robert Carrillo, Cheryl Johnson, John Kucewicz Jr., and Douglas E. Smith because the decision was made without providing area landowners with adequate notice.**
47. Constitutional due process applies to governmental decisions which deprive a person “liberty” or “property” interests within the meaning of the Due Process Clause of the Fifth or Fourteenth Amendment. *Matthews v. Eldridge*, 424 U.S. 319, 331 (1976). As the Fifth Circuit Court of Appeals has held, a person’s interest in their groundwater is such a protected property interest. *Roe*, 961 F.3d at 357.
48. Notice is a fundamental element of due process, and the notice in this case failed to meet the minimum level necessary to protect Plaintiffs’ due process rights. When an administrative agency makes a decision, the U.S. Supreme Court has held that “[t]he essence of due process is the requirement that a person in jeopardy of serious loss (be given) notice of the case against him and opportunity to meet it.” *Eldridge*, 424 U.S. at 348 (internal quotations omitted).
49. To meet the minimum requirements of constitutional due process, the administrative procedures provided are to be tailored, in light of the decision to be made, to the capacities and circumstances of those who are to be heard. *Id.* at 349. Due process requires notice reasonably calculated, under all circumstances, to apprise interested

parties of the pendency of the action and afford them an opportunity to present their objections. *Mullane v. Cent. Hanover Bank & Tr. Co.*, 339 U.S. 306, 314 (1950).

50. It is also well established in that the fundamental requirement of procedural due process under the United States Constitution is the opportunity to be heard “at a meaningful time and in a meaningful manner.” *Armstrong v. Manzo*, 380 U.S. 545, 552 (1965); *Matzen v. McLane*, 659 S.W.3d 381, 392 (Tex. 2021). The protections of the right to due course of law under the Texas Constitution are at least as broad as those afforded under the due process clause of the United States Constitution. *Am. Precision Ammunition, L.L.C. v. City of Mineral Wells*, 90 F.4th 820, 828 (5th Cir. 2024) (citing *Mosley v. Tex. Health & Human Services Comm’n*, 593 S.W.3d 250, 264 (Tex. 2019)).
51. Furthermore, due process requires that parties are given “an opportunity to present their objections; and the notice must be of such nature that it reasonably conveys the required information and must afford a reasonable time for those interested to make their appearance.” *Mullane v. Cent. Hanover Bank & Tr. Co.*, 339 U.S. 306, 314 (1950).
52. Under the U.S. and Texas Constitutions, individuals are entitled to notice of government action that deprives the person of a property right. U.S. Const. amend. XIV, § 1; Tex. Const. art. I, § 19. When a party is deprived of their due process rights through lack of notice, this affects the ability of other parties to meaningfully participate.

53. The authorization of Vulcan's intended Quarry activities by approval of its proposed WPAP has the potential to impact area groundwater—including groundwater owned by Plaintiffs. Thus, procedures compliant with the minimum requirements of due process require notice reasonably calculated to apprise the owners of groundwater in the area of the authorized activity, with an opportunity for those persons to present their objections.
54. No such notice was provided in this case to Robert Carrillo, Cheryl Johnson, John Kucewicz Jr., and Douglas E. Smith. As admitted by the Executive Director, the only entities provided with notice of the WPAP application were local governmental entities. The TCEQ engaged in no effort whatsoever to provide notice reasonably calculated to apprise interested parties of the pending decision and afford them a meaningful opportunity to present their objections.
55. The WPAP review and approval process does not include any notice to area landowners who possess impacted groundwater, including Plaintiffs Robert Carrillo, Cheryl Johnson, John Kucewicz Jr., and Douglas E. Smith. Furthermore, no public meetings are required to review WPAP applications, despite the fact that other TCEQ water permits are routinely given public meetings when sufficient public support is demonstrated or when a request is made by a state or local official.
56. The due process rights of Robert Carrillo, Cheryl Johnson, John Kucewicz Jr., and Douglas E. Smith were violated by TCEQ's total failure to provide notice of the application to any individual property owner. Such failure is inconsistent with the balancing test for constitutional due process established by the United States Supreme

Court in *Matthews v. Eldridge*, 424 U.S. 319 (1976). The three factors to be considered are: (1) the private interest that will be affected; (2) the risk of an erroneous deprivation of that interest with consideration given to the probable value of additional safeguards; and (3) the Government's interest and administrative burdens that substitute processes would involve. *Id.* at 334.

57. Here, Robert Carrillo, Cheryl Johnson, John Kucewicz Jr., and Douglas E. Smith hold property interests in groundwater potentially impacted by the TCEQ's approval of the WPAP. An incorrect decision by TCEQ could effectively destroy the value of Plaintiffs' groundwater by rendering the groundwater so contaminated as to be useless for its intended purpose or withdrawn to the point of being unavailable. The administrative burden of providing proper mailed notice of the application is minimal.
58. In short, constitutional due process requires that the interests of administrative efficiency yield to the protection and preservation of private property rights.
59. As a consequence of TCEQ's failure to provide notice meeting the minimum requirements of due process, Robert Carrillo, Cheryl Johnson, John Kucewicz Jr., and Douglas E. Smith were entirely deprived of notice in sufficient time to participate in the comment process on the application. Robert Carrillo did not learn of the application until July of 2024—several months after the end of the comment period. Cheryl Johnson, John Kucewicz Jr., and Douglas E. Smith likewise were not aware of the application until after the Executive Director made the decision to approve the WPAP.

60. TCEQ also failed to ensure that notice was provided reasonably calculated to apprise other local landowners of the application, including Milann and Prudence Guckian, Jacques M. Olivier, Kira M. Olson, Terry Lee Olson, and Elizabeth May James. While these persons learned of the application by other means, TCEQ's failure to require notice reasonably calculated to apprise these persons of the application impaired these persons' ability to provide input to the TCEQ relating to the application.
61. Since TCEQ approved the WPAP without providing adequate notice to meet the minimum requirements of due process, TCEQ's approval of the WPAP was: (1) in violation of a constitutional or statutory provision; (2) in excess of the agency's statutory authority; (3) made through unlawful procedure; (4) affected by other error of law; (5) not reasonably supported by substantial evidence considering the reliable and probative evidence in the record as a whole; and (6) arbitrary or capricious or characterized by abuse of discretion or clearly unwarranted exercise of discretion.
62. **Error No. 3. The TCEQ's approval of Vulcan's WPAP violated the federal constitutional due process rights of area landowners, and the Texas due course of law rights of area landowners, since the decision was made without providing area landowners with a meaningful opportunity to be heard.**
63. Even for those who managed to learn about Vulcan's pending WPAP application, the TCEQ failed to provide a meaningful opportunity to participate in the decision-making process.
64. The 30-day comment period was too short for a very technical and lengthy quarry application like the 149-page Vulcan WPAP. As a result, impacted landowners had

insufficient time to fully consult scientific experts to help prepare detailed technical responses.

65. Furthermore, the Executive Director did not respond to public commentors in writing as it does for other permits. This process failed to engage with the public in any meaningful way and enabled TCEQ to simply ignore public comments.
66. Therefore, all Plaintiffs were also deprived of meaningful participation because of the lack of adequate time to provide comments, and the lack of any response to public comments.
67. The motion to overturn process did not cure the deficiencies in the process adopted. The Executive Director's decision to approve Vulcan's WPAP was already effective, and Vulcan could already exercise the rights contingent on approval of that WPAP.
68. Therefore, Plaintiffs and other landowners near the proposed Quarry were denied procedural due process under the U.S. Constitution and due course of law rights under the Texas Constitution.
69. Since TCEQ approved the WPAP without providing adequate opportunity for affected persons to be meaningfully heard as required by due process, TCEQ's approval of the WPAP was: (1) in violation of a constitutional or statutory provision; (2) in excess of the agency's statutory authority; (3) made through unlawful procedure; (4) affected by other error of law; (5) not reasonably supported by substantial evidence considering the reliable and probative evidence in the record as a whole; and (6) arbitrary or capricious or characterized by abuse of discretion or clearly unwarranted exercise of discretion.

70. **Error No. 4. In violation of 30 Tex. Admin. Code §§ 213.5(b)(4)(A)(iv) and 213.5(b)(4)(B), TCEQ failed to require that Vulcan identify and address blasting as an activity with the potential to cause contamination.**
71. An agency acts arbitrarily when it fails to follow its own rules. *Rodriguez v. Serv. Lloyds Ins. Co.*, 997 S.W.2d 248, 255 (Tex. 1999). Here, Plaintiffs' Motions identified several of TCEQ's own rules which the Executive Director failed to follow in her decision to approve Vulcan's proposed WPAP. These failures place the quantity of groundwater within the Trinity Aquifer and the quality of the groundwater within both the Trinity and Edwards Aquifers at risk.
72. Vulcan's proposed WPAP is not consistent with the Edwards Aquifer Protection Plan regulations. The TCEQ Rules governing the Edwards Aquifer Protection Plan are in place to protect existing and potential uses of groundwater and maintain the Texas Surface Water Quality Standards. The goals clearly articulate that existing groundwater quality not be degraded:
- 1) Consistent with Texas Water Code, §26.401, the goal of this chapter is that the existing quality of groundwater not be degraded, consistent with the protection of public health and welfare, the propagation and protection of terrestrial and aquatic life, the protection of the environment, the operation of existing industries, and the maintenance and enhancement of the long-term economic health of the state.
 - 2) Nothing in this chapter is intended to restrict the powers of the commission or any other governmental entity to prevent, correct, or curtail activities that result or may result in pollution of the Edwards Aquifer or hydrologically connected surface waters. In addition to the rules of the commission, an applicant may also be required to comply with local ordinances and regulations providing for the protection of water quality.

30 Tex. Admin. Code § 213.1.

73. In other words, the TCEQ has the authority and the duty to prevent activities that will result in pollution of the Edwards Aquifer or that it deems may result in pollution to the Edwards Aquifer. Vulcan's Application does not demonstrate that its WPAP will prevent pollution of the Edwards Aquifer.
74. Contrary to the TCEQ Rules, the WPAP wholly fails to account for blasting processes as a potential source of contamination.
75. The activities involved in Vulcan's proposed operations include extensive blasting operations, and the conduct of blasting operations has the potential to contaminate the underlying aquifers with nitrate pollution.
76. Blasting falls well within the scope of activities defined as a "regulated activity" under the TCEQ Rules. "Regulated activities" are defined in the TCEQ Rules to include "clearing, excavation, or any other activities that alter or disturb the topographic, geologic, or existing recharge characteristics of a site." 30 Tex. Admin. Code § 213.3(28)(A)(ii).
77. Blasting is certainly an activity that disturbs the topographic characteristics of a site. Thus, blasting for Quarry purposes is encompassed within the scope of "regulated activities" as that term is defined in Chapter 213 of the TCEQ Rules.
78. Accordingly, blasting activities must be listed in the geologic assessment, addressed in the WPAP, and considered as an activity authorized by the WPAP.
79. Vulcan's "Project Description" states that there is a proposed buffer zone of only 100 feet adjacent to all neighboring properties. Vulcan's "Project Description" also acknowledges that blasting agents will be utilized in the mining process. However,

the WPAP does not identify the types of blasting agents or include any plan to control their release. In fact, the description contains very little information about the blasting method and potential contaminants period.

80. Pursuant to 30 Tex. Admin. Code § 213.5(b)(4)(A)(iv), the WPAP must also include a technical report that “must describe any activities or processes which may be a potential source of contamination.” The Application includes only a general description of the Quarry process:

- Clear
- Strip
- Drill
- Blast
- Load into haul vehicles
- Haul to plant
- Process rock at plant
- Load to trucks for export

81. In identifying the potential sources of contamination, the Application only identifies temporary sources during construction and potential sources that may affect stormwater discharges from the site after development. 30 Tex. Admin. Code § 213.5(b)(4)(A)(iv) does not allow for such a limited consideration.

82. Elsewhere, 30 Tex. Admin. Code § 213.5 makes the distinction between contaminants generated only during construction and contaminants that may flow across the site and then flow offsite, as well as the distinction between contaminants of surface water, groundwater, and stormwater. *See, e.g.*, 30 Tex. Admin Code § 213.5(b)(4)(B) (distinguishing between BMPs to be used during and after construction and BMPs to prevent pollution of surface, groundwater, and stormwater). In other words, the

requirement to describe activities and processes which may be a potential source of contamination is broad.

83. Furthermore, TCEQ requires that “BMPs and measures must prevent pollutants from entering surface streams, sensitive features, or the aquifer.” 30 Tex. Admin Code § 213.5(b)(4)(B)(iii). Vulcan’s BMPs do not recognize the threat of nitrate (NO₃) pollution to underlying aquifers caused by the type and large quantities of explosives used in aggregate mining.
84. ANFO, a combination of ammonium nitrate and fuel oil, is a common blasting agent. It is highly soluble in water, and up to 30% of the explosive is not consumed by blasting.² Aggregate washing is also a common practice, which can dissolve nitrate and aid its passage into the underlying aquifer.
85. Data from the Texas Water Development Board shows that prior to the mid-1950s, nitrate measurements of well-water samples from the Edwards Aquifer were mostly below 4.4 mg/L nitrate as NO₃, which was consistent with natural background levels for aquifers. Since the mid-1950s, nitrate measurements in the Edwards have risen steadily such that more than half from 2020 to 2022 were greater than 8 mg/L nitrate as NO₃.³

² Neil Alberts, *TACKLING NITRATE CONTAMINATION OF WATER IN MINES*, MINING.COM (Aug. 11, 2016, 9:12 AM), <https://www.mining.com/web/tackling-nitrate-contamination-of-water-in-mines/>.

³ Data collected from the Texas Water Development Board Groundwater Database, <https://www.twdb.texas.gov/groundwater/data/gwdbbrpt.asp>.

86. Depending on the concentration level, long term exposure to nitrate can be threatening to both humans and aquatic organisms. In particular, prolonged exposure to nitrate levels above the maximum contamination level (“MCL”) can cause blue-baby syndrome in infants, and pregnant women exposed to high nitrate concentrations may have babies with low birth weights.⁴
87. TCEQ set the ecological screening benchmark for ammonium nitrate in freshwater at 13 mg/L nitrate as NO₃.⁵ The EPA set the MCL for drinking water at 40 mg/L nitrate as NO₃ (10 mg/L nitrate as N). 40 C.F.R. § 141.62(b)(7).
88. In violation of 30 Tex. Admin. Code §§ 213.5(b)(4)(A)(iv) and 213.5(b)(4)(B), Vulcan failed to identify blasting as an activity with the potential to result in contamination and include measures to address this potential contamination. TCEQ violated these rules by approving the WPAP despite this non-compliance.
89. Since TCEQ approved the WPAP in violation of 30 Tex. Admin. Code §§ 213.5(b)(4)(A)(iv) and 213.5(b)(4)(B), TCEQ’s approval of the WPAP was: (1) in violation of a constitutional or statutory provision; (2) in excess of the agency’s statutory authority; (3) made through unlawful procedure; (4) affected by other error of law; (5) not reasonably supported by substantial evidence considering the reliable

⁴ Bryan Swistock, *NITRATES IN DRINKING WATER*, PENNSTATE EXTENSION (updated Aug. 26, 2022), <https://extension.psu.edu/nitrates-in-drinking-water>.

⁵ *TCEQ Ecological Screening Benchmarks.xlsx*, (2022), <https://www.tceq.texas.gov/remediation/eco> (Surface Water Metals, Inorganic tab; nitrate (NO₃) listed in Column A, and the Freshwater Chronic Benchmark (mg/L) in Column F).

and probative evidence in the record as a whole; and (6) arbitrary or capricious or characterized by abuse of discretion or clearly unwarranted exercise of discretion.

90. **Error No. 5. In violation of 30 Tex. Admin. Code § 213.5(b)(3), TCEQ approved the WPAP despite the fact that it failed to identify all potential pathways for contaminant movement to the Edwards Aquifer.**

91. Pursuant to 30 Tex. Admin. Code § 213.5(b)(3), the Applicant's geologic assessment "must identify all potential pathways for contaminant movement to the Edwards Aquifer."

92. Vulcan failed to identify the numerous potential pathways for contamination that would be created by the massive excavation which it plans to undertake as part of the authorized quarrying activity.

93. While Plaintiffs cannot themselves inspect the property to avoid trespass, their experts have found that the extremely low number of features identified within the Geologic Assessment are simply not statistically credible given the size of the site. Due to the lithologies beneath the proposed Quarry site, contaminants will have a very direct and rapid impact on the underlying Trinity Aquifer and thence to the Edwards Aquifer.

94. As shown in the Application, the proposed Quarry operations will occur on an area approximately 1,515 acres in size, with a mining area of approximately 956 acres. Vulcan plans to extract rock from the Kainer (Edwards Group) and Upper Member of the Glen Rose (Trinity Group) Formations. The property contains a 100-year floodplain and is entirely within the Edwards Aquifer Recharge Zone, as shown by Figure 3 above.

95. Furthermore, only 37 sensitive (recharge) features have been documented on the proposed property, 15 of which are categorized as wells or manmade boring holes. Professional geoscientist and hydrologist Dr. Brian A. Smith found that the number of documented features for the proposed Quarry appears anomalously low when compared to the fact that a 158-acre tract directly to the north across Highway 46 contained 38 identified sensitive features—nearly the same number, but on a property approximately 1/10 the size.⁶ This discrepancy calls into question the accuracy of the required geologic assessment. Eventually, much of this water will reach downgradient water-supply wells and springs, as shown in Figure 4 below.

⁶ Smith, 2024 at 7.

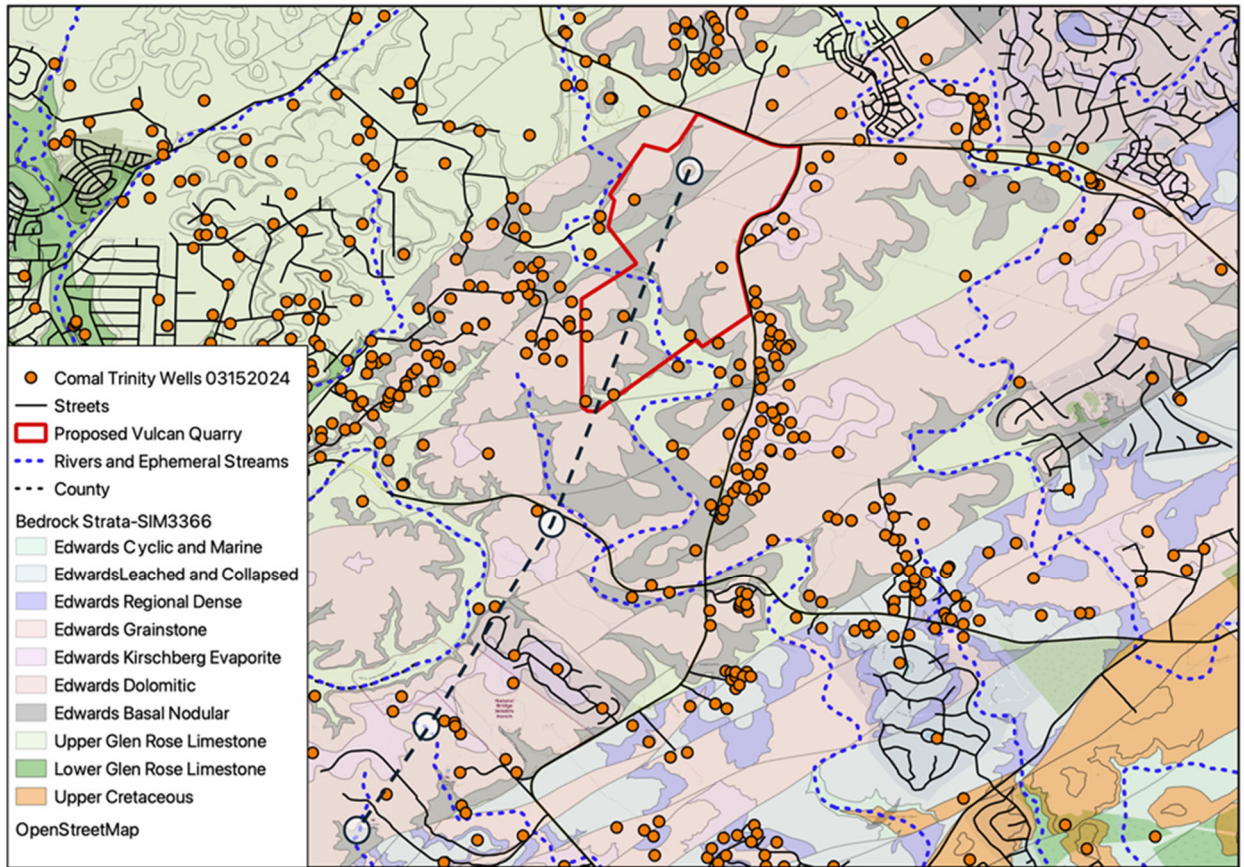


Figure 4, Geologic Map of Central Comal County Showing Water-Supply Wells⁷

96. Furthermore, geologist Jacques M. Olivier found during a review of Vulcan’s WPAP that TCEQ’s January 2012 Best Management Practices (“BMPs”) for Quarry Operations are outdated, including a method of ranking sensitive karst features.
97. Since TCEQ’s approval of the WPAP despite Vulcan’s failure to identify all potential pathways for contaminant movement to the Edwards Aquifer was in violation of 30 Tex. Admin. Code § 213.5(b)(3), TCEQ’s approval of the WPAP was: (1) in violation of a constitutional or statutory provision; (2) in excess of the agency's statutory

⁷ Smith, 2024 at 2.

authority; (3) made through unlawful procedure; (4) affected by other error of law; (5) not reasonably supported by substantial evidence considering the reliable and probative evidence in the record as a whole; and (6) arbitrary or capricious or characterized by abuse of discretion or clearly unwarranted exercise of discretion.

98. **Error No. 6. TCEQ's approval of the WPAP violated 30 Tex. Admin. Code 213.5(b)(4)(B)(ii) and (iii), as well as 30 Tex. Admin. Code § 213.8(c), by authorizing prohibited injection wells that will cause pollution of surface water, groundwater, and storm water.**

99. TCEQ's Edwards Aquifer regulations clearly and unambiguously prohibit an injection well in the Edwards Aquifer:

For applications submitted on or after September 1, 2001, injection wells that transect or terminate in the Edwards Aquifer, as defined in § 331.19 of this title (relating to Injection Into or Through the Edwards Aquifer), are prohibited except as provided by § 331.19 of this title.

- 30 Tex. Admin. Code § 213.8(c).

100. TCEQ's Edwards Aquifer regulations provide that best management practices at the site must prevent pollution of surface water or groundwater that originates on-site or flows off site. 30 Tex. Admin. Code § 213.5(b)(4)(B)(ii).

101. TCEQ's Edwards Aquifer regulations provide that the best management practices at the site must prevent pollutants from entering surface streams, sensitive features, or the Edwards Aquifer. 30 Tex. Admin. Code § 213.5(b)(4)(B)(iii).

102. As discussed above, the WPAP authorizes Vulcan to engage in activities which include blasting operations at the site, including the construction and use of boreholes

in a manner that constitutes the completion and operation of an injection well in the Edwards Aquifer. The Stratigraphic Column included within the Geologic Assessment identifies the Edwards limestone as being present at the surface of the Quarry.

103. Accordingly, the boreholes associated with blasting activities—which constitute injection wells—will be completed directly into the Edwards Aquifer. This activity—authorized by the WPAP—will endanger groundwater in a manner not allowed under the TCEQ Rules.

104. Under the TCEQ Rules, an “injection well” would include a shaft into which a material which moves is injected. Under 30 Tex. Admin. Code § 213.3(39), “well” is defined as “[a] bored, drilled, or driven shaft, or an artificial opening in the ground made by digging, jetting, or some other method, where the depth of the well is greater than its largest surface dimension. A well is not a surface pit, surface excavation, or natural depression.”

105. TCEQ’s regulations governing injection wells define the term “well” in a similar manner. 30 Tex. Admin. Code § 331.2(120). In relevant part, TCEQ’s injection well regulations define an “injection well” as “a well into which fluids are being injected.” 30 Tex. Admin. Code § 331.2(59). In turn, a “fluid” is a “material or substance which flows or moves whether in a semisolid, liquid, sludge, gas or any other form or state.” 30 Tex. Admin. Code § 331.2(47).

106. The boreholes used for blasting are “wells,” since they are bored shafts with a depth greater than their largest surface dimension. The ANFO placed within these wells

constitutes a “fluid,” since it is a material which flows or moves. In fact, the movement of this ANFO into surrounding formations has been repeatedly documented.

107. Therefore, Vulcan’s planned blasting method constitutes the completion of an injection well into the Edwards Aquifer in contravention of the TCEQ Rules.

108. None of the best management practices contained in the WPAP establish measures that would prevent the injection wells associated with blasting activities at the site from polluting groundwater. Thus, the best management practices fail to meet the minimum requirements of 30 Tex. Admin. Code § 213.5(b)(4)(B)(ii) and 30 Tex. Admin. Code § 213.5(b)(4)(B)(iii).

109. Since approval of the WPAP includes the authorization of injection wells in direct contravention of TCEQ Rules, and the use of best management practices wholly fail to address the groundwater contamination caused by these injection wells, TCEQ’s approval of the WPAP is (1) in violation of a constitutional or statutory provision; (2) in excess of the agency's statutory authority; (3) made through unlawful procedure; (4) affected by other error of law; (5) not reasonably supported by substantial evidence considering the reliable and probative evidence in the record as a whole; and (6) arbitrary or capricious or characterized by abuse of discretion or clearly unwarranted exercise of discretion.

110. **Error No. 7. TCEQ’s approval of the Application violates 30 Tex. Admin. Code §§ 213.5(b)(4)(B)(ii) and (iii) because it authorizes excavation to a depth that will not prevent pollution of groundwater.**

111. The revised Application states that the Mining Areas will not be mined below 1047 ft-msl. TCEQ's BMPs require a 25' separation distance between the floor of the Quarry and groundwater.⁸ This requirement is "based on the maximum propagation of fractures from blasting operation"⁹ and is meant to afford some protection from mining impacts to the Edwards Aquifer, particularly in the Recharge Zone.
112. The WPAP does not provide any explanation or factual reference for a Quarry floor base elevation of 1047 ft-msl. Rather, the WPAP simply indicates that it will take 5 to 10 years for the mining activities to reach that level, and therefore its proposal is to monitor the water levels at the local wells and determine how those water levels correlate to established and monitored water levels offsite.
113. As Dr. Smith found, this monitoring plan is not, from a hydrological perspective, an adequate substitute for evaluating water levels *before* obtaining the requisite WPAP. This monitoring plan is also inconsistent with TCEQ's BMPs.
114. In fact, available water level data from several wells within 700 ft of the Vulcan property boundary shows water levels greater than 1022 ft-msl. *See* Figures 5 and 6 below.

⁸ TCEQ RG-500: TCEQ Best Management Practices for Quarry Operations (Jan. 2012) at 2. <https://www.tceq.texas.gov/downloads/compliance/publications/rg/rg-500.pdf>.

⁹ *Id.*

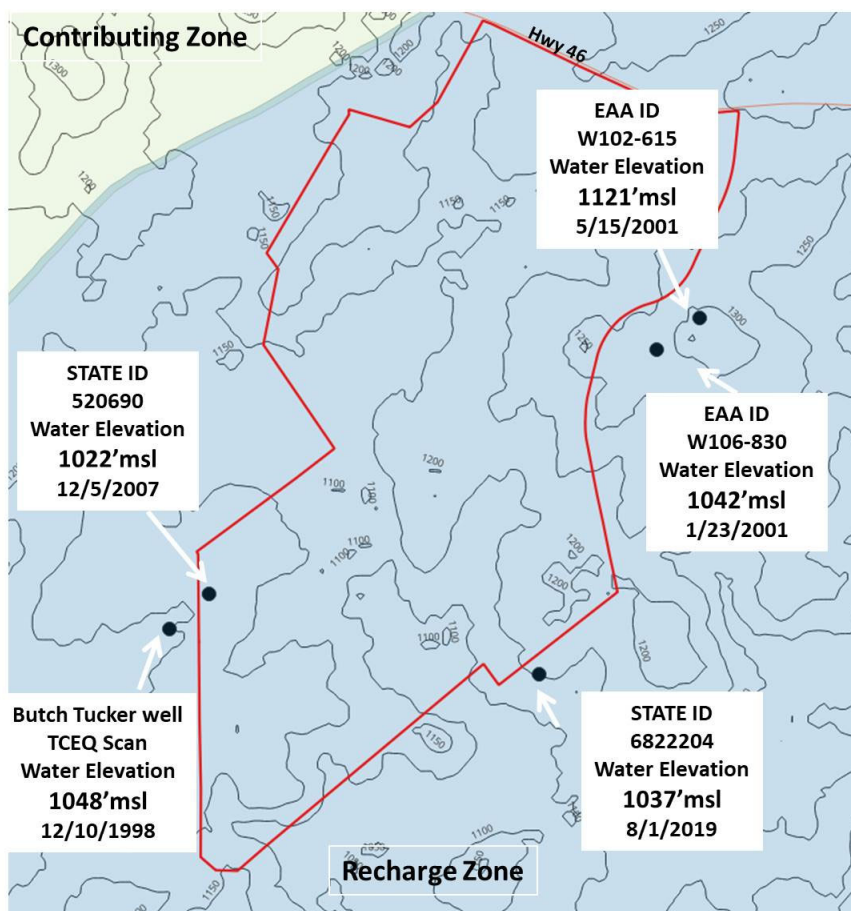


Figure 5, Water Elevation in Wells Near Vulcan¹⁰

¹⁰ Base map and data from the Texas Water Development Board Groundwater Database, <https://www.twdb.texas.gov/groundwater/data/gwdbbrpt.asp>.

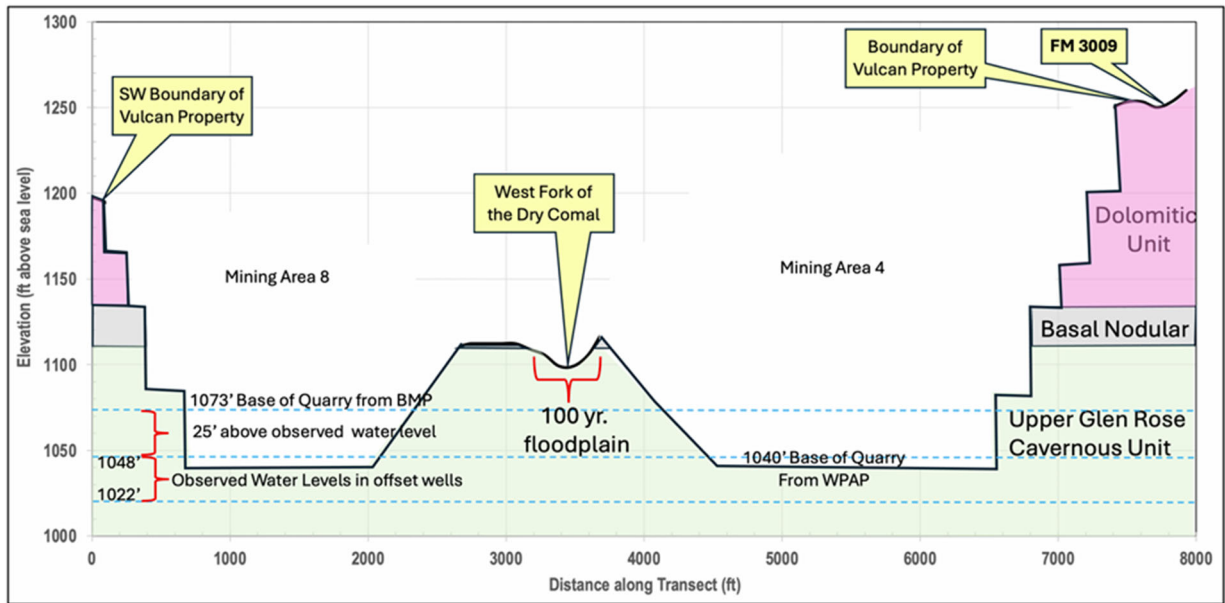


Figure 6, Illustrative Schematic Cross Section with Estimated Topography after Mining and Water Levels based on Available Data¹¹

115. This data demonstrates that the proposed 1047 ft-msl mining floor may lead to increased infiltration of contaminants to the Edwards Aquifer via the Upper Trinity. The type of risk mitigation approach outlined in RG-500 for the Edwards Aquifer would require considering historical records for the shallow aquifer at a site, in this case the Upper Trinity. Because the water level in this area has exceeded the 1022 ft-msl level six times in 23 years, there is no reason to think it will not happen again over the expected 65 to 90-year life of the Quarry. In the period from 1990 to 2024, the 25 ft standoff approved by the Executive Director would have been violated six times.

¹¹ Smith, 2024 at 11.

The proposed Quarry floor likely would have been flooded twice, directly contributing pollutants to the Upper Trinity and thence to the Edwards Aquifer.

116. In addition, the proposed mining pit located in the Recharge Zone qualifies as a “manmade feature in basement,” which is considered to be sensitive according to the TCEQ Rules for sensitive features.¹² Just as with caves, large sinkholes, and wells, these features are required to be protected in order to prevent pollution of the Edwards Aquifer. Such protection is not provided in the WPAP, particularly given the nearness of the pit floor to the water table.

117. Because Vulcan’s excavation depth and well monitoring plan does not comply with 30 Tex. Admin. Code §§ 213.5(b)(4)(B)(i)-(iii), TCEQ’s approval of the WPAP was: (1) in violation of a constitutional or statutory provision; (2) in excess of the agency’s statutory authority; (3) made through unlawful procedure; (4) affected by other error of law; (5) not reasonably supported by substantial evidence considering the reliable and probative evidence in the record as a whole; and (6) arbitrary or capricious or characterized by abuse of discretion or clearly unwarranted exercise of discretion.

118. Error No. 8. TCEQ’s approval of the Application violates 30 Tex. Admin. Code 213.5(b)(4)(B)(ii) and (iii) because it fails to include groundwater monitoring sufficient to prevent pollution of groundwater.

¹² *TCEQ-0585-Instructions: Instructions to Geologists for Geologic Assessments on the Edwards Aquifer Recharge/Transition Zones*, (Revised Oct. 1, 2004), <https://www.tceq.texas.gov/downloads/permitting/edwards-aquifer/forms/f-0585-geologic-assessment-instructions.pdf>.

119. Texas Water Company, which provides water to the nearby Vintage Oaks Subdivision, submitted comments and a hearing request on the WPAP, stating its concern that “[t]he location of this plant’s operations is in close proximity to groundwater wells owned by Texas Water and poses a potential threat to the healthy operation of those wells.” Texas Water Company supplies water taken from 40 Trinity wells and from the Canyon Reservoir.
120. Furthermore, a 2010 study by the Edwards Aquifer Authority using dye-tracing found that in the Edwards Aquifer Recharge Zone in Bexar County, Texas, surface pollution can quickly enter the Edwards Aquifer *without any visible karst features being present*.
121. In fact, Mr. Olivier studied a diesel spill that occurred in January 2000 at a quarry site in Comal County and found that diesel contaminated the Edwards Aquifer despite no visible karst features in the area, and contamination from the spill was detected in Comal and Hueco Springs located 4.5 and 6.5 miles away. Based on this evidence of Edwards Aquifer contamination in the Recharge Zone occurring without any visible karst features, Mr. Olivier concluded that the *entire* Edwards Aquifer Recharge Zone is “sensitive.”
122. As identified above, the excavation of the Quarry will bring the Quarry in close proximity to groundwater levels in the area, and the Quarry includes numerous potential sources of contamination, as well as numerous pathways for the movement of contamination into groundwater. In light of this danger and vulnerability, a robust groundwater monitoring system is necessary in order to detect and prevent further

groundwater pollution. An adequate groundwater monitoring system would include adequate groundwater monitoring prior to Quarry operations in order to fully characterize groundwater levels and groundwater quality.

123. Vulcan's WPAP fails to include adequate groundwater monitoring to prevent pollution of groundwater. Therefore, TCEQ's approval of the WPAP violates 30 Tex. Admin. Code §§ 213.5(b)(4)(B)(ii) and (iii), and is: (1) in violation of a constitutional or statutory provision; (2) in excess of the agency's statutory authority; (3) made through unlawful procedure; (4) affected by other error of law; (5) not reasonably supported by substantial evidence considering the reliable and probative evidence in the record as a whole; and (6) arbitrary or capricious or characterized by abuse of discretion or clearly unwarranted exercise of discretion.

124. **Error No. 9. Approval of the WPAP violates Tex. Water Code § 26.401 and 30 Tex. Admin. Code § 213.1 because the approved activity will impair existing uses of groundwater through harm to threatened and endangered species.**

125. Chapter 26 of the Tex. Water Code, relating to TCEQ's authority to protect groundwater quality, provides that it is the policy of the State that activities subject to regulation by state agencies be conducted in a manner that will maintain present uses and not impair potential uses of groundwater. Tex. Water Code § 26.401.

126. The support of endangered species is an existing use of the impacted area of the Edwards Aquifer. Protection of these species is required for TCEQ's actions to be consistent with this policy enunciated by the Legislature.

127. The Comal Springs and its ecosystem are home to threatened and endangered aquatic species that are dependent upon sufficient water quantity and quality for their continued survival, including the fountain darter (*Etheostoma fonticola*), Comal Springs dryopid beetle (*Stygoparnus comalensis*), Comal Springs riffle beetle (*Heterelmis comalensis*), and Peck's Cave amphipod (*Stygobromus pecki*). In 2013, the U.S. Fish & Wildlife Service enlarged the critical habitat for the Comal Springs dryopid beetle, Comal Springs riffle beetle, and the Peck's Cave amphipod that live in the Comal Springs complex to specifically include subsurface critical habitat. *See* 78 Fed. Reg. 63100.
128. The proposed Quarry activities will harm numerous threatened and endangered species, particularly aquatic species, because they are most sensitive to elevated nitrate levels in water.
129. As previously explained, limestone aggregate quarries use large quantities of ANFO as their primary explosive, which is a combination of ammonium nitrate (fertilizer) and diesel fuel. Ammonium nitrate is highly soluble in water, and up to 30% of the explosive is not consumed by blasting.¹³ Depending on the concentration level, long term exposure to nitrate can be threatening to aquatic organisms, which may have lower tolerances for nitrate than humans.

¹³ Neil Alberts, *Tackling nitrate contamination of water in mines*, MINING.COM (Aug. 11, 2016, 9:12 AM), <https://www.mining.com/web/tackling-nitrate-contamination-of-water-in-mines/>.

130. TCEQ set the ecological screening benchmark for ammonium nitrate in freshwater at 13 mg/L nitrate as NO₃.¹⁴ Well data with nitrate measurements above the TCEQ ecological screening benchmark are clustered near quarries. As shown in Figure 6 above, the majority of recent observations of nitrate have reached a level that may pose a threat to sensitive organisms living within the karstic Edwards Aquifer.
131. Dr. Smith's report also found that reduced flows have a negative impact on the ecology immediately in the spring area and downstream stretches, including endangered species. Therefore, Vulcan's use of groundwater may contribute to a violation of the Endangered Species Act. Moreover, decreased groundwater availability increases the potential for contamination from various sources, in violation of Edwards Aquifer Protection Plan regulations found in 30 Tex. Admin. Code § 213.1.
132. Furthermore, under the Endangered Species Act, no person may "take" an endangered species. 16 U.S.C. § 1538(a)(2). Such a take includes "harm" to a species, which encompasses an act which degrades habitat in a manner which injures wildlife. 40 C.F.R. § 17.3.
133. Vulcan's proposed activities, authorized by approval of the WPAP, could result in such a prohibited take. Because of the ecological sensitivity of this location (which is in the Recharge Zone) to groundwater contamination, pollution (nitrates) from the

¹⁴ *TCEQ Ecological Screening Benchmarks.xlsx*, (2022), <https://www.tceq.texas.gov/remediation/eco> (Surface Water Metals, Inorganic tab; nitrate (NO₃) listed in column A, and the Freshwater Chronic Benchmark (mg/L) in column F).

Vulcan mining activities is highly likely to enter the Edwards Aquifer and potentially make its way to Comal Springs and Hueco Springs in Comal County via identified flow paths, and even further downgradient to San Marcos Springs in Hays County.

134. Notably, TCEQ is not a holder of the incidental take permit issued which, under certain conditions, authorizes activities that would harm endangered and threatened species.

135. Thus, issuance of the WPAP does not provide coverage under that permit and provides no justification for the harming of endangered species by the activities authorized.

136. Vulcan's BMPs do not constitute a defense or an excuse for violations of the Endangered Species Act. Because Vulcan's WPAP does not accurately assess the high potential for contamination that could jeopardize listed species, it, therefore, does not provide for protections to avoid the take of listed species.

137. TCEQ's approval of the WPAP will impair the ability of groundwater in the area of the Quarry to support existing uses, including the provision of an environment for threatened and endangered species. Accordingly, approval of the WPAP is in violation of Tex. Water Code § 26.401, and is: (1) in violation of a constitutional or statutory provision; (2) in excess of the agency's statutory authority; (3) made through unlawful procedure; (4) affected by other error of law; (5) not reasonably supported by substantial evidence considering the reliable and probative evidence in the record as a whole; and (6) arbitrary or capricious or characterized by abuse of discretion or clearly unwarranted exercise of discretion.

VII. CONCLUSION & PRAYER

WHEREFORE, PREMISES CONSIDERED, Plaintiffs respectfully pray that this Court reverse the Executive Director's decision approving Vulcan's WPAP—Edwards Aquifer Protection Program ID No. 13001906—because the Executive Director erred in finding that Vulcan's WPAP met all applicable statutory and regulatory requirements.

Plaintiffs further pray that the Court assess court costs against the Defendant and accord Plaintiffs any further relief to which Plaintiffs may be entitled.

Respectfully submitted,

/s/ Eric Allmon

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EXHIBIT A
TO ORIGINAL PETITION

Jon Niermann, *Chairman*
Bobby Janecka, *Commissioner*
Catarina R. Gonzales, *Commissioner*
Kelly Keel, *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

July 8, 2024

Mr. Richard Spry
Vulcan Construction Materials, LLC
10101 Reunion Pl., Ste. 500
San Antonio, TX 78216

Re: Approval of a Water Pollution Abatement Plan (WPAP)
Vulcan Comal Quarry; Located SW of FM 3009 and SH 46; Comal County, Texas
Edwards Aquifer Protection Program ID No. 13001906; Regulated Entity No.
RN111942793

Dear Mr. Spry:

The Texas Commission on Environmental Quality (TCEQ) has completed its review on the application for the above-referenced project submitted to the Edwards Aquifer Protection Program (EAPP) by Pape-Dawson Engineers, Inc. on behalf of the applicant, Vulcan Construction Materials, LLC, on March 21, 2024. Final review of the application was completed after additional material was received on June 3, 2024, June 25, 2024, July 1, 2024, and July 3, 2024.

As presented to the TCEQ, the application was prepared in general compliance with the requirements of 30 Texas Administrative Codes (TAC) Chapter §213. The permanent best management practices (BMPs) and measures represented in the application were prepared by a Texas licensed professional engineer (PE). All construction plans and design information were sealed, signed, and dated by a Texas licensed PE. Therefore, the application for the construction of the proposed project and methods to protect the Edwards Aquifer are **approved**, subject to applicable state rules and the conditions in this letter.

This approval expires two years from the date of this letter, unless, prior to the expiration date, more than 10 percent of the construction has commenced on the project or an extension of time has been officially requested. This approval or extension will expire, and no extension will be granted if more than 50 percent of the project has not been completed within ten years from the date of this letter.

The applicant or a person affected may file with the chief clerk a motion for reconsideration of the executive director's final action on this Edwards Aquifer protection plan. A motion for reconsideration must be filed in accordance with 30 TAC §50.139.

PROJECT DESCRIPTION

The proposed quarry project will have an area of approximately 1,515.16 acres. The project will include the construction of a quarry, plant area, offices, shop areas, driveway, and associated appurtenances. The impervious cover will be 13.81 acres (0.9 percent). Quarry details, exhibits, and process pond details are located in the application materials. Project wastewater will be disposed of by portable toilets.

PERMANENT POLLUTION ABATEMENT MEASURES

To prevent the pollution of stormwater runoff originating on-site or upgradient of the site and potentially flowing across and off the site after construction, natural vegetative filter strips, designed using the TCEQ technical guidance, *RG-348, Complying with the Edwards Aquifer Rules: Technical Guidance on Best Management Practices*, will be implemented to treat stormwater runoff. The required total suspended solids (TSS) treatment for this project is 12,396 pounds of TSS generated from the 13.81 acres of impervious cover. The approved permanent BMPs and measures meet the required 80 percent removal of the increased load in TSS caused by the project.

The permanent BMPs shall be operational prior to occupancy or use of the proposed project. Inspection, maintenance, repair, and retrofit of the permanent BMPs shall be in accordance with the approved application.

GEOLOGY

According to the Geologic Assessment (GA) included with the application, the surficial units of the site are the Upper Glen Rose Member (Kgru) of the Glen Rose Limestone and the Dolomitic Member (Kekd) and Basal Nodular Member (Kekbn) of the Kainer Formation. Seven (7) sensitive features (S-12, S-15, S-19, S-23, S-27, S-33, S-35) were identified in the GA. Of these, four (4) features (S-15, S-19, S-23, S-33) are located within the proposed quarry pit limits and are proposed to be eventually removed through mining. Prior to quarry excavation, the sensitive features shall be protected by natural vegetation buffers until such time as the area of the quarry containing the sensitive features will be mined. Features S-12 (cave), S-27 (sink hole), and S-35 (sink hole) are located outside the proposed quarry pit limits and will remain undisturbed with permanent natural vegetated buffers. No regulated activities (such as construction or soil disturbing activities) will take place within the natural buffers. The site assessment conducted on April 22, 2024, and April 24, 2024 by TCEQ staff determined the site to be generally as described by the GA.

STANDARD CONDITIONS

1. The plan holder (applicant) must comply with all provisions of 30 TAC Chapter §213 and all technical specifications in the approved plan. The plan holder should also acquire and comply with additional and separate approvals, permits, registrations or authorizations from other TCEQ Programs (i.e., Stormwater, Water Rights, Dam Safety, Underground Injection Control) as required based on the specifics of the plan.
2. In addition to the rules of the Commission, the plan holder must also comply with state and local ordinances and regulations providing for the protection of water quality as applicable.

Prior to Commencement of Construction:

3. Within 60 days of receiving written approval of an Edwards Aquifer protection plan, the plan holder must submit to the EAPP proof of recordation of notice in the county deed records, with the volume and page number(s) of the county record. A description of the property boundaries shall be included in the deed recordation in the county deed records. TCEQ form, Deed Recordation Affidavit (TCEQ-0625), may be used.
4. The plan holder of any approved Edwards Aquifer protection plan must notify the EAPP and obtain approval from the executive director prior to initiating any modification to the activities described in the referenced application following the date of the approval.

5. The plan holder must provide written notification of intent to commence construction, replacement, or rehabilitation of the referenced project. Notification must be submitted to the EAPP no later than 48 hours prior to commencement of the regulated activity. Notification must include the date on which the regulated activity will commence, the name of the approved plan and program ID number for the regulated activity, and the name of the prime contractor with the name and telephone number of the contact person.
6. Temporary erosion and sedimentation (E&S) controls as described in the referenced application, must be installed prior to construction, and maintained during construction. Temporary E&S controls may be removed when vegetation is established, and the construction area is stabilized. The TCEQ may monitor stormwater discharges from the site to evaluate the adequacy of temporary E&S control measures. Additional controls may be necessary if excessive solids are being discharged from the site.
7. All borings with depths greater than or equal to 20 feet must be plugged with non-shrink grout from the bottom of the hole to within three (3) feet of the surface. The remainder of the hole must be backfilled with cuttings from the boring or gravel. All borings less than 20 feet must be backfilled with cuttings from the boring. All borings must be backfilled or plugged within four (4) days of completion of the drilling operation.

During Construction:

8. This approval does not authorize the installation of temporary or permanent aboveground storage tanks on this project that will have a total storage capacity of five hundred gallons or more of static hydrocarbons or hazardous substances without prior approval of an Aboveground Storage Tank facility application.
9. If any sensitive feature is encountered during construction, replacement, or rehabilitation on this project, all regulated activities must be **immediately** suspended near it and notification must be made to TCEQ EAPP staff. Temporary BMPs must be installed and maintained to protect the feature from pollution and contamination. Regulated activities near the feature may not proceed until the executive director has reviewed and approved the methods proposed to protect the feature and the aquifer from potentially adverse impacts to water quality.
10. All water wells, including injection, dewatering, and monitoring wells shall be identified in the geologic assessment and must be in compliance with the requirements of the Texas Department of Licensing and Regulation 16 TAC Chapter §76 and all other locally applicable rules, as appropriate.
11. If sediment escapes the construction site, the sediment must be removed at a frequency sufficient to minimize offsite impacts to water quality (e.g., fugitive sediment in street being washed into surface streams or sensitive features by the next rain). Sediment must be removed from sediment traps or sedimentation ponds not later than when design capacity has been reduced by 50 percent. Litter, construction debris, and construction chemicals shall be prevented from becoming stormwater discharge pollutants.
12. Intentional discharges of sediment laden water are not allowed. If dewatering becomes necessary, the discharge must be filtered through appropriately selected BMPs.
13. The following records shall be maintained and made available to the executive director upon request: the dates when major grading activities occur, the dates when construction activities temporarily or permanently cease on a portion of the site, and the dates when stabilization measures are initiated.

14. Stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, and construction activities will not resume within 21 days. When the initiation of stabilization measures by the 14th day is precluded by weather conditions, stabilization measures shall be initiated as soon as practicable.

After Completion of Construction:

15. Owners of permanent BMPs and temporary measures must ensure that the BMPs and measures are constructed and function as designed. A Texas licensed PE must certify in writing that the **permanent** BMPs or measures were constructed as designed. The certification letter must be submitted to the EAPP within 30 days of site completion.
16. The applicant shall be responsible for maintaining the permanent BMPs after construction until such time as the maintenance obligation is either assumed in writing by another entity having ownership or control of the property or the ownership of the property is transferred to the entity. A copy of the transfer of responsibility must be filed with the executive director through the EAPP within 30 days of the transfer. TCEQ form, Change in Responsibility for Maintenance on Permanent BMPs and Measures (TCEQ-10263), may be used.

The holder of the approved Edwards Aquifer protection plan is responsible for compliance with Chapter §213 and any condition of the approved plan through all phases of plan implementation. Failure to comply with any condition within this approval letter is a violation of Chapter §213 and is subject to administrative rule or orders and penalties as provided under §213.10 of this title (relating to Enforcement). Such violations may also be subject to civil penalties and injunction. Upon legal transfer of this property, the new owner is required to comply with all terms of the approved Edwards Aquifer protection plan.

This action is taken as delegated by the executive director of the Texas Commission on Environmental Quality. If you have any questions or require additional information, please contact Mr. James "Bo" Slone, P.G. of the Edwards Aquifer Protection Program at (512) 239-6994 or the regional office at (512) 339-2929.

Sincerely,



Lori Wilson, Director
Austin Region
Texas Commission on Environmental Quality

LW/jcs

cc: Mr. Caleb Chace, P.E., Pape-Dawson Engineers, Inc.
Ms. Jena Autrey, P.E., Pape-Dawson Engineers, Inc.

EXHIBIT B
TO ORIGINAL PETITION

**TCEQ DOCKET NO. 2024-1115-EAQ
PROGRAM ID NO. 13001906**

**IN THE MATTER OF THE
APPROVAL OF A WATER
POLLUTION ABATEMENT PLAN
BY VULCAN CONSTRUCTION
MATERIALS, LLC**

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§
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**BEFORE THE TEXAS
COMMISSION ON
ENVIRONMENTAL QUALITY**

**INDIVIDUAL LANDOWNERS' MOTION TO OVERTURN
EXECUTIVE DIRECTOR'S DECISION**

TO THE HONORABLE CHAIRMAN AND COMMISSIONERS OF THE TEXAS
COMMISSION ON ENVIRONMENTAL QUALITY:

The Executive Director's effective approval of Vulcan Construction Materials, LLC's ("Vulcan") Water Pollution Abatement Plan ("WPAP") for the Vulcan Comal Quarry constituted a taking of property from Robert Carrillo, Cherly Johnson, John Casimir Kucewicz Jr., and Douglas E. Smith (collectively, "Individual Landowners" or "Movants"), deprived those landowners of due process as a result of TCEQ's failure to provide notice and a meaningful opportunity to participate in the decision, and violated TCEQ's own rules. Thus, pursuant to 30 Tex. Admin. Code § 50.139, Individual Landowners file this Motion to Overturn the ED's decision approving Vulcan's WPAP.

I. Movants are affected by Vulcan's WPAP in a manner distinct from the general public.

Movants are affected by Vulcan's WPAP in a manner distinct from the general public due to the close proximity of their homes to the proposed Vulcan Quarry and its possible impact on the groundwater underlying their property, as described in detail below.

Robert Carrillo resides at 111 Marlana Drive, San Antonio, Texas 78213 and owns ranchland with cattle along FM 3009,¹ adjacent to the proposed Quarry to the south. Mr. Carrillo did not have meaningful notice of Vulcan Construction Materials, LLC's Water Pollution Abatement Plan before the public comment period concluded on Monday, April 22, 2024. Mr. Carrillo did not know about the WPAP until he saw a news article about the WPAP in July of 2024. He is extremely concerned about the impact of the Vulcan Quarry on the groundwater below his ranch and the underlying aquifers. Specifically, there is a spring fed pond on Mr. Carrillo's ranch that has only gone dry a few times in the last 25 years, even during record-breaking droughts. The pond is currently full despite drought conditions in the area. His cattle use this pond as a source of drinking water. A hydrologist found that the spring feeding this pond likely comes from subsurface flow related to the West Fork that runs through the Vulcan site. For this reason, Mr. Carrillo is concerned that pollution from the Quarry could directly affect his pond and harm his cattle. If he had meaningful notice of Vulcan's WPAP, Mr. Carrillo would have submitted comments in strong opposition to the WPAP.²

Cheryl Johnson resides at 1422 Tramonto, New Braunfels, Texas 78132, approximately 1.6 miles southeast of the proposed Quarry. Mrs. Johnson did not have meaningful notice of Vulcan Construction Materials, LLC's Water Pollution Abatement Plan before the public comment period concluded on Monday, April 22, 2024. After

¹ Comal County Property ID 77490.

² Affidavit of Robert Carrillo (included here as Attachment A).

learning about the WPAP in early July of 2024, Cheryl helped organize an informational meeting at her subdivision on July 17, 2024 to educate her neighbors about the WPAP. She is extremely concerned about the impact of the Vulcan Quarry on the groundwater below her property and the underlying aquifers. Ms. Johnson is also concerned about the impact of the Vulcan Quarry on Texas Water Company's wells that currently provide water to her subdivision.³ If she had meaningful notice of Vulcan's WPAP, Mrs. Johnson would have submitted comments in strong opposition to the WPAP.⁴

John Casimir Kucewicz Jr. resides at 1270 Trailhead, New Braunfels, Texas 78132, approximately 3.5 miles northeast of the proposed quarry. Mr. Kucewicz did not have meaningful notice of Vulcan Construction Materials, LLC's Water Pollution Abatement Plan before the public comment period concluded on Monday, April 22, 2024. Mr. Kucewicz did not know about the WPAP until he attended an informational meeting at his subdivision that was held by other residents on July 17, 2024. Mr. Kucewicz is a retired geologist and previously licensed Texas Geoscientist (License 6172), with a master's degree in geology including a concentration in hydrology and sedimentology. He is extremely concerned about the impact of the Vulcan Quarry on the groundwater below his property and the underlying aquifers. Mr. Kucewicz is also concerned about the impact of the Vulcan Quarry on Texas Water Company's wells that currently provide water to his

³ Texas Water Company provides water to the Vintage Oaks Subdivision across State Highway 46 West from Vulcan and submitted comments and a hearing request on the WPAP, stating its concern that "[t]he location of this plant's operations is in close proximity to groundwater wells owned by Texas Water and poses a potential threat to the healthy operation of those wells." Bobby M. Salehi Comments and Hearing Request on behalf of the Texas Water Company (Apr. 22, 2024) (hereinafter, "TWC Comments on Vulcan's WPAP") (included here as Attachment B).

⁴ Affidavit of Cheryl Johnson (included here as Attachment C).

subdivision.⁵ In fact, Mr. Kucewicz leads a community group for men in his subdivision and held a meeting to discuss the Vulcan WPAP on July 18, 2024, one day after he learned about the WPAP. If he had meaningful notice of Vulcan's WPAP, Mr. Kucewicz would have reviewed the WPAP, assessed the geological impacts of the Quarry based on his expertise, and submitted technical comments in strong opposition to the WPAP.⁶

Douglas E. Smith resides at 419 Bridle Trail, New Braunfels, Texas 78132, approximately 3 miles southeast of the proposed Quarry. Mr. Smith did not have meaningful notice of Vulcan Construction Materials, LLC's Water Pollution Abatement Plan before the public comment period concluded on Monday, April 22, 2024. Mr. Smith did not know about the WPAP until he attended an informational meeting at his subdivision that was held by other residents on July 17, 2024. He is extremely concerned about the impact of the Vulcan Quarry on the groundwater below his property and the underlying aquifers. Mr. Smith is also concerned about the impact of the Vulcan Quarry on Texas Water Company's wells that currently provide water to his subdivision.⁷ The groundwater under his property is especially susceptible to contamination from the Quarry because the underlying Edwards Aquifer flows southeast. If he had meaningful notice of Vulcan's WPAP, Mr. Smith would have submitted comments in strong opposition to the WPAP.⁸

⁵ See TWC Comments on Vulcan's WPAP.

⁶ Affidavit of John Casimir Kucewicz Jr. (included here as Attachment D).

⁷ See TWC Comments on Vulcan's WPAP.

⁸ Affidavit of Douglas E. Smith (included here as Attachment E).

II. TCEQ’s Approval of the WPAP authorizes an activity which will pollute and drain groundwater owned by area landowners without compensation, thereby constituting an unconstitutional taking.

In Texas, landowners have a vested property right in groundwater beneath their land. Tex. Water Code § 36.002(a) (“The legislature recognizes that a landowner owns the groundwater below the surface of the landowner's land as real property.”); *see also Edwards Aquifer Auth. v. Day*, 369 S.W.3d 814, 833 (Tex. 2012). Landowners are further entitled to their “fair share” of groundwater. *Stratta v. Roe*, 961 F.3d 340, 357 (5th Cir. 2020). Landowners therefore “have a constitutionally compensable interest in groundwater,” where a taking of groundwater without due process is prohibited under the U.S. and Texas Constitutions. *Edwards Aquifer Auth. v. Day*, 369 S.W.3d 814, 838 (Tex. 2012); *Stratta v. Roe* at 357 (5th Cir. 2020)

As further described below, the Commission’s decision to approve Vulcan’s WPAP constitutes the authorization of an activity which would result in the contamination of groundwater beneath nearby properties by various contaminants, in violation of TCEQ Rule 213.5(b)(4)(B)(i)-(iv). This contamination of area groundwater owned by nearby landowners will reduce—and potentially destroy—the usefulness of that groundwater for purposes such as domestic and livestock uses. The authorization of such a destruction in the value of groundwater owned by nearby landowners, without compensation, constitutes a taking in violation of the Fifth Amendment Rights of nearby landowners. The Commission’s approval of the WPAP also has the impact of authorizing an activity which will result in an increased withdrawal of groundwater. As described in detail below, if Vulcan uses groundwater to operate the quarry, nearby landowners may be deprived of the

opportunity to produce their “fair share” of groundwater, which would constitute an unlawful taking.

The Vulcan WPAP does not consider the amount of water needed to maintain operations at permissible dust levels, nor does it identify where that water is going to come from. Vulcan has not secured water from the Texas Water Company, so it can be concluded water required to support quarry development and production operations will be acquired from an existing on-site well or future to-be-drilled and completed wells. The February 20, 2024, and July 3, 2024, versions of the Pape-Dawson Exhibit 1 and Exhibit 3 site development drawings submitted as part of the WPAP, show a Water Well (potable) near the Main Office, a Water Well (Industrial) in Mining Area 2, and a Water Well (Industrial) near the Fuel Island. These wells currently do not exist. It is further noted an existing well "S-1" is next to proposed Primary Pond "B1" and is the well Blue Pine Holdings LLC well drilled in late 2016 - early 2017. State of Texas Well Report #439830 for "S-1" noted: "*Well Tests: Estimate: 150 GPM*". No details of an actual well test was included in the report, so the 150 GPM is not "proven". The well was not completed and is not abandoned.

An estimate based on the amount of material to be quarried shows that the proposed quarry would potentially use approximately 383 acre-ft (125,000,000 gallons) of groundwater per year.⁹ This is a massive amount of groundwater use that would have

⁹ Don Everingham Declaration (Attachment F); Smith, 2024 at 12. Mr. Everingham also submitted comments on the WPAP (Attachment G).

extensive impacts on the surrounding area and landowners in violation of state law and regulations, as described in detail below.

In addition to the impact of the quarry upon the property value of individual landowners, the quarry will have a broad economic impact upon the community. Comal County's tourism and hospitality industry, which is based on water-related activities, generated over \$1.3 billion in revenue according to a 2023 economic impact study done by Impact Datasource.¹⁰ The proposed quarry will compromise the availability of water to support such activities.

Also, the quarry could lead to a significant decrease in the property values and the county's tax base. The Quarry is being proposed in an area with high-dollar property and home values. This will potentially significantly adversely impact the value of those nearby properties. For properties located 0 to 5 miles from a quarry fence line, the potential decrease in property value is in excess of 27% based on a study by the W.E. Upjohn Institute.¹¹ The Quarry provides no offsetting benefit, since Vulcan does not contribute high-paying jobs to the area economy.

For these reasons, the ED's decision was arbitrary and capricious, made through unlawful procedure, and in violation of statutory and regulatory requirements.

¹⁰ Blaine Young, *\$1.3 billion in economic impact last year came from New Braunfels' hospitality industry*, HERALD-ZEITUNG (July 26, 2024) (updated July 28, 2024), https://herald-zeitung.com/news/1-3-billion-in-economic-impact-last-year-came-from-new-braunfels-hospitality-industry/article_f772d4da-4b86-11ef-b07b-1f7b828462f8.html.

¹¹ George Erickcek, *An Assessment of the Economic Impact of the Proposed Stoneco Gravel Mines*, W.E. UPJOHN INSTITUTE FOR EMPLOYMENT RESEARCH (Aug. 15, 2006), <https://research.upjohn.org/cgi/viewcontent.cgi?article=1225&context=reports>.

III. The ED’s approval of Vulcan’s WPAP violated the federal constitutional due process rights of area landowners, and the Texas due course of law rights of area landowners, since the decision was made without providing area landowners with notice and meaningful opportunity to be heard.

It is well established in that the fundamental requirement of procedural due process under the United States Constitution is the opportunity to be heard “at a meaningful time and in a meaningful manner.” *Armstrong v. Manzo*, 380 U.S. 545, 552 (1965); *Matzen v. McLane*, 659 S.W.3d 381, 392 (Tex. 2021). The protections of the right to due course of law under the Texas Constitution are at least as broad as those afforded under the due process clause of the United States Constitution. *Am. Precision Ammunition, L.L.C. v. City of Mineral Wells*, 90 F.4th 820, 828 (5th Cir. 2024) citing *Mosley v. Tex. Health & Human Services Comm’n*, 593 S.W.3d 250, 264 (Tex. 2019). Furthermore, due process requires that parties are given “an opportunity to present their objections; and the notice must be of such nature that it reasonably conveys the required information, and must afford a reasonable time for those interested to make their appearance.” *Mullane v. Cent. Hanover Bank & Tr. Co.*, 339 U.S. 306, 314 (1950). Under the U.S. and Texas Constitutions, individuals are entitled to notice of government action that deprives the person of a property right. U.S. Const. Amend. 14; Tex. Const. art. 1, § 19. When a party is deprived of their due process rights through lack of notice, this in turn affects the ability of other parties to meaningfully participate.

In this case, the public was not provided with a meaningful opportunity to comment and be heard concerning Vulcan’s WPAP because the public did not receive notice of the

WPAP, and meaningful participation was deprived as a result of the lack of any response to public comment.

The WPAP review and approval process does not include any notice to area landowners, who possess impacted groundwater. Furthermore, no public meetings are required to review WPAP applications, despite the fact that other TCEQ water permits such as TPDES and TLAP are routinely given public meetings when sufficient public support is demonstrated or when a request is made by a state or local official.

Even for those who managed to learn about Vulcan's pending WPAP application, the TCEQ failed to provide a meaningful opportunity to participate in the decision-making process. The 30-day comment period is too short for a very technical and lengthy quarry application like the 149-page Vulcan WPAP. As a result, the general public had insufficient time to consult scientific experts to help prepare detailed technical responses. Furthermore, the Executive Director does not respond to public commentators in writing as it does for other permits. This process failed to engage with the public in any meaningful way and enables TCEQ to simply ignore public comments.

Notably, the motion to overturn process does not somehow cure the deficiencies in the process adopted. The ED's decision to approve Vulcan's WPAP is already effective, and Vulcan can already exercise the rights contingent on approval of that WPAP. The denial of a public meeting despite written requests by several political leaders, groups and affected citizens does not provide a meaningful opportunity to participate in the TCEQ's decision on whether to approve Vulcan's WPAP.

For the reasons described above, landowners near the Vulcan quarry were denied procedural due process under the U.S. Constitution, and due course of law rights under the Texas Constitution. Therefore, the approval of the WPAP was arbitrary and capricious, made through unlawful procedure, and in violation of statutory and regulatory requirements.

IV. The ED's approval of Vulcan's WPAP was in error because the WPAP failed to comply with several statutory and regulatory requirements.

A. The Vulcan Quarry WPAP is not consistent with the Edwards Aquifer Protection Plan regulations.

The TCEQ's rules governing Edwards Aquifer Protection Plans are in place to protect existing and potential uses of groundwater and maintain the Texas Surface Water Quality Standards. The goals clearly articulate that existing groundwater quality not be degraded:

- 1) Consistent with Texas Water Code, §26.401, the goal of this chapter is that the existing quality of groundwater not be degraded, consistent with the protection of public health and welfare, the propagation and protection of terrestrial and aquatic life, the protection of the environment, the operation of existing industries, and the maintenance and enhancement of the long-term economic health of the state.
- 2) Nothing in this chapter is intended to restrict the powers of the commission or any other governmental entity to prevent, correct, or curtail activities that result or may result in pollution of the Edwards Aquifer or hydrologically connected surface waters. In addition to the rules of the commission, an applicant may also be required to comply with local ordinances and regulations providing for the protection of water quality.

30 Tex. Admin. Code § 213.1.

In other words, the TCEQ has the authority to prevent activities that will result in pollution of the Edwards Aquifer or that it deems may result in pollution to the Edwards. Vulcan's Application does not demonstrate that its WPAP will prevent pollution of the

Edwards, as described in more detail and supported by several expert opinions below. For these reasons, the WPAP is not compliant with Chapter 213, and therefore the ED's decision was arbitrary and capricious, made through unlawful procedure, and in violation of statutory and regulatory requirements. Movants request the TCEQ Commissioners grant this Motion and reverse the ED's decision.

B. The Vulcan Quarry site is located in an environmentally sensitive area, and the WPAP grossly underestimates the potential pathways to the Edwards Aquifer.

As shown in the Application, the proposed Vulcan quarry operations will occur on an area approximately 1,515 acres in size, with the mining area of approximately 956 acres. Vulcan plans to extract rock from the Kainer (Edwards Group) and Upper Member of the Glen Rose (Trinity Group) Formations. The property contains a 100-year floodplain and is entirely within the Edwards Aquifer Recharge Zone, as shown by Figure 1 below:

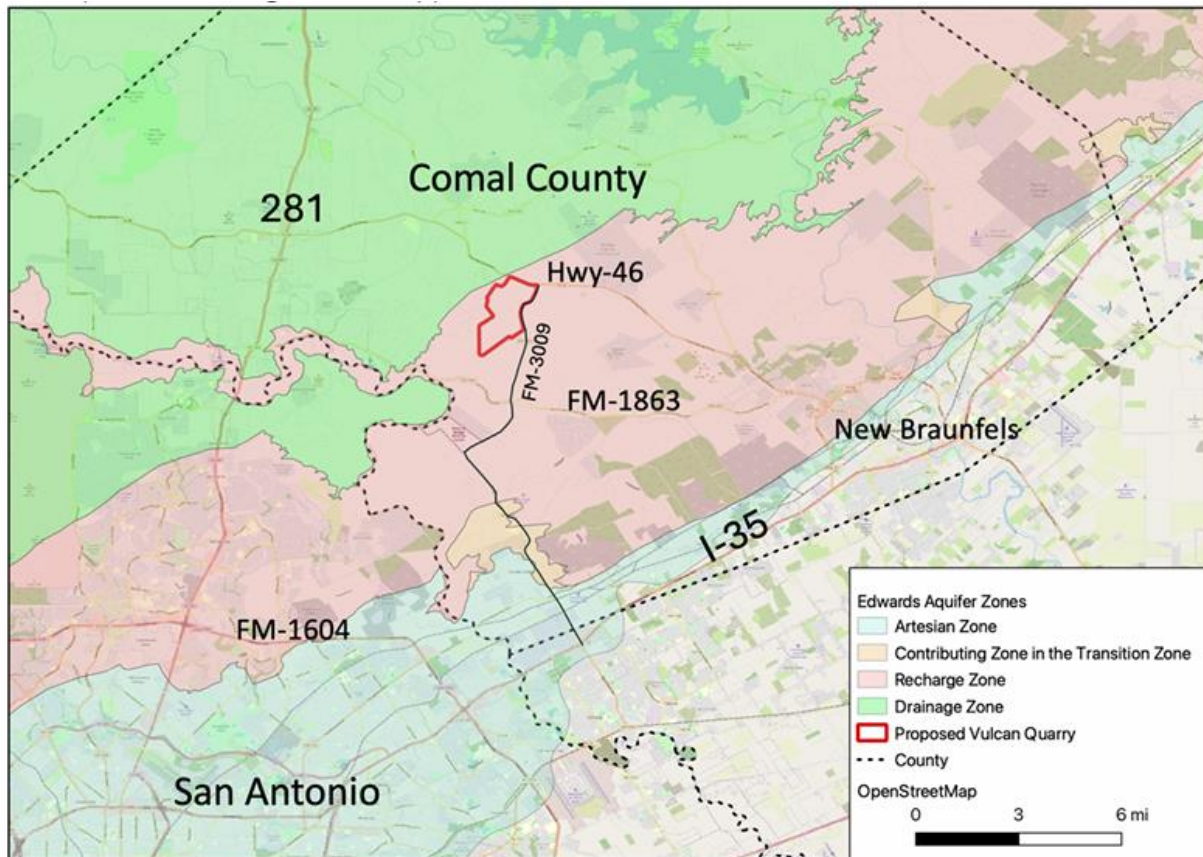


Figure 1, Demonstrating that Vulcan’s Property is entirely within the Edwards Aquifer Recharge Zone¹²

Furthermore, only 37 sensitive (recharge) features have been documented on the proposed property, 12 of which are categorized as wells or manmade boring holes. professional geoscientist and hydrologist Dr. Brian A. Smith found that number of documented features appears anomalously low when compared to the fact that a 158-acre tract directly to the north across Highway 46 contained 38 identified sensitive features—nearly the same number, but on a property approximately 1/10 the size.¹³ This discrepancy

¹² Brian A. Smith, Ph.D., *Hydrogeology of the Edwards and Trinity Aquifers in the Vicinity of the Proposed Vulcan Quarry, Comal County, Texas* (2024) (hereinafter “Smith, 2024”) at 1; see also Affidavit of Dr. Brian A. Smith (included here as Attachment H).

¹³ Smith, 2024 at 7.

calls into question the accuracy of the required geologic assessment.¹⁴ Eventually, much of this water will reach downgradient water-supply wells and springs,¹⁵ as shown in Figure 2 below.

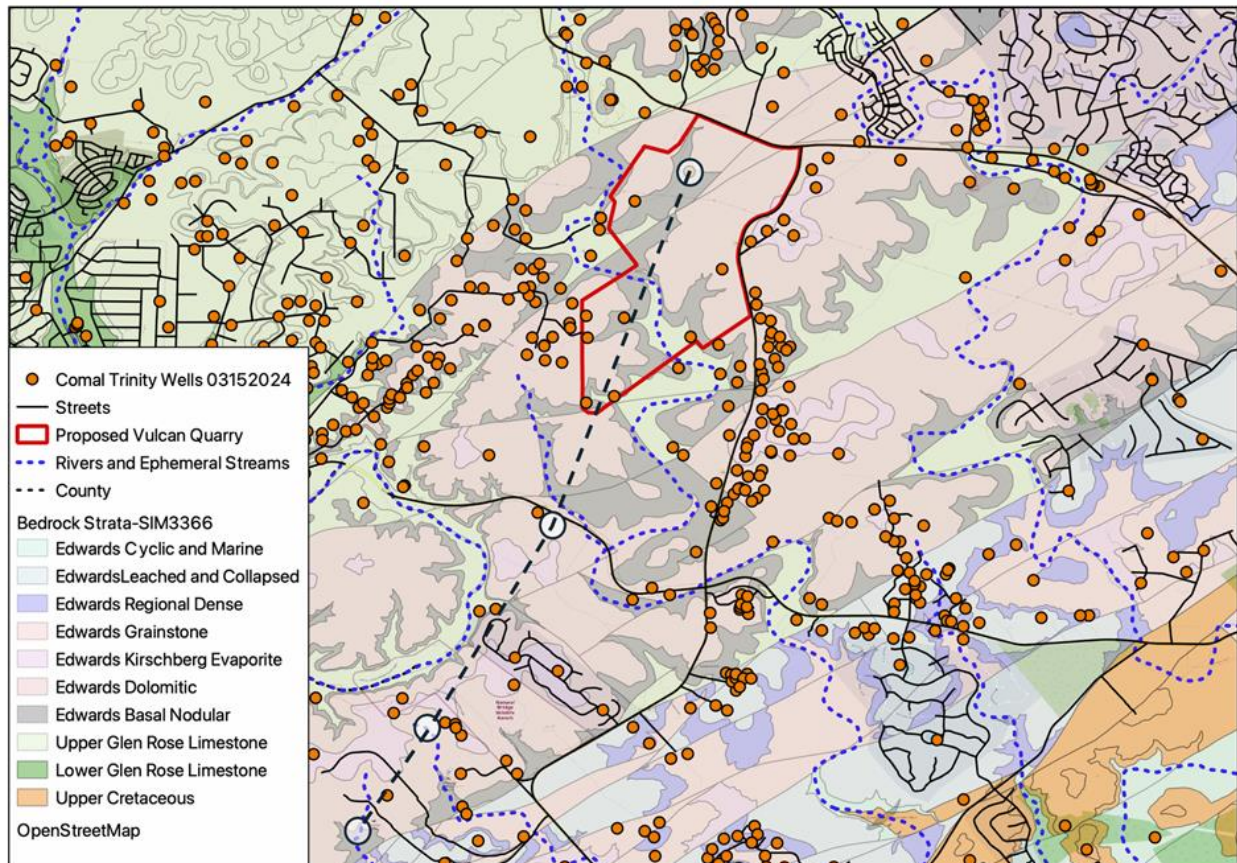


Figure 2, Geologic Map of Central Comal County Showing Water-Supply Wells¹⁶

In addition, Texas Water Company, which provides water to the nearby Vintage Oaks Subdivision, submitted comments and a hearing request on the WPAP, stating its concern that “[t]he location of this plant’s operations is in close proximity to groundwater wells owned by Texas Water and poses a potential threat to the healthy operation of those

¹⁴ *Id.*

¹⁵ *Id.* at 1.

¹⁶ Smith, 2024 at 2.

wells.”¹⁷ Texas Water Company supplies water from taken 40 Trinity wells and from Canyon Reservoir.

Pursuant to 30 Tex. Admin. Code § 213.5(b)(3), the applicant’s geologic assessment “must identify all potential pathways for contaminant movement to the Edwards Aquifer.” This requirement was not met. Due to the lithologies beneath the proposed quarry site, contaminants will have a very direct and rapid impact on the underlying aquifer.¹⁸ As explained below, there is also concern that contaminated water will make its way to Comal Springs,¹⁹ which is habitat of several, federally protected, endangered aquatic species.

Vulcan failed to identify the numerous potential pathways for contamination that would be created by the massive excavation which it plans to undertake as part of the authorized quarrying activity.

Furthermore, geologist and PHCE Foundation Board Member Jack Olivier found during a review of Vulcan’s WPAP that TCEQ’s January 2012 Best Management Practices (“BMPs”) for Quarry Operations are outdated, including a method of ranking sensitive karst features.²⁰ TCEQ’s BMPs are no longer current with modern scientific work done by the Edwards Aquifer Authority and other scientific agencies.²¹ The TCEQ’s Geologic Assessment method of ranking the sensitivity of karst features protects only cave openings

¹⁷ Bobby M. Salehi Comments and Hearing Request on behalf of the Texas Water Company (Apr. 22, 2024) (included here as Attachment B).

¹⁸ Smith, 2024 at 10.

¹⁹ *Id.* at 9.

²⁰ See Affidavit of Jack Olivier (Attachment I) (citing TCEQ RG-500, <https://www.tceq.texas.gov/downloads/compliance/publications/rg/rg-500.pdf>). Mr. Olivier also submitted comments on the WPAP (Attachment J).

²¹ *Id.*

and some sinkholes, leaving many other feature types unprotected.²² The Relative Infiltration Rate, a critical factor in rating a feature's ability to transmit surface water to the subsurface, is based solely on professional judgement and not scientific evidence.²³ Furthermore, a 2010 study by the Edwards Aquifer Authority using dye-tracing found that in the Edwards Aquifer Recharge Zone in Bexar County, Texas, surface pollution can quickly enter the aquifer *without any visible karst features being present*.²⁴ In fact, Mr. Olivier studied a diesel spill in January 2000 at a quarry site in Comal County and found that diesel contaminated the Edwards Aquifer despite no visible karst features in the area, and contamination from the spill was detected in Comal and Hueco Springs located 4.5 and 6.5 miles away. Based on this evidence of Edwards Aquifer contamination in the recharge zone occurring without any visible karst features, Mr. Olivier concluded that the *entire* Edwards Aquifer Recharge Zone is "sensitive."²⁵

For all these reasons, the Executive Director's decision to approve Vulcan's WPAP does not comply with Rule 213.5(b)(3), and therefore, the ED's decision was arbitrary and capricious, made through unlawful procedure, and in violation of statutory and regulatory requirements. Movants request the TCEQ Commissioners grant this Motion and reverse

²² *Id.*

²³ TCEQ RG-500 at 11, <https://www.tceq.texas.gov/downloads/compliance/publications/rg/rg-500.pdf>.

²⁴ Affidavit of Jack Olivier (Attachment I) (citing Steve Johnson et al., *Tracing Groundwater Flowpaths in the Edwards Aquifer Recharge Zone, Panther Springs Creek Basin, Northern Bexar County, Texas*, Edwards Aquifer Authority, Report No. 10-01 (May 2010), https://www.edwardsaquifer.org/doc_publications/tracing-groundwater-flowpaths-in-the-edwards-aquifer-recharge-zone-panther-springs-creek-basin-northern-bexar-county-texas%E2%BF%BD%E2%BF%BD/).

²⁵ Affidavit of Jack Olivier (Attachment I).

the ED's decision. In the event that the Executive Director's decision to approve Vulcan's WPAP is not overturned, a dye-trace study should be conducted to determine flow paths of groundwater from the site and to determine which downgradient wells might be impacted by contaminants coming from the quarry, as recommended by Mr. Olivier.²⁶

C. The Application does not demonstrate that the quarry bottom will not reach the aquifer beneath, thereby directly contaminating groundwater.

The revised Application states that the Mining Areas will not be mined below 1047 ft-msl.²⁷ TCEQ's BMPs require a 25' separation distance between the floor of the quarry and groundwater.²⁸ This requirement is "based on the maximum propagation of fractures from blasting operation"²⁹ and is meant to afford some protection from mining impacts to the Edwards Aquifer, particularly in the Recharge Zone.

The WPAP does not provide any explanation or factual reference for a quarry floor base elevation of 1047 ft-msl but simply indicates that because it will take 5 to 10 years for the mining activities to reach that level, its proposal is to monitor the local water levels at the local wells and determine how those water levels correlate to established monitored water levels offsite. As Dr. Smith found, this monitoring plan is not, from a hydrology perspective, an adequate substitute for evaluating water levels *before* obtaining the requisite WPAP.³⁰ This monitoring plan is also inconsistent with TCEQ's BMPs. Thus, the

²⁶ Smith, 2024 at 12; *see also* Affidavit of Jack Olivier (Attachment I).

²⁷ General Information Form (TCEQ-0587): Attachment C at 2.

²⁸ TCEQ RG-500: TCEQ Best Management Practices for Quarry Operations (Jan. 2012) at 2.
<https://www.tceq.texas.gov/downloads/compliance/publications/rg/rg-500.pdf>.

²⁹ *Id.*

³⁰ Smith, 2024 at 12.

authorized excavation depth, and the monitoring plan used to justify that depth, fail to meet the requirements of 30 Tex. Admin. Code §§ 213.5(b)(4)(B)(i), (ii), and (iii).

In fact, available water level data from several wells within 600 ft of the Vulcan property boundary shows water levels greater than 1022 ft-msl. *See* Figures 3 and 4 below.

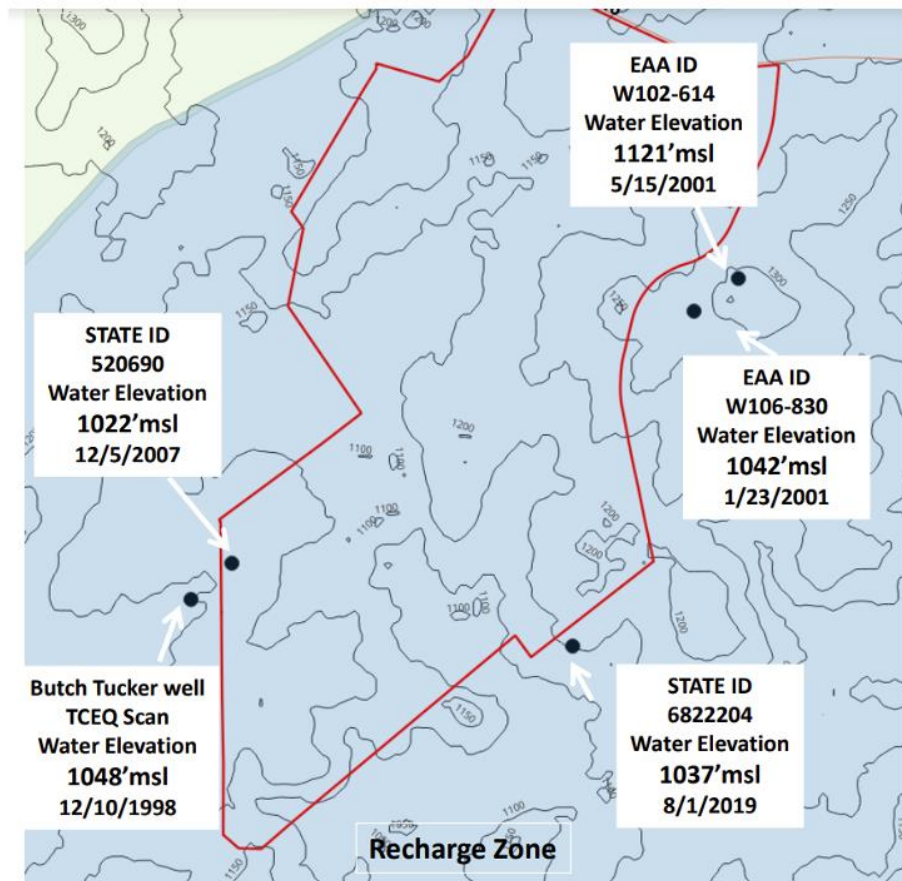


Figure 3, Water Elevation in Wells Near Vulcan³¹

³¹ Base map and data from the Texas Water Development Board Groundwater Database, <https://www.twdb.texas.gov/groundwater/data/gwdbbrpt.asp>; see Declaration of Dr. James David Doyle (Attachment K).

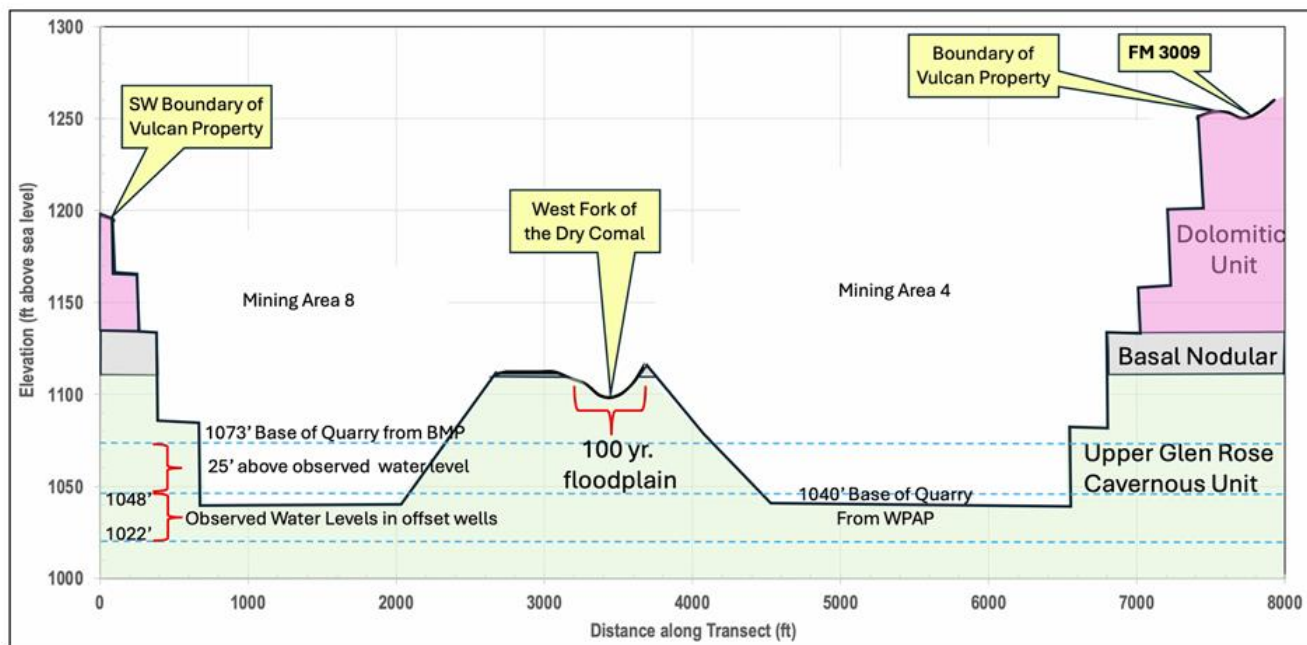


Figure 4, Schematic Cross Section with Estimated Topography after Mining and Water Levels based on Available Data³²

Dr. Smith, along with geologist Dr. Jim Doyle, found that this data demonstrates that the proposed 1047 ft-msl mining floor may lead to increased infiltration of contaminants to the Edwards Aquifer.³³ The aquifer level at any point in time will be determined by a combination of water recharge and withdrawal. Because the water level in this area has exceeded the 1022 ft-msl level four times in 21 years, there is no reason to think it will not happen again over the expected 65 to 90-year life of the quarry.³⁴ In the period from 1990 to 2024, the 25 ft standoff approved by the Executive Director would

³² Smith, 2024 at 11.

³³ Smith, 2024 at 12; Declaration of Dr. James David Doyle (Attachment K).

³⁴ Declaration of Dr. James David Doyle (referencing data from the Texas Water Development Board Groundwater Database). Dr. Doyle also submitted comments on the WPAP (Attachment L).

have been violated four times.³⁵ The Vulcan quarry floor likely would have been flooded two times, directly contributing pollutants to the Edwards Aquifer.³⁶

Such concerns have been experienced at one of Vulcan's other quarry sites, with the Vulcan Quarry near Loop 1604 having previously breached the Edwards Aquifer.

In addition, the proposed a mining pit located in the recharge zone qualifies as a "manmade feature in basement (MB)" which is considered to be sensitive according to the TCEQ rules for sensitive features.³⁷ Just as with caves, large sinkholes, and wells, these features are required to be protected in order to prevent pollution of the aquifer. Such protection is not provided in the WPAP, particularly given the nearness of the pit floor to the water table.

Because Vulcan's excavation depth and well monitoring plan does not comply with 30 Tex. Admin. Code §§ 213.5(b)(4)(B)(i)-(iii), and therefore, the ED's decision was arbitrary and capricious, made through unlawful procedure, and in violation of statutory and regulatory requirements. The ED's decision to approve the WPAP should therefore be overturned.

D. The WPAP wholly fails to account for blasting processes as a potential source of contamination, as required.

As an initial matter, Vulcan's "Project Description" states that there is a proposed buffer zone of only 100 feet adjacent to all neighboring properties. (As a preliminary

³⁵ *Id.*

³⁶ *Id.*

³⁷ *TCEQ-0585-Instructions: Instructions to Geologists for Geologic Assessments on the Edwards Aquifer Recharge/Transition Zones*, (Revised Oct. 1, 2004), <https://www.tceq.texas.gov/downloads/permitting/edwards-aquifer/forms/f-0585-geologic-assessment-instructions.pdf>.

matter, this buffer zone is insufficient to protect those properties.) Vulcan’s “Project Description” also acknowledges that blasting agents will be utilized in the mining process, however, the WPAP does not identify the types of blasting agents or include any plan to control their release.³⁸ In fact, the description contains very little information about the blasting method and potential contaminants period.

Pursuant to 30 Tex. Admin. Code § 213.5(b)(4)(A)(iv), the WPAP must include a technical report that “must describe any activities or processes which may be a potential source of contamination.” The Application includes only a general description of the quarry process:

- Clear
- Strip
- Drill
- Blast
- Load into haul vehicles • Haul to plant
- Process rock at plant
- Load to trucks for export.³⁹

However, in identifying the potential sources of contamination, the Application only identifies temporary sources during construction and potential sources that may affect stormwater discharges from the site after development.⁴⁰ But Rule 213.5(b)(4)(A)(iv) does not allow for such a limited consideration.

³⁸ General Information Form (TCEQ-0587): Attach. C at 1-2.

³⁹ General Information Form (TCEQ-0587): Attach. C at 2.

⁴⁰ See WPAP Application Form (TCEQ-0584): Attach. A at 1; Temporary Stormwater Section (TCEQ-0602): Attach. B.

Elsewhere, Rule 213.5 makes the distinction between contaminants generated only during construction or contaminants that may flow across the site and then flow offsite, as well as the distinction between contaminants of surface water, groundwater, and stormwater. *See, e.g.*, 30 Tex. Admin Code § 213.5(b)(4)(B) (distinguishing between BMPs to be used during and after construction and BMPs to prevent pollution of surface, groundwater, and stormwater). In other words, the requirement to describe activities and processes which may be a potential source of contamination is broad.

Furthermore, TCEQ requires that “BMPs and measures must prevent pollutants from entering surface streams, sensitive features, or the aquifer.” 30 Tex. Admin Code § 213.5(b)(4)(B)(iii). Vulcan’s BMPs do not recognize the threat of nitrate (NO₃) pollution to underlying aquifers caused by the type and large quantities of explosives used in aggregate mining. ANFO, a combination of ammonium nitrate and fuel oil, is a common blasting agent. It is highly soluble in water, and up to 30% of the explosive is not consumed by blasting.⁴¹ Aggregate washing is also a common practice, which can dissolve nitrate and aid its passage into the underlying aquifer. Data from the Texas Water Development Board shows that prior to the mid-1950s, nitrate measurements of well-water samples from the Edwards Aquifer were mostly below 4.4 mg/L NO₃, which was consistent with natural background levels for aquifers.⁴² (*See* Figure 5 below.) Since the mid-1950s, nitrate

⁴¹ Neil Alberts, *Tackling nitrate contamination of water in mines*, MINING.COM (Aug. 11, 2016, 9:12 AM), <https://www.mining.com/web/tackling-nitrate-contamination-of-water-in-mines/>.

⁴² Data collected from the Texas Water Development Board Groundwater Database, <https://www.twdb.texas.gov/groundwater/data/gwdbbrpt.asp>.

measurements in the Edwards have risen steadily such that more than half from 2020 to 2022 were greater than 8 mg/L NO₃.⁴³

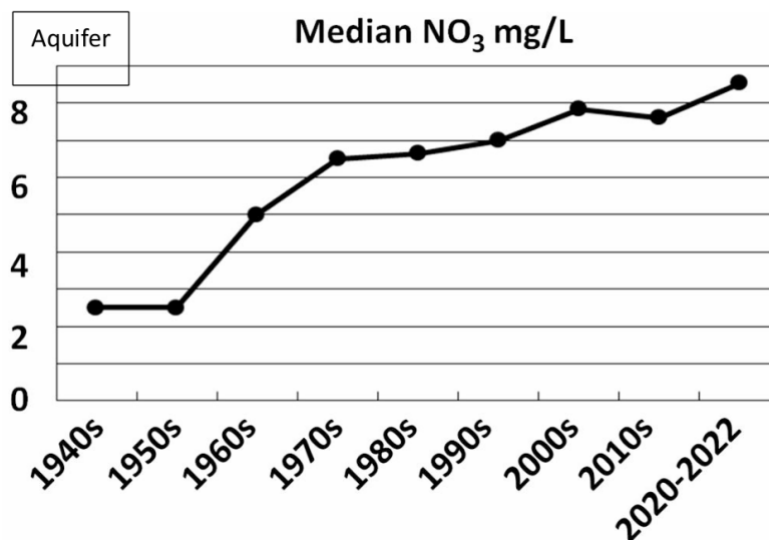


Figure 5, Median Value of Nitrate Measurements in Bexar, Comal, Guadalupe and Hays Counties⁴⁴

Depending on the concentration level, long term exposure to nitrate can be threatening to both humans and aquatic organisms. In particular, prolonged exposure to nitrate levels above the MCL can cause blue-baby syndrome in infants, and pregnant women exposed to high nitrate concentrations may have babies with low birth weights.⁴⁵ TCEQ set the ecological screening benchmark for ammonium nitrate in freshwater at 13 mg/L.⁴⁶ The EPA set the maximum contamination level (“MCL”) for drinking water at 40

⁴³ *Id.*

⁴⁴ Chart prepared by Dr. James David Doyle; *see* Declaration of Dr. James David Doyle.

⁴⁵ Bryan Swistock, *Nitrates in Drinking Water*, PENNSTATE EXTENSION (updated Aug. 26, 2022), <https://extension.psu.edu/nitrates-in-drinking-water>; *see also* Declaration of Dr. James David Doyle.

⁴⁶ TCEQ *Ecological Screening Benchmarks.xlsx*, (2022), <https://www.tceq.texas.gov/remediation/eco> (Surface Water Metals, Inorganic tab; nitrate (NO₃) listed in column A, and the Freshwater Chronic Benchmark (mg/L) in column F).

mg/L N as NO₃ (10 mg/L nitrate as N). 40 C.F.R. § 141.62(b)(7). The well data shown in Figure 6 below demonstrates that while nitrate observations above 40 mg/L in the Edwards Aquifer remain relatively rare, levels above 40 mg/L and above the TCEQ ecological screening benchmark tend to be relatively close to quarries. This suggests that well owners whose wells are unfavorably situated near quarries may experience degraded water quality.⁴⁷ Texas Water Company also owns wells near Vulcan, including 40 Trinity wells, which supply water to thousands of residents, including those in the nearby Vintage Oaks subdivision.⁴⁸ To determine background water-quality conditions, water-supply wells immediately downgradient of the quarry should be sampled and analyzed for nitrates and total petroleum hydrocarbons prior to issuing a permit for the quarry.⁴⁹ The Texas Water Company also submitted public comments asking that upon the commencement of any quarry activities a well monitoring program should be required to test for changes in water levels and contaminant levels.⁵⁰

⁴⁷ See Declaration of Dr. James David Doyle (Attachment K).

⁴⁸ Bobby M. Salehi Comments and Hearing Request on behalf of the Texas Water Company (Apr. 22, 2024) (included here as Attachment B).

⁴⁹ Smith, 2024 at 12.

⁵⁰ Bobby M. Salehi Comments and Hearing Request on behalf of the Texas Water Company (Apr. 22, 2024) (included here as Attachment B).

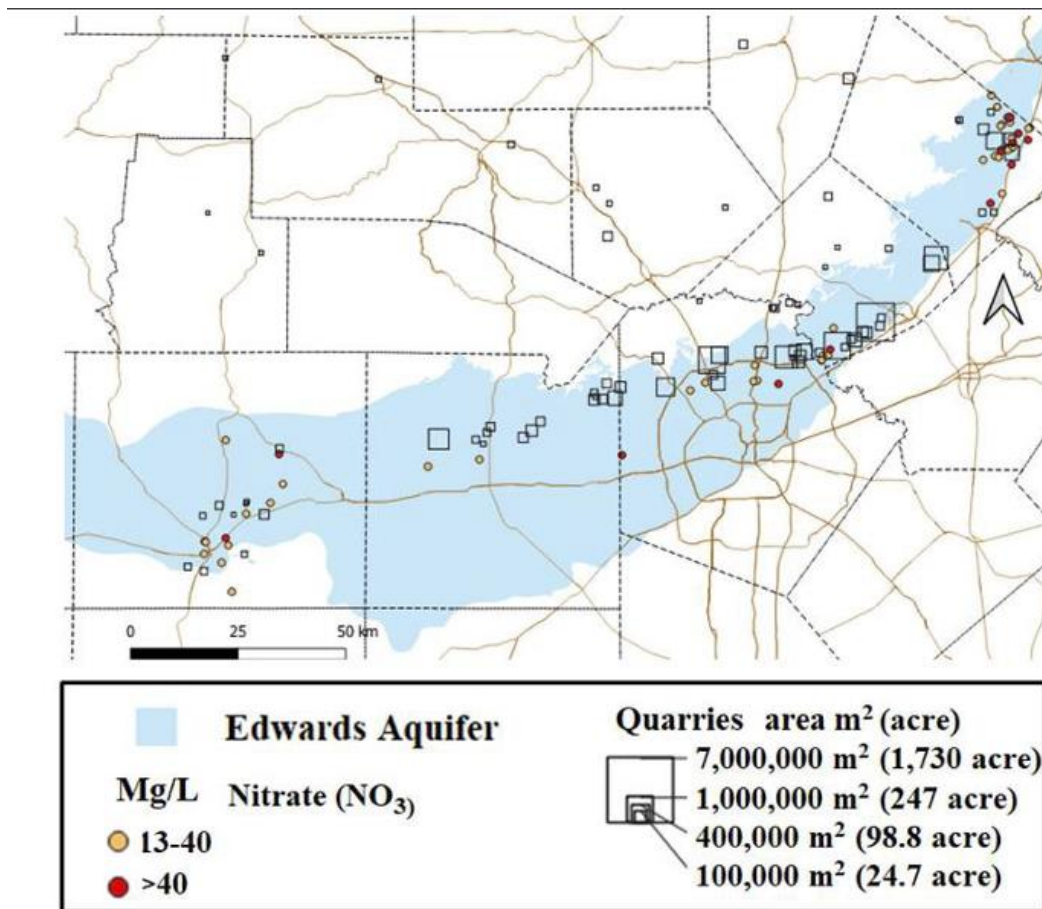


Figure 6, Well Data with Nitrate Measurements above the TCEQ Ecological Screening Benchmark⁵¹

Vulcan's mining will damage the watershed of the West Fork of Dry Comal Creek.⁵²

The February 20, 2024, and July 3, 2024, versions of the Pape-Dawson Exhibit 1 and Exhibit 3 site development drawings submitted as part of the WPAP do not identify the location of the West Fork of the Dry Comal Creek which traverses the quarry development from northwest to southeast. The West Fork is normally dry but carries a large amount of

⁵¹ Map prepared by Dr. James David Doyle (base map from TCEQ; data collected from the Texas Water Development Board Groundwater Database, <https://www.twdb.texas.gov/groundwater/data/gwdbbrpt.asp>); see Declaration of Dr. James David Doyle.

⁵² Affidavit of Jack Olivier.

water during major flood events, which are frequent in the Hill Country area.⁵³ The West Fork of the Dry Comal Creek is an environmentally significant feature. The drawings identify the 100-Year floodplain which incorporates the West Fork of the Dry Comal Creek. Mining will leave the West Fork elevated between pits.

The West Fork of the Dry Comal Creek will become "perched" as Mining Areas 4, 8, 9 and 7 are excavated and while there will be a 25-foot-wide floodplain buffer, geological fractures within the West Fork of the Dry Comal Creek may connect with the mining areas and allow flood water flowing in the West Fork of the Dry Comal Creek to "leak" into one of more of the mine areas and thus become polluted and drain into the underlying aquifer. "Perching" of a dry creek bed within a proposed quarry development over the Edwards Aquifer Recharge Zone may be a "first" for the Edwards Aquifer Authority. During major flood events, surface water can be expected to enter the pits, washing any pollutants—including ANFOs—into the underlying aquifers⁵⁴, in violation of TCEQ Rule 213.5(b)(4)(B)(i)-(iv).

Vulcan's Application does not describe in any way the activities and processes that may be a potential source of contamination of the blasting agent, such as ANFO, and neither does the WPAP propose measures to protect the Edwards Aquifer from such contamination. For these reasons, the Application fails to comply with 30 Tex. Admin. Code § 213.5(b)(4)(A)(iv), and the ED's decision to approve the WPAP was arbitrary and

⁵³ *Id.*

⁵⁴ *Id.*

capricious, made through unlawful procedure, and in violation of statutory and regulatory requirements. The ED's decision to approve Vulcan's WPAP should therefore be overturned.

Furthermore, the groundwater flow paths from the Vulcan site need to be determined before the commencement of mining operations. Currently, there is no evidence showing exactly where the nitrate pollution will go, and which water wells will be most at risk of contamination. The best way to do this is by conducting a dye trace study similar to the one done by the Edwards Aquifer Authority in Bexar County, Texas.⁵⁵

Finally, no details are included in the WPAP as to how Vulcan intends to "abandon" and "reclaim" the 1,515-acre quarry development area over the Edwards Aquifer Recharge Zone and its nine (9) mining areas when the site is no longer economically viable to the company. This is likely to result in contamination of groundwater and surface water in violation of TCEQ Rule 213.5(b)(4)(B)(i)-(iv).

V. The blasting method involves the drilling of a borehole and placement of a fluid within that borehole, thereby constituting the installation and operation of an underground injection well, which is prohibited by the TCEQ Rules.

The boreholes which Vulcan proposes to complete and insert ANFO within constitute injection wells which are prohibited over or through the Edwards Aquifer pursuant to the TCEQ rules.

⁵⁵ Steve Johnson et al., *Tracing Groundwater Flowpaths in the Edwards Aquifer Recharge Zone, Panther Springs Creek Basin, Northern Bexar County, Texas*, Edwards Aquifer Authority, Report No. 10-01 (May 2010), https://www.edwardsaquifer.org/doc_publications/tracing-groundwater-flowpaths-in-the-edwards-aquifer-recharge-zone-panther-springs-creek-basin-northern-bexar-county-texas%EF%BF%BD%EF%BF%BD/.

Under the TCEQ rules, an “injection well” would include a shaft into which a material which moves is injected. Under 30 Tex. Admin. Code § 213.3(39), “well” is defined as “A bored, drilled, or driven shaft, or an artificial opening in the ground made by digging, jetting, or some other method, where the depth of the well is greater than its largest surface dimension. A well is not a surface pit, surface excavation, or natural depression”). TCEQ’s regulations governing injection wells define the term “well” in a similar manner. 30 Tex. Admin. Code § 331.2(120). In relevant part, TCEQ’s injection well regulations define an “injection well” is “a well into which fluids are being injected.” 30 Tex. Admin. Code § 331.2(59). In turn, a “fluid” is a “material or substance which flows or moves whether in a semisolid, liquid, sludge, gas or any other form or state.” 30 Tex. Admin. Code § 331.2(47)

The boreholes used for blasting are “wells,” since they are bored shafts with a depth greater than their largest surface dimension. The ANFO placed within these wells constitutes a “fluid” since it is a material which flows or moves. In fact, the movement of this ANFO into surrounding formations has been repeatedly documented.

TCEQ’s own Edwards Aquifer regulations clearly and unambiguously prohibit such an injection well in the Edwards Aquifer:

For applications submitted on or after September 1, 2001, injection wells that transect or terminate in the Edwards Aquifer, as defined in § 331.19 of this title (relating to Injection Into or Through the Edwards Aquifer), are prohibited except as provided by § 331.19 of this title.

30 Tex. Admin. Code § 213.8(c).

Vulcan's planned blasting method constitutes the completion of an injection well into the Edwards Aquifer in contravention of the TCEQ Rules. Therefore, the ED's decision to approve the WPAP was arbitrary and capricious, made through unlawful procedure, and in violation of statutory and regulatory requirements. Movants request the TCEQ Commissioners grant this Motion and reverse the ED's decision.

VI. The Quarry and related activity will cause illegal harm to threatened and endangered species.

The Vulcan Quarry activities will harm numerous threatened and endangered species, particularly aquatic species, because they are most sensitive to elevated nitrate levels in water. As previously explained, limestone aggregate quarries use large quantities of ANFO as their primary explosive, which is a combination of ammonium nitrate (fertilizer) and diesel fuel. Ammonium nitrate is highly soluble in water, and up to 30% of the explosive is not consumed by blasting.⁵⁶ Depending on the concentration level, long term exposure to nitrate can be threatening to aquatic organisms, which may have lower tolerances for nitrate than humans.⁵⁷ As stated previously, TCEQ set the ecological screening benchmark for ammonium nitrate in freshwater at 13 mg/L.⁵⁸ As shown in Figure 6 above (demonstrating well data with nitrate measurements above the TCEQ ecological

⁵⁶ Neil Alberts, *Tackling nitrate contamination of water in mines*, MINING.COM (Aug. 11, 2016, 9:12 AM), <https://www.mining.com/web/tackling-nitrate-contamination-of-water-in-mines/>.

⁵⁷ See Declaration of Dr. James David Doyle.

⁵⁸ *TCEQ Ecological Screening Benchmarks.xlsx*, (2022), <https://www.tceq.texas.gov/remediation/eco> (Surface Water Metals, Inorganic tab; nitrate (NO₃) listed in column A, and the Freshwater Chronic Benchmark (mg/L) in column F).

screening benchmark), the majority of recent observations of nitrate have reached a level that may pose a threat to sensitive organisms living within the karstic Edwards.⁵⁹

Dr. Smith's report also found that reduced flows have negative impact on the ecology immediately in the spring area and downstream stretches,⁶⁰ including endangered species. Therefore, Vulcan's use of groundwater may contribute to a violation of the Endangered Species Act. Moreover, decreased groundwater availability increases the potential for contamination from various sources,⁶¹ in violation of Edwards Aquifer Protection Plan regulations found in TCEQ Rule 213.1.

Under the Endangered Species Act, no person may "take" an endangered species. 16 U.S.C. § 1538(a)(2). Such a take includes "harm" to a species, which encompasses an act which degrades habitat in a manner which injures wildlife. 40 C.F.R. § 17.3. Vulcan's proposed activities, authorized by approval of the WPAP, could result in such a prohibited take. Because of the ecological sensitivity of this location (in the Recharge Zone) to groundwater contamination, pollution (nitrates) from the Vulcan mining activities is highly likely to enter the Edwards Aquifer and potentially make its way to Comal Springs and Hueco Springs in Comal County via identified flow paths and even further downgradient to San Marcos Springs in Hays County.⁶² Notably, TCEQ is not a holder of the incidental take permit issued which under certain conditions authorizes activities that would harm endangered and threatened species. Thus, issuance of the WPAP does not provide coverage

⁵⁹ See Declaration of Dr. James David Doyle.

⁶⁰ Smith, 2024 at 11.

⁶¹ *Id.*

⁶² See Smith, 2024 at 9.

under that permit and provides no justification for the harming of endangered species by the activities authorized.

The Comal Springs and its ecosystem is home to threatened and endangered aquatic species that are dependent upon sufficient water quantity and quality for their continued survival, including the Fountain Darter (*Etheostoma fonticola*), Comal Springs dryopid beetle (*Stygoparnus comalensis*), Comal Springs riffle beetle (*Heterelmis comalensis*), and Peck's cave amphipod (*Stygobromus pecki*). In 2013, the U.S. Fish & Wildlife Service enlarged the critical habitat for the Comal Springs dryopid beetle, Comal Springs riffle beetle, and the Peck's cave amphipod that live in the Comal Springs complex to specifically include subsurface critical habitat. *See* 78 Fed. Reg. 63100.

Vulcan's BMPs do not constitute a defense or an excuse for violations of the Endangered Species Act. Because Vulcan's WPAP does not accurately assess the high potential for contamination that could jeopardize listed species, and therefore does not provide for protections to avoid the take of listed species, the ED's decision was arbitrary and capricious, made through unlawful procedure, and in violation of statutory and regulatory requirements. Therefore, the Executive Director's decision to approve Vulcan's WPAP should be overturned.

VII. Conclusion

For the reasons listed above, Movants request the TCEQ Commissioners grant this Motion, reverse the ED's decision, and deny the WPAP. In the alternative, the ED should provide proper notice of the WPAP—both mailed and published in a local newspaper—

and reopen the comment period to allow the affected public a meaningful opportunity to comment on the WPAP and participate in a public meeting.

Respectfully submitted,

/s/ Eric Allmon

Eric Allmon

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Lauren Alexander

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laalexander@txenvirolaw.com

PERALES, ALLMON & ICE, P.C.

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512-482-9346 (f)

CERTIFICATE OF SERVICE

By my signature, below, I certify that on July 31, 2024, a true and correct copy of the foregoing document was filed with the TCEQ Office of the Chief Clerk and served upon the parties listed below via electronic mail.

/s/ Eric Allmon
Eric Allmon

FOR VULCAN CONSTRUCTION MATERIALS, LLC:

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Caleb Chance, P.E.
Pape-Dawson Engineers, Inc.
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FOR THE EXECUTIVE DIRECTOR:

Lori Wilson, Regional Director
TCEQ Regional Office – Austin
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FOR THE OFFICE OF PUBLIC INTEREST COUNSEL:

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EXHIBIT C
TO ORIGINAL PETITION

Reply to Responses filed by OPIC, Vulcan Materials, and ED for WPAP No. #13001906, TCEQ Docket No. 2024-1115-EAQ, for operation of a quarry in Comal County, Texas.

In response to OPIC, Vulcan Materials, and the ED:

1. It is my understanding after reading the above responses to my MTO (Attachment 1) that the three entities mentioned above acknowledge that:

I, Kira Olson, am a “Movant” and did submit my MTO in a timely manner and am considered “affected” (per OPIC below)

Per OPIC: “As a preliminary matter, OPIC finds that each of the Movants has raised material and relevant issues of fact under the Commission’s jurisdiction and reside in sufficient proximity to the proposed activity to be found a person affected under 30 TAC § 213.1(3). OPIC therefore finds that the Movants have the right to seek Commission review of the ED’s approval, in addition to any rights of judicial review”

2. Per OPIC: “Lastly, unless a local state legislator makes a request, public meetings are held at the discretion of the ED and are not mandatory”

Attached are letters (Attachments 2, 3, 4, and 4) from Senator Donna Campbell, District Representative Carrie Isaac, and Comal County Commissioner Scott Haag requesting a public meeting and a response was given from Kelly Keel, Executive Director TCEQ, not allowing the opportunity of a public meeting when that is an available tool for TCEQ to protect the public and natural resources of Texas, specifically over the Edwards Aquifer Recharge Zone.

3. Dates for timely responses not recognized by TCEQ’s own rules create an appearance of intent to deceive the public.

If it had not been asked for by movants and confirmation given by TCEQ that public comments received on the following business day from a weekend deadline would not be accepted as timely, important comments would not have been considered timely and therefore not considered at all. Attorney had to remind TCEQ of their own rules and issue a letter (attached) in order for public comments to be considered as timely. A PIR was necessary to receive these comments (Attachment 5) and not all comments were given until additional PIR (Attachment 6), and documents were provided (Attachment 7). Also in question was the name of file labeled as “confidential” for public comments. A public comment should not be labeled as “confidential”.

In question is the lack of transparency of TCEQ. I only received one public comment the first time I submitted a PIR and two when I submitted a second PIR for the same date. I question if there were more unaccounted Public Comments that were labeled as confidential or hidden since they were not able to be publicly viewed online. See attached email exchange, letter, public comments. Over 780 public comments were submitted.

4. To assume the “notice provided by the EAP Program” as suggested in the following statement from the ED is inappropriate and inaccurate as the response from the public most likely came from outreach by PHCE and concerned residents who shared posts/emails by PHCE via social media.

“The EAP Program did provide notice of Vulcan’s WPAP application, as numerous comments were received and then reviewed for relevance after a 30-day distribution of the notice was provided according to the provisions of 30 TAC§ 213.4(a)(2)”.

In addition to the many residents who have been kept informed by PHCE, there are several residents who have never heard of the intended quarry, let alone, the WPAP, and who live near and around the quarry property. They most likely do not even know who the TCEQ is or how to follow the process of the WPAP and MTO.

5. Groundwater/Surface water concerns

Per ED: TECHNICAL REVIEW OF APPLICATION AND ASSOCIATED APPROVAL

“For protection of the existing and potential uses of groundwater and to ensure the Texas Surface Water Quality Standards are maintained, the EAP Program regulates activities with the potential to pollute the Edwards and its hydrologically connected surface streams. The protection to the Edwards from a WPAP is the protection against sediment disturbed during regulated activities. Increased sedimentation in karst features and streams can decrease permeability of the water-bearing limestone and inhibit natural groundwater flow, possibly affecting the recharge of the Edwards. A WPAP also protects against pollution of the Edwards from contaminants in the sediment.”

“The solution to pollution is dilution”. Decreasing the amount of groundwater available would subsequently open the opportunity for an increase in pollution especially but not limited to Nitrates, specifically Ammonium Nitrate Fuel Oil (ANFO). Science already included but here as well: <https://www.stop3009vulcanquarry.com/wp-content/uploads/2024/04/hydrogeology-vicinity-proposed-vulcan-quarry-comal-county-texas.pdf>. ANFO is extremely detrimental to neighboring wells such as mine (Attachment 8), aquatic species, and to the more than 2.5 million people that rely on our aquifers for drinking water.

Our local economy is based heavily on tourism. Having our water polluted with detrimental chemicals will have a heavy impact on our community’s livelihoods. From the Economy Study: https://herald-zeitung.com/news/river-recreation-memorial-day-weekend-marks-unofficial-start-of-tourism-season-in-new-braunfels/article_7f815b66-1866-11ef-9708-b711522bf23c.html?

Per Vulcan Materials:

“Vulcan’s approved WPAP is an authorization to conduct certain regulated activities over the Edwards, but mining or blasting are not specifically WPAP-regulated activities. TCEQ rules define “regulated activity” as “any construction-related or post-construction activity on the recharge zone of the Edwards Aquifer having the potential for polluting the Edwards Aquifer and hydrologically connected surface streams. Movants’ assumptions in their MTOs that any mining or blasting at the Site will automatically result in pollution of the Edwards Aquifer and hydrologically connected surface streams are speculative and unsubstantiated.”

This statement is contradictory to the ED’s statement above in that these activities will in fact disrupt the infrastructure/sediment of the whole area being disrupted over the EARZ. Let us not forget that the West Fork Dry Comal Creek is present on property as well. There exist several points of which our surface and groundwater will be affected in times of discharge and flood.

6. Sensitive Features/Caves

Vulcan Materials specifies “Seven sensitive, natural geologic features were identified and included in the GA, including three caves.” These are manmade assumptions over 1500+ acres. I question the thoroughness of the geologic assessment. This low number is highly questionable. I live adjacent to this property and have several sensitive areas which all act as a direct funnel to our aquifer system as stated in science already submitted by myself, attorneys for PHCE, and other movants. Vulcan Materials will create its own manmade funnel into the aquifer system in addition to having existing natural sensitive features. This area is not appropriate for a quarry because of its geologic makeup and being located entirely over the EARZ. See another property with 38 sensitive features on its GA, directly across from the intended quarry:

https://www.cceo.org/environmental/documents/WPAP/Bigbee_Tract_Subdivision.pdf

Vulcan Materials states, “A physical field study is essential to conducting a GA or opining about geologic or manmade features on land.” If this is true, then this potential quarry and all quarries nearby would need to be evaluated independently by a third approved party and added in to assess the harm it would do to the community affected and included in an accumulative impact for an air and water permit.

7. Endangered Species

Vulcan Materials has said in their response that endangered species are not part of the jurisdiction of the WPAP. Endangered Species need to be protected as they are present in air, land, and water. The Edwards Aquifer Authority was formed because endangered species that rely on the springs are in danger of being affected and in this case must be protected. The Texas Legislature created the Edwards Aquifer Authority as the regulatory agency overseeing groundwater in the Edwards Aquifer and needs to be addressed. See: <https://www.edwardsaquifer.org/habitat-conservation-plan/>

8. Lt. Governor Dan Patrick – Pause on Cement Kiln in Grayson Co.

The concerns stated by Lt. Governor Dan Patrick should be heeded as this specific plant includes a quarry and warrants a more in-depth look into the dangers quarries will bring to the community and its natural resources. <https://www.ltgov.texas.gov/2024/04/16/lt-gov-dan-patrick-sends-letter-to-texas-commission-on-environmental-quality-tceq-chairman-jon-niermann/>

9. Wrong Link on Letter of Extension

“Movants may file a reply brief with the Chief Clerk’s Office no later than Friday, September 6, 2024. The response and reply briefs may be filed electronically at <http://www10.tceq.state.tx.us/epic/efilings/> or by filing the original with the Chief Clerk of the TCEQ. The parties must also mail a copy of the response briefs to all other persons on the attached mailing list on the same day the briefs are submitted to the Office of Chief Clerk.”

The inconsistencies and lack of transparency by TCEQ are hindering the movants in being able to be part of this process. If TCEQ cannot properly address these issues and take proper consideration of the movants and the science provided, permits need to be halted until such corrective action and consideration can be taken.

Conclusion:

These are all appropriate issues to raise in a challenge of a WPAP. Denial of the MTOs is not appropriate because Movants have demonstrated that the ED's decision, her approval of the Application, contained deficiencies that require overturning the ED's decision. Several concerns and scientific findings have been submitted by the movants and professionals and are being cast aside. These scientific findings were included in my public comment and/or MTO, PHCE/PHCE Foundation, PAI, and Texas Water Company (Attachment . I asked for the science to be heard in my public comment/MTO. The denial by Vulcan Materials and OPIC lie in the same, to ignore concerns and proof, deeming them "baseless". In the following statement offered by Vulcan Materials: "If a movant's MTO fails to meet the legal standards for specificity, the movant may not supplement its MTO complaints in a reply brief to get a "second bite at the apple." Vulcan promises to be a good neighbor but does not hold the community's health and safety in mind when science would prove otherwise. The purpose of a reply brief is to answer and elaborate upon the questioning of our claims to keep Texas safe and healthy. If you'd like further information on the property itself, you will have to allow an agreed upon third party to evaluate the whole property. Conducting studies such as a "dye trace" study would allow the community to trust that this company does indeed have the community's best interests in mind because that is what "responsible" means.

All science provided by PHCE/PHCE Foundation, Kira Olson MTO/Public Comment, Milann and Prudence Guckian, PAI Attorneys in representation of landowner group and PHCE/PHCE Foundation need to be included in my MTO/Response.

Respectfully,



Kira Olson
245 Saur Rd.
Bulverde, TX 78163
210-889-4657

I am hereby requesting a Motion to Overturn the Executive Director's decision regarding TCEQ Docket NO: 2024-1115-EAQ, Program ID NO. 13001906.

Reasons for which the WPAP – EAPP permit for Vulcan Materials should be overturned:

1. Lack of notification/information provided by the TCEQ. I am an adjacent property owner and could not follow the TCEQ-EAPP process without multiple and incomplete Public Information Requests, phone calls, and emails. Response to my request for a public meeting and request for a contested case hearing as an affected party was not given and therefore, ignored. Through a Public Information Request, found over 780 public comments/requests were submitted in addition to state and county representatives, and other organizations).

2. Our families deserve to have a reliable and pure water supply, clean air, and a safe environment. Comal County already has problems with water availability (many wells have gone dry) and stands a high risk of water pollution which can lead to our residents/tourists, farm animals, endangered species (such as Golden Cheeked Warbler, the Comal Springs Riffle Beetle, and the Fountain Darter) and others having severe health issues that may lead to death. Until the needs of area residents, who have had their wells dry up, are addressed and met, additional water permits should be halted in order to supply (a clean source of water) to what is currently in place.

Dye trace studies must be conducted in order to make informed decisions upon this type of industry being brought into our/any community. See the following report:

<https://www.stop3009vulcanquarry.com/wp-content/uploads/2024/04/hydrogeology-vicinity-proposed-vulcan-quarry-comal-county-texas.pdf>

a. Groundwater-Vulcan's proposed open-pit limestone mining operation is intended to operate entirely over the environmentally sensitive Edwards Aquifer Recharge Zone which is the primary water supply for over two million people, including the cities of San Antonio and New Braunfels.

b. Surface Water-The West Fork Dry Comal Creek runs through the property ultimately joining with the Comal River in New Braunfels. The Comal River is fed by springs from the Edwards Aquifer and is home to several endangered species. It then discharges into the Guadalupe River.

Vulcan has a poor track record (<https://www.stop3009vulcanquarry.com/wp-content/uploads/2018/02/vulcan-violations.pdf>) in addition to one in 2022 and 2023 as stated in the following report made by kxan - <https://youtu.be/Kd2tdskQH2A?si=WY9p7dqyywxSbPj>). We stand a high risk of ammonium nitrate fuel oil (ANFO) amongst other pollutants leaking into our water supply via groundwater and surface water.

My husband and I, along with our two daughters, share a back fence line with this property and rely upon our water well to service our ranch, and all its inhabitants. Our well is located less than 600 feet from this intended quarry. The amount of water it takes for a quarry to operate is astronomical, and if allowed to deplete our aquifer, would put us at a much higher risk of our well drying up. We have multiple sinkholes on our ranch that would indicate access to the groundwater system. If in times of flooding, water/pollutants from the intended quarry comes onto our land, this water could pollute our land/water supply. My family, guests, and animals would stand a higher chance of becoming ill and/or dying.



Mining area in dark green on Vulcan map with approx. location of property.

3. Comal County is famous for all the Texas Hill Country has to offer including recreational swimming and tubing, hiking, fishing, and many other outdoor pursuits. Businesses in Bulverde/Spring Branch, Gruene and New Braunfels rely upon tourists for income. In 2022, a “local economic study showed a \$1.1 billion economic impact from hospitality”. See: https://herald-zeitung.com/news/river-recreation-memorial-day-weekend-marks-unofficial-start-of-tourism-season-in-new-braunfels/article_7f815b66-1866-11ef-9708-b711522bf23c.html? Dry Comal Creek and Comal River are essential natural resources in Comal County, supporting economic development and recreation in the city, as well as agricultural operations and wildlife throughout the area. If any of our water sources becomes polluted or is irreparably harmed, others are in danger as well.

4. Vulcan also has a subsidiary railroad called Southwest Gulf Railroad and used eminent domain in Medina County to create a spur in order to transport material off site. Is this in store for Comal County and what ill effect would this have on surrounding properties?

I ask that you heed the concerns of residents/professionals who have provided you with up-to-date science and protect the residents of Texas by granting a Motion to Overturn, shutting this permit down and placing a moratorium on this and similar cases.

Thank you for your assistance in this matter,

Kira Olson
245 Saur Rd.
Bulverde, TX 78163
210-889-4657
Kirafallspring@gmail.com

Attachments 2, 3, and 4 on next page



Donna Campbell, M.D.

Texas State Senator
District 25

April 16, 2024

Laurie Gharis, Chief Clerk, MC-105
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

Dear Chief Clerk Gharis,

I am writing on behalf of the constituents living near the proposed Vulcan Quarry on FM3009 in the New Braunfels and Bulverde area of Comal County, Texas. I would like to request a public meeting regarding PROPOSED PERMIT FOR AIR QUALITY NO. 13001906. The constituents have a myriad of questions and concerns they do not feel have been addressed.

Our responsibility to protect the Texas air, water, and natural resources, such as the Edwards Aquifer, while balancing economic development is an integral reason in having a public meeting with all parties involved.

With that in mind, I respectfully request TCEQ hold a public meeting at the earliest possible convenience to discuss the permit filed by the Vulcan Quarry.

I respectfully request that my office continue to be informed on activity regarding proposed permit No. 13001906.

Sincerely,

A handwritten signature in black ink that reads "Donna Campbell".

Senator Donna Campbell, M.D.
Senate District 25

Capitol Office:
Room 3E.18
P.O. Box 12068
Austin, Texas 78711
(512) 463-0125
Fax: (512) 463-7794



April 23, 2024

Laurie Gharis, Chief Clerk, MC-105
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

RE: Public Concern over Vulcan Materials Company and Heidelberg Materials Quarries in Comal County

Chief Clerk Gharis,

On behalf of the offices of Senator Donna Campbell of Senate District 25 and Representative Carrie Isaac of House District 73, we would like to formally request that parties from both Vulcan Materials Company and Heidelberg Materials that operate quarries within Comal County and have recently requested permits from the Texas Commission of Environmental Quality (TCEQ) conduct a public meeting with members of TCEQ and the general public.

Our responsibility to protect Texas air, water, and natural resources, such as the Edwards Aquifer, while balancing the necessities for state infrastructure and economic development these quarries provide is an integral reason we request this public meeting with all parties involved.

With that in mind, we respectfully request TCEQ to hold a public meeting at the earliest possible convenience to discuss the permits filed by Vulcan Materials Company and Heidelberg Materials.

Additionally, we request that our offices continued to be informed on activity regarding any proposed permits.

Sincerely,

A handwritten signature in black ink that reads "Donna Campbell".

Senator Donna Campbell, M.D.
Senate District 25

A handwritten signature in black ink that reads "Carrie Isaac".

Representative Carrie Isaac
House District 73



Scott Haag
Commissioner Precinct #2
100 Main Plaza
New Braunfels, Texas 78130
830-221-1102
Email: haagsc@co.comal.tx.us

April 21, 2024

Executive Director Kelly Keel, MC 109
TCEQ
P.O. Box 13087
Austin, TX 78711-3087

Regional Director George Ortiz
TCEQ
14250 Judson Road
San Antonio, Texas 78233-4480

Ms. Kelly and Mr. Ortiz,

I am writing about TCEQ Edwards Aquifer Permit (Water Pollution Abatement Plan) # 13001906 dealing with Vulcan Materials Company quarry at SH 46 and FM 3009 in Comal County.

I am formally requesting a public meeting be held on this permit application so Comal County citizens can voice their concerns about this permit.

Respectfully submitted,

Scott Haag
Comal County Commissioner Pct #2
150 N. Seguin Ave
New Braunfels, Tx 78130

Attachment 5

PIR

EAPP <eapp@tceq.texas.gov>
To: Kira Olson <kirafallspring@gmail.com>

Mon, Jun 10, 2024 at 12:16 PM

Kira,

I have attached the April 22, 2024 public comments requested.

Please let me know if you need any other comments.

Monica Reyes

Team Lead | Edwards Aquifer Protection Program


[14250 Judson Road | San Antonio, Texas 78233](#)

Email: monica.reyes@tceq.texas.gov | Phone: (210) 403-4061 | Fax: (210)545-4329

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2 attachments

 **EDAQ_13001906_Permits_Agency-Confidential_20240422_Public
Comments_7102660_.pdf**
OK

 **EDAQ_13001906_Permits_Agency-Confidential_20240422_Public
Comments_7102660.pdf**
470K

Attachment 6
PIR 94628

Norma Rodriguez <Norma.Rodriguez@tceq.texas.gov>

Fri, Jun 14, 2024 at 9:31
AM

To: Kira Olson <kirafallspring@gmail.com>

Hello,

I am not sure why it is blank. I am able to open it. I have attached the them here for you.

Have a good day.

Thank you,

Norma Rodriguez

Administrative Assistant

Central Texas Area Division

From: Kira Olson <kirafallspring@gmail.com>

Sent: Friday, June 14, 2024 9:14 AM

To: Norma Rodriguez <Norma.Rodriguez@tceq.texas.gov>

Subject: Re: PIR 94628

Good morning Norma,

I see that file, but there's nothing in it except what is shown here. Please see attached. This is the only day (April 22,2024)I requested on my PIR. I had all the other files already.

Kira Olson

210-889-4657

On Jun 14, 2024, at 8:59 AM, Norma Rodriguez <Norma.Rodriguez@tceq.texas.gov> wrote:

Good morning Ms. Olson,

Your request for **April 22, 2024** was included in the files that were sent via FTPS.

<image001.png>

[Quoted text hidden]

2 attachments



EDAQ_13001906_PA_ACONF_20240422_Public Comments.pdf
3022K



Graves Dougherty Hearon & Moody.pdf
61K

Attachment 7 On next page.

PERALES, ALLMON & ICE, P.C.
ATTORNEYS AT LAW
1206 San Antonio Street
Austin, Texas 78701
(512) 469-6000 • (512) 482-9346 (facsimile)
info@txenvirolaw.com

Of Counsel:
David Frederick
Richard Lowerre
Vic McWherter

May 22, 2024

Ms. Kelly Keel
Executive Director
Texas Commission on Environmental Quality
P.O. Box 13087, MC 109
Austin, Texas 78711-3087

Ms. Lillian Butler
Section Manager, Edwards Aquifer Protection Program
Texas Commission on Environmental Quality
Region 11 Office – Austin
P.O. Box 13087, MC R11
Austin, Texas 78711-3087

Via E-mail: Kelly.Keel@tceq.texas.gov, Lillian.Butler@tceq.texas.gov

**RE: Timeliness of Comments regarding Application of Vulcan Construction Materials LLC for
Edwards Aquifer Permit No. 13001906.**

Dear Ms. Keel and Ms. Butler:

Our Firm, on behalf of Preserve Our Hill Country Environment and its sister organization, Preserve Our Hill Country Environment Foundation (jointly, “PHCE”), previously filed comments regarding the above-referenced Application on April 22, 2024.

It has come to our attention that the TCEQ may be erroneously treating these comments as if they are not timely.

The deadline to submit comments on the above-referenced Application was April 22, 2024. The Application was distributed to local governmental entities on March 22, 2024. At 30 Tex. Admin. Code § 213.4(a)(2), the applicable rules state that any person may file comments within 30 days of the date the application is mailed to local governmental entities. That date fell on April 21, 2024, which was a Sunday. At 30 Tex. Admin. Code § 1.7, the TCEQ rules provide that when the period of

time allowed under the TCEQ rules falls on a Saturday, Sunday, or legal holiday on which the office of the chief clerk is closed, then the period runs until the end of the next day that is not a Saturday, Sunday or legal holiday on which the office of the chief clerk is closed.

Thus, pursuant to 30 Tex. Admin. Code § 1.7, all comments received by the TCEQ with regard to the above-referenced Application on or before April 22, 2024 are timely, must be treated as timely, must be considered by the TCEQ staff, and must be included in the administrative file as timely comments on the Application.

Please respond to confirm that all comments submitted on or before April 22, 2024 with respect to the above-referenced Application are being treated as timely by the TCEQ.

Respectfully submitted,

/s/ Eric Allmon

Eric Allmon

State Bar No. 24031819

eallmon@txenvirolaw.com PERALES,

ALLMON & ICE, P.C.

1206 San Antonio Street

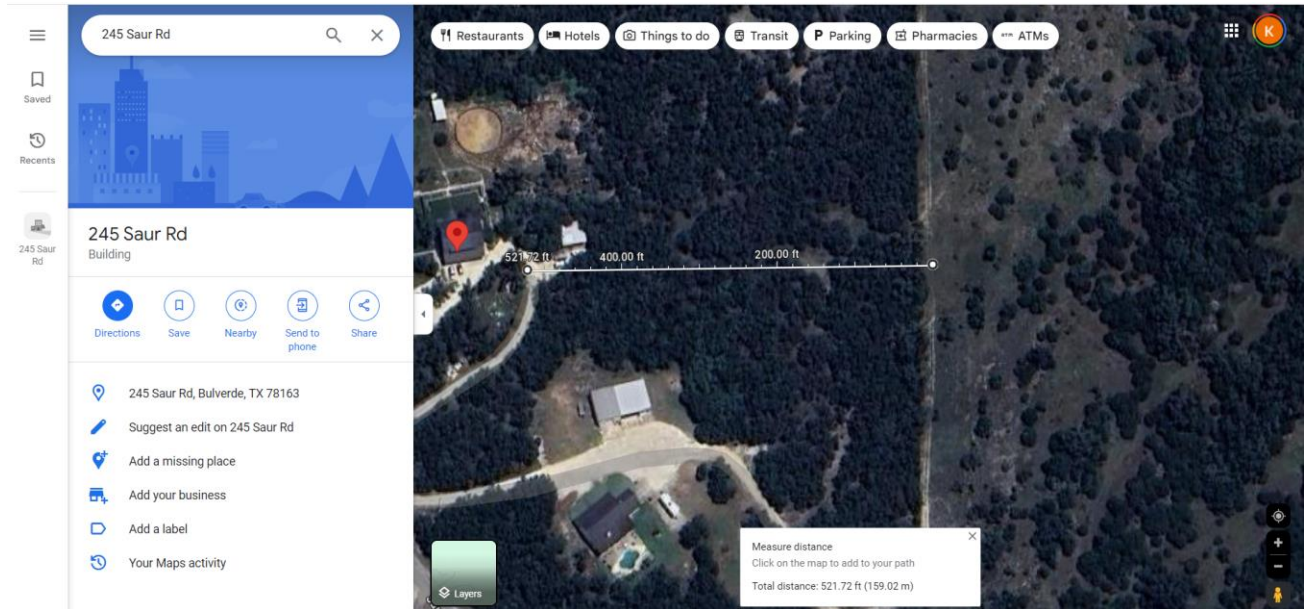
Austin, Texas 78701

512-469-6000 (t)

512-482-9346 (f)

*Counsel for Preserve Our Hill
Country Environment*

Attachment 8



Attachment 9 Texas Water Company Public Comment



Bobby M. Salehi
512.480.5638
512.480.5838 (fax)
bsalehi@gdhm.com

MAILING ADDRESS:
P.O. Box 98
Austin, TX 78767-9998

April 22, 2024

Filed Electronically

Edwards Aquifer Protection Program
eapp@tceq.texas.gov
Ms. Lillian Butler
TCEQ Region 13, San Antonio Office
14250 Judson Rd
San Antonio TX 78233-4480

RE: Public Comments on Vulcan Comal Quarry Water Pollution Abatement Plan (the
“Plan”)

Dear Ms. Butler:

This public comment on the above-referenced water pollution abatement plan is made on behalf of the Texas Water Company (“Texas Water”). Texas Water requests the Texas Commission on Environmental Quality (“TCEQ”) to hold a public meeting and hearing on the Plan by Vulcan.

The Plan seeks to authorize Vulcan to clear, strip, drill, and blast into the sensitive Edwards Aquifer recharge zone in Comal County, Texas. The location of this plant’s operations is in close proximity to groundwater wells owned by Texas Water and poses a potential threat to the healthy operation of those wells. As further explained below, Vulcan’s proposed operations may have an adverse impact on groundwater resources relied on by Texas Water and other residents as a water supply.

Texas Water is a Texas retail public utility and one of the largest investor-owned water and wastewater utilities in the United States, serving over 84,000 people. Texas Water provides an essential service to citizens throughout Texas, and the disruption of its operations is a severe risk to thousands of citizens in the Texas Hill Country where Vulcan has sited its plant.

As a state-defined major aquifer, the Edwards Aquifer is an important natural resource to our state, and particularly to Texas Water. The recharge zone allows large quantities of water to flow into the aquifer

which keeps the aquifer healthy and well stocked. According to the Texas Water Development Board, “Groundwater in the recharge zone is normally under unconfined, water-table conditions and is most susceptible to contamination.”¹ Allowing the blasting of the ground in the Edwards aquifer recharge zone poses a significant risk to groundwater, the aquifer, and ultimately public health. Not surprisingly in this area of significant growth, the recharge zone yields large volumes of groundwater to wells in the area of the proposed Vulcan project. TCEQ has not vetted these significant implications of this Plan.

Given the sensitive hydrogeologic site, and proximity to existing groundwater wells, the TCEQ has not demonstrated that groundwater will be protected.

The quarry is in a unique and highly sensitive geologic segment of the aquifer. The Edwards Aquifer recharge contains faulted and fractured Edwards limestone outcrops that allows for large quantities of water to flow into the Aquifer. Texas Water has multiple registered wells in the nearby area. Outcrops are highly permeable and let in more than just water. It is inevitable that whatever Vulcan blasts into the earth in this segment will make its way into the aquifer recharge zone. The risk to Texas Water’s wells is thus exacerbated by the quarry’s operation.

In addition, the aquifer and the surface water feeding it serves as a primary water supply for many in the region. The State of Texas and TCEQ acknowledge the significance and importance of the Edwards Aquifer and specifically the recharge zone to water supply for much of South and Central Texas. The sensitive environment in this unique hydrogeologic setting with exposed outcrops, the regional dependence on groundwater for drinking water supply, and the known interaction between surface water and groundwater are extraordinary circumstances that will be affected by Vulcan’s Plan. TCEQ may not approve this Plan knowing that groundwater will not be protected. Because the Plan fails to address the sensitivity of the operations to outcrops and nearby wells, arguably, the Plan is incomplete and must be denied.

The TCEQ has not demonstrated that groundwater will be protected.

No analysis has been completed to demonstrate that the quarry operations will not percolate into the water table beneath and will be protective of groundwater. Given the sensitive hydrogeologic connection discussed above, percolation poses significant risks to the aquifers. The TCEQ must establish effluent limits that are protective of groundwater.

Additional monitoring is necessary to protect groundwater.

Additional monitoring of the Vulcan Plan impacts to the Edwards Aquifer Recharge Zone would improve this Plan significantly. The Plan does not require data on the impacts to groundwater quality or impacts to specific wells. Texas Water requests that the Plan require a groundwater quality monitoring station at the operation site, and off-site along the FM 3009

April 22, 2024 Page

3

¹ <https://www.twdb.texas.gov/groundwater/aquifer/index.asp> (last visited Apr. 21, 2024).

and Ramble Ridge intersection to track how the operations interact with groundwater in those areas and include an opportunity to increase pollution abatement controls as needed. Absent this additional monitoring, the Plan provides no means to measure whether the effluent is protective of groundwater quality.

Areas of Concern to Texas Water.

In light of these concerns, Texas Water raises the following relevant issues within TCEQ's jurisdiction:

1. Whether the plan is protective of groundwater;
2. Whether the plan is protective of water quality and the existing uses of the receiving waters in accordance with applicable Texas Surface Water Quality Standards;
3. Whether the plan is substantially complete and contains accurate information as it pertains to impacts to groundwater;
4. Whether additional monitoring is required to protect groundwater quality;
5. Whether drinking water supply will be protected under the plan;
6. Whether the plan contains adequate operator requirements to ensure proper maintenance and operation of the facility; and

Texas Water has a significant interest in ensuring that the impacts from Vulcan's quarry operations do not harm groundwater quality or the area's drinking water supply. This project as currently presented gives no assurances that either will be protected. Thank you for your attention to this matter. Please do not hesitate to call me if you have any questions.

Yours very truly,

/s/Bobby M. Salehi

Bobby M. Salehi

BMS/mah

EXHIBIT D
TO ORIGINAL PETITION

TCEQ DOCKET NO. 2024-1115-EAQ
WPAP PERMIT ID NO. 13001906

In the Matter of the Approval of a Water Pollution Abatement Plan
By Vulcan Construction Materials, LLC
Before the Texas Commission on Environmental Quality

MILANN and PRUDENCE GUCKIAN'S
MOTION TO OVERTURN EXECUTIVE DIRECTOR'S DECISION

TO THE HONORABLE CHAIRMAN COMMISSIONERS OF THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY:

The Executive Director's effective approval of Vulcan Construction Materials, LLC's Water Pollution Abatement Plan for the Vulcan Comal Quarry constituted a real and present threat to our quality of life by the inappropriate location of Vulcan's quarry, deprived us of due process because of TCEQ's failure to allow meaningful opportunity to participate in the decision-making process, and violated TCEQ's own rules. Hence, pursuant to 30 TAC § 50.139 Milann and Prudence Guckian files this Motion to Overturn the ED's decision approving Vulcan's WPAP.

Vulcan is proposing the construction of a quarry with associated plant areas, office, shop areas, and driveway on approximately 1,515.16 acres. The nine (9) proposed quarry Mining Areas comprise approximately 956 acres. The site sits entirely over the Edwards Aquifer Recharge Zone (EARZ) and is surrounded by heavily populated residential and ranching communities. Notably, the pristine West Fork Dry Comal Creek runs through, and multiple caves lie beneath the surface of this scenic and consequential segment of the Texas Hill Country. The proposed quarry site is located on the southwest corner of FM 3009 and SH-46, Comal County, Texas.

TCEQ Executive Directors (ED) decision Threatens Guckian Quality of Life and Natural Resources

- ✓ Our property's fence line is 107.02' from Vulcan quarry's fence line.
- ✓ Our front porch is 258.01' to the Vulcan quarry's fence line.



Our fence line (foreground) is 107' from Vulcan Quarry fence line



Our fence line to our front porch 151'

- ✓ Our front porch is 358.16' to the applicant Mining Area #7.
- ✓ Our water well is situated 493' from the applicant Mining Area #7
- ✓ Our water well is approximately 4800' → 5000' to the applicant industrial water well.

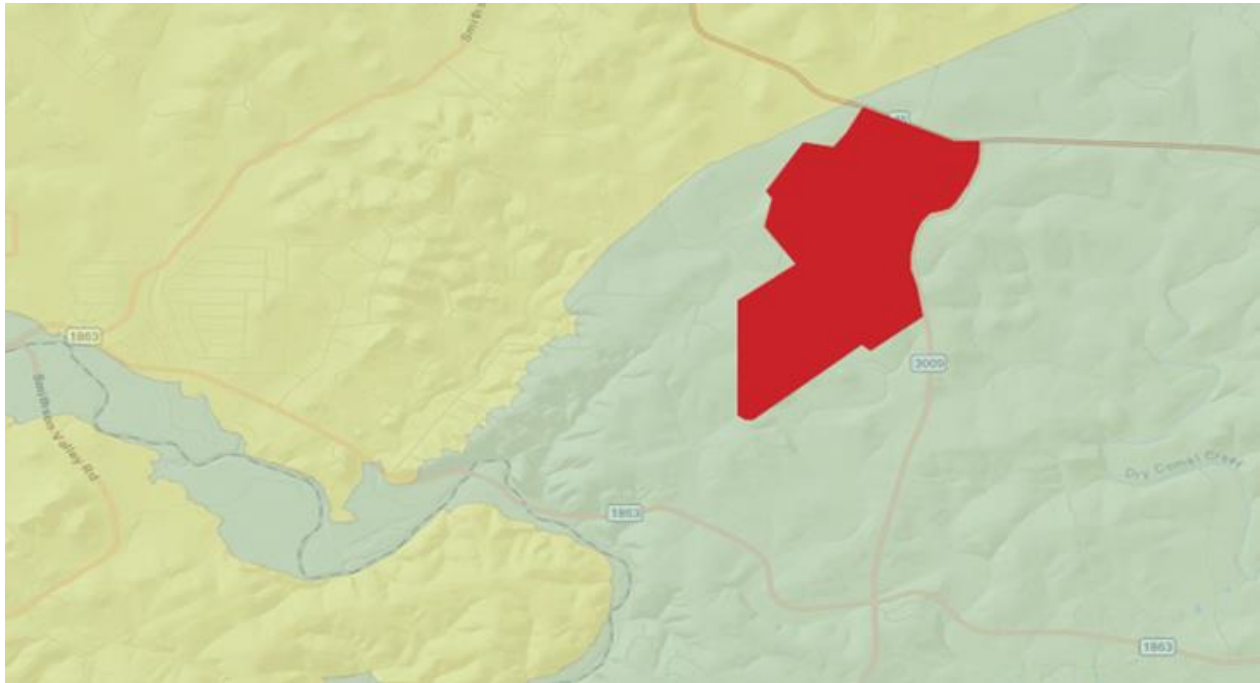
Distance mapping:



Vulcan's proposed open-pit limestone mining operation would stretch across nearly three miles of the environmentally sensitive Edwards Aquifer Recharge Zone (primary water supply for over 2.5 million people, including the cities of San Antonio and New Braunfels).

Not only does this site sit atop the EARZ but the West Fork Dry Comal Creek runs through it, converging downstream with the Dry Comal Creek before merging with the Comal River in New Braunfels. The Comal River is fed by springs from the Edwards Aquifer and is home to several endangered species. The clear, temperate waters of the Comal are widely used for recreational swimming and tubing activities before discharging into the Guadalupe River. Dry Comal Creek and Comal River are essential natural resources in Comal County, supporting economic development and recreation in the city, as well as agricultural

operations and wildlife throughout the area. Comal County has numerous waterways — Dry Comal, Cibolo, Rebecca, and Honey creeks; Comal and Guadalupe rivers; Comal and Hueco springs, the Trinity and Edwards aquifers; and Canyon Lake. If any of these water sources becomes polluted or is irreparably harmed, the others are in danger as well.

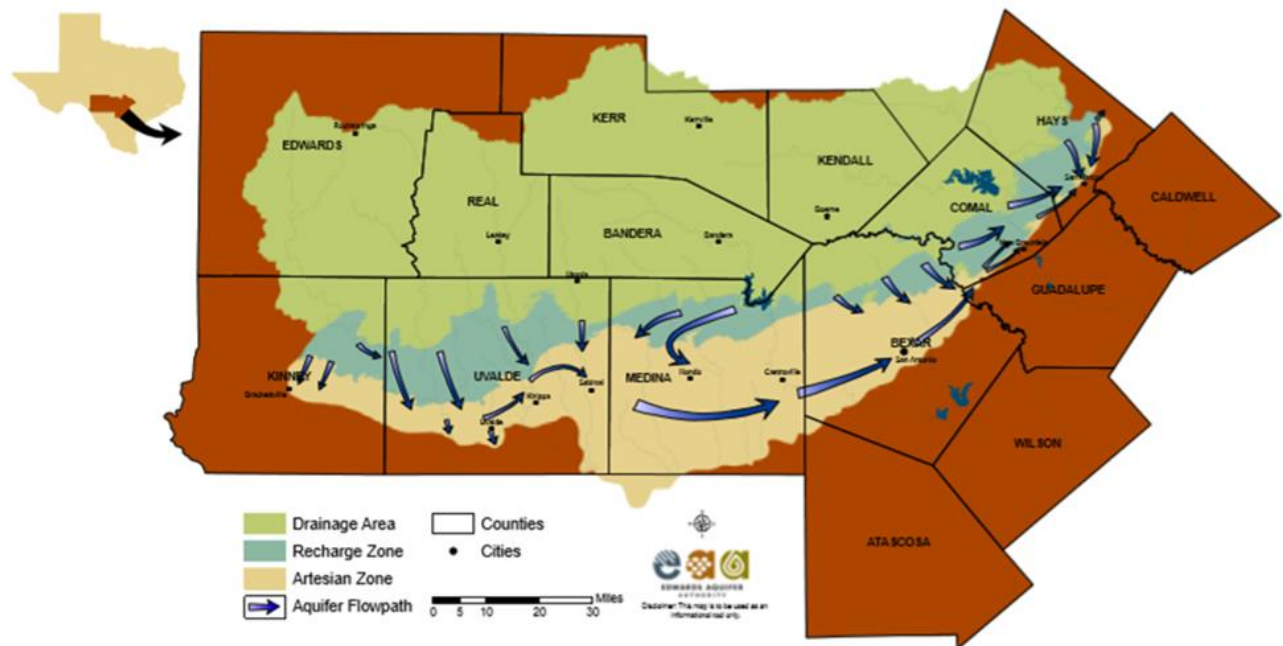


1500-acre Vulcan quarry site (red) situated entirely within the EARZ (darker blue-green color)

- Water Supply & Usage (Quantity)
 - Water usage by Vulcan's Rock Crushing Plant, associated equipment, roads, and stockpiles is significant; based on water use per ton of quarried material, approximately 383 acre-ft (125 million gallons) of groundwater per year would be needed. This will adversely affect not only the Edwards Aquifer Recharge Zone (EARZ), but it will affect our water well too. We are on a private well that cost us \$27507.50 to install. We drilled 930' down into Cow Creek (Trinity Aquifer). The Trinity Glen Rose Aquifer is our only water source. The same water table that Vulcan Construction Materials (under the holding corporation named Blue Pine Holdings LLC) had the previous owner drill in 2016. My well pumps 8-10 gallons/minute. It is documented that they can pump up to 150 gallons/minute at this site. This is approximately 78 million gallons annually <http://www2.twdb.texas.gov/apps/waterdatainteractive//GetReports.aspx?Num=439830&Type=SDR-Well>.
 - Due to the extreme drought that Comal County experienced, water supplies are already strained. Several neighbors have stated that they are having trouble with their wells going dry. They are having to either drill new wells or find other avenues for water delivery to their homes. This is one of our biggest fears, that our well will run dry and we will have to drill for a new well, start a rainwater collection system or pay to have water delivered. The viability and enjoyment of our home will be at risk if we do not have access to clean, unpolluted water. Looking at a 35% increase in cost, the price tag for a new well is now over \$37,000 and both other options will be just as costly in the long run.

- Another concern for our water supply is blasting. Our well is situated 493' from the closest mining site (that includes the 100' buffer zone). When blasts occur, the karst cracks and can travel for several miles leading to the possible collapse of my well and the development of sinkholes. As water and rock are removed due to mining, the support they give to underground features is gone. The blasting can lead to the destruction of caves and the natural infrastructure of the Balcones Escarpment causing disruptions in the natural flow of water which causes a reduction of rainwater to the aquifers and can potentially lead to downstream flooding. Sinkholes can develop. The roofs of underground caverns are weakened or can collapse. The collapse can be sudden or gradual. Although there are natural sinkholes that develop over time, man-made ones predominate in mining areas.
- Water Quality (Pollution)
 - There is also the potential for ground water contamination due to plant operations and the hazardous chemicals inherent in this industry. Quarry operations pose a special risk of groundwater pollution because the predominant explosive used is ANFO, a combination of ammonium nitrate and fuel oil. Ammonium nitrate is used in large quantities, and it is highly soluble in water. Per industry sources, up to 28% of the explosive is not consumed by blasting (Alberts, N., 2016, Mining News Digest, August issue). Exposure to nitrate can be particularly threatening to aquatic organisms (Isaza, D.F., Cramp, R.L., and Franklin, C.E., 2020, Environmental Pollution, Vol. 26).
 - Large quarry pits located over the EARZ act as funnels for pollutants including nitrate into the Edwards Aquifer. At the Vulcan Site, the Edwards Aquifer is interconnected with the Trinity Aquifer, putting it at risk as well. This topic was addressed by hydrogeologists Brian A. Smith, Ph. D., Texas P.G. #4955 (Attachment A).
 - The Vulcan plant falls within the boundaries of the Dry Comal Creek/Comal River Watershed Protection Plan (WPP), an EPA sponsored effort to protect the watershed's natural resources. Since the plan's inception, planning and implementation strategies have been conducted to address water quality concerns for the West Fork Dry Comal and Dry Comal Creeks, and the Comal River.
 - The Comal Springs are the largest springs in the southwestern United States and are fed by groundwater issuing from the Edwards Aquifer. The Comal ecosystem is home to rare and endangered aquatic species found nowhere else on Earth. These species include the Fountain Darter (*Etheostoma fonticola*), Comal Springs Dryopid Beetle (*Stygoparnus comalensis*), Comal Springs Riffle Beetle (*Heterelmis comalensis*), and Peck's Cave Amphipod (*Stygobromus pecki*).
 - With the direction of the groundwater flow these issues will not only have the potential to adversely impact Comal and Hueco springs, but they could pollute our water supply as well. We depend on this water for drinking, bathing, home maintenance, and recreation.
 - Dr. Smith's report (Attachment A) found that reduced flows have negative impact on the ecology immediately in the spring area and downstream stretches, including endangered species. Therefore, Vulcan's use of groundwater may contribute to a violation of the Endangered Species Act. Moreover, decreased groundwater availability increases the potential for contamination from various sources, in violation of Edwards Aquifer Protection Plan regulations found in TCEQ Rule 213.1.

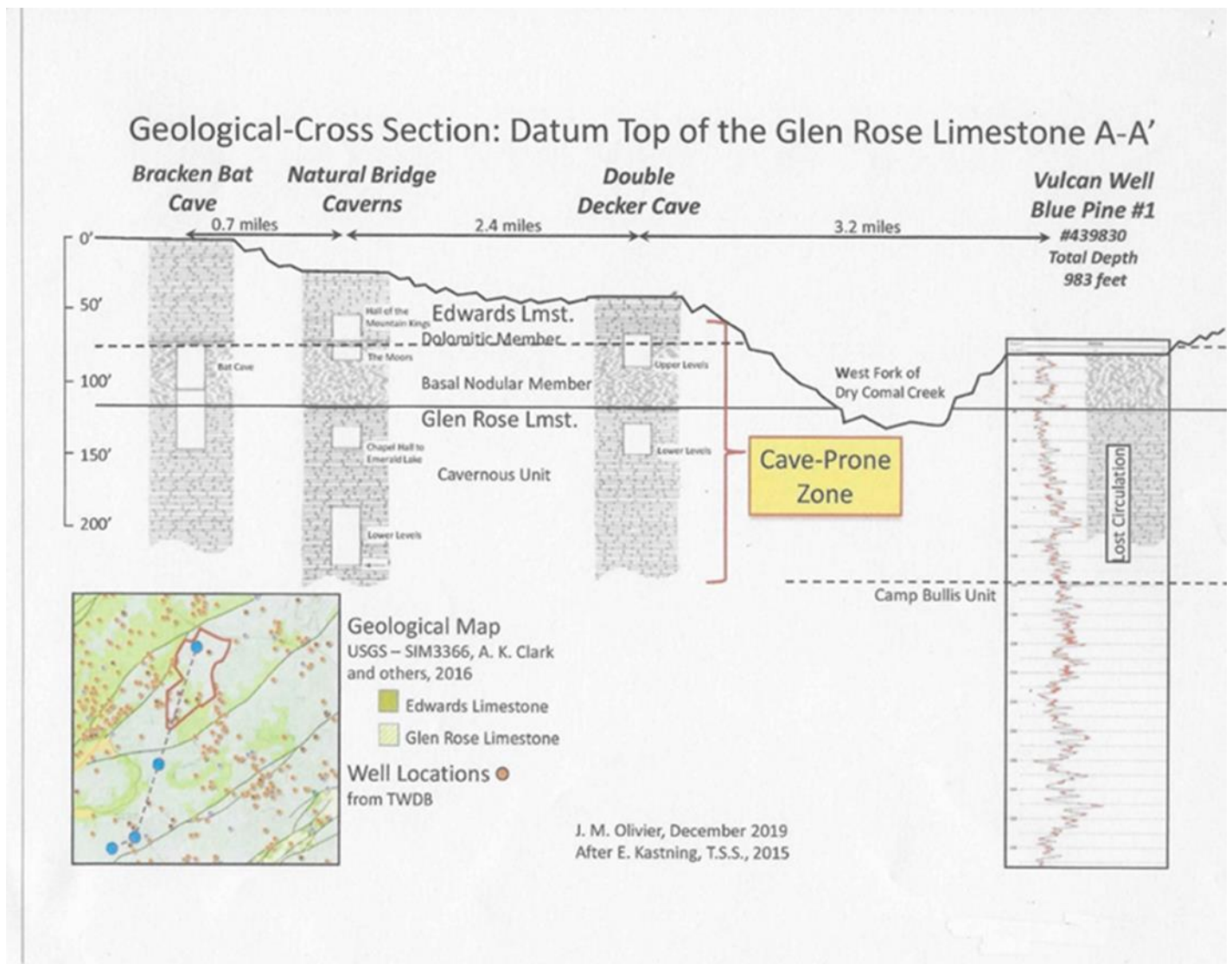
General Aquifer Flowpath



Groundwater flow from the Vulcan site generally would move southeast then shift to the east then northeast toward Hueco and Comal Springs. Map source Edwards Aquifer Authority.

- Cave-Prone Zone

- The limestone formations present in the EARZ have a very high density of caves and sinkholes. Comal County is among the top counties in Texas for having the greatest number of known caves (Texas Speleological Survey website). Two of the best-known caves in Comal County, Natural Bridge Caverns and Bracken Bat Cave, are located approximately 6 miles south of the Vulcan Site. Another large cave, Double Decker, is located just 3 miles south of the Vulcan Site. Exploration work conducted in 2019 at Natural Bridge Caverns and Double Decker Cave identified significant new chambers and passages (Herald-Zeitung newspaper, August 22, 2019).
- The WPAP does not consider the proximity of two highly active cave systems in the area, Natural Bridge Caverns, and the Bracken Bat Cave.
- The stratigraphic cross-section A-A' below shows the chambers at Natural Bridge Caverns, Bracken Cave, and Double Decker Cave. On the northern end of the cross-section, a water well drilled on the Vulcan Site lost circulation in a highly permeable interval while being drilled from a depth of 63 – 143 ft. This interval correlates to the Cave-Prone Zone, indicating the potential that significant caves may exist under the Vulcan Site. It also shows the high probability that the entire area is hydrologically connected with both the Edwards and Trinity Aquifers.



Both cave systems run along the same Geological-Cross Section as the Vulcan Well Blue Pine #1. Map Source J. M. Olivier after E. Kastning, T.S.S.

- TCEQ Sensitivity Scoring System and Vulcan's Geologic Assessment
 - A *sensitive feature*, as defined by the TCEQ, is "a permeable geologic or manmade feature located on the recharge zone or transition zone where the potential for hydraulic interconnectedness between the surface and the Edwards Aquifer exists, and rapid infiltration to the subsurface may occur." A point system is used to score the sensitivity of features based on a classification of three variables: feature type (5 - 30 points), orientation with respect to structure, and a field-based assessment of relative water infiltration rate (5 - 35 points or greater). Environmental protection is given only to features with a combined score of 40 or greater.
 - Caves are the most common type of karst feature given protection. Although sinkholes are often caused by the partial collapse of caves just below the land surface, they are generally not given protection because their water infiltration rate is often difficult to judge. This poses a significant challenge for assessing the Vulcan Site because a large percentage of the surrounding caves there were only discovered by digging in sinkholes.
 - A total of 37 sensitive karst features were identified in the Geologic Assessment for the 1,515-acre Vulcan Site (Pape-Dawson Engineers, 2024). According to the TCEQ rating

system, 7 of the karst features, including three caves, require protection. The density of sensitive features appears anomalously low when compared to the surrounding area. Immediately to the north across SH 46, 38 sensitive features were found on 158 acres (Bigbee Tract Subdivision, Geologic Assessment, 2021). Immediately to the south of the Vulcan Site, the Edwards Aquifer Authority (EAA) investigated 1,581 acres for its potential inclusion in a conservation easement program and determined the property has a very high direct recharge potential because of the numerous caves/sinkholes observed (Schindel, 2021, EAA Geological Evaluation of the Froboese Ranches, Comal Co., TX). A regional study using lithology as a predictive tool of cave entrances also indicates that more caves could be expected at the Vulcan Site (Veni, 2005).

TCEQ EDs decision deprived us of due process by her failure to allow meaningful opportunity to participate in the decision-making process.

- ✓ No public notice was posted by TCEQ letting us or the community know that the WPAP application had been deemed administratively correct and posted to the TCEQ website. We find out by happenstance.
- ✓ The WPAP application was a 149-page technical document. We had little time to research validity of the application and make public comment.
- ✓ We each submitted a public comment within the 30-day public commenting period but received no notice that you had received said comments and we received no reply to comments from the ED.
- ✓ We asked for a public meeting to ask technical questions, none was provided.
- ✓ We received no notice that during the 90-day technical review process that there were notices of deficiency on the permit, that those deficiencies were addressed by applicant, and that the application was granted.
- ✓ TCEQ showed a complete lack of transparency in the WPAP permitting process therefore denying our right to present meaningful objection before the ED.

TCEQ EDs decision to approve Vulcan's WPAP even though the WPAP failed to comply with several statutory and regulatory requirements.

- ✓ The Vulcan WPAP is not consistent with the Edwards Aquifer Protection Plan requirements.
 - Per Texas Water Code, §26.401: the goals clearly articulate that existing groundwater quality not be degraded, consistent with the protection of public health and welfare, the propagation and protection of terrestrial and aquatic life, the protection of the environment, the operation of existing industries, and the maintenance and enhancement of the long-term economic health of the state.
 - Nothing in this chapter is intended to restrict the powers of the commission or any other governmental entity to prevent, correct, or curtail activities that result or may result in pollution of the Edwards Aquifer or hydrologically connected surface waters. In addition to the rules of the commission, an applicant may also be required to comply with local ordinances and regulations providing for the protection of water quality.
- ✓ The Vulcan Quarry site is located in an environmentally sensitive area, and the WPAP grossly underestimates the potential pathways to the Edwards Aquifer.

- Vulcan plans to extract rock from the Kainer (Edwards Group) and Upper Member of the Glen Rose (Trinity Group) Formations. The property contains a 100-year floodplain and is entirely within the Edwards Aquifer Recharge Zone (see above – TCEQ Scoring System).
- Due to the lithologies beneath the proposed quarry site, contaminants will have a very direct and rapid impact on the underlying aquifer. There is also concern that contaminated water will make its way to Comal Springs, which is habitat of several protected, endangered aquatic species.
- TCEQ’s use of January 2012 Best Management Practices (“BMPs”) for Quarry Operations are outdated, including a method of ranking sensitive karst features. TCEQ’s BMPs are no longer current with modern scientific work done by the Edwards Aquifer Authority and other scientific agencies.
- ✓ The Application does not demonstrate that the quarry bottom will not reach the aquifer beneath, thereby directly contaminating groundwater.
 - The WPAP does not provide any explanation or factual reference for a quarry floor base elevation of 1040 ft-msl but simply indicates that because it will take 5 to 10 years for the mining activities to reach that level, its proposal is to monitor the local water levels at the local wells and determine how those water levels correlate to established monitored water levels offsite. As Dr. Smith found (Attachment A), this monitoring plan is not, from a hydrology perspective, an adequate substitute for evaluating water levels before obtaining the requisite WPAP.
 - This monitoring plan is also inconsistent with TCEQ’s BMPs.
- ✓ The WPAP wholly fails to account for blasting processes as a potential source of contamination, as required.
 - Vulcan’s “Project Description” states that there is a proposed buffer zone of only 100 feet adjacent to all neighboring properties. Our home is 358 feet from Mining Pit #7, this buffer zone is insufficient to protect my home and property.
 - Vulcan’s “Project Description” also acknowledges that blasting agents will be utilized in the mining process, however, the WPAP does not identify the types of blasting agents or include any plan to control their release. In fact, the description contains very little information about the blasting method and potential contaminants period.
 - TCEQ requires that “BMPs and measures must prevent pollutants from entering surface streams, sensitive features, or the aquifer.” 30 TAC § 213.5(b)(4)(B)(iii). Vulcan’s BMPs do not recognize the threat of nitrate (NO₃) pollution to underlying aquifers caused by the type and large quantities of explosives used in aggregate mining. ANFO, a combination of ammonium nitrate and fuel oil, is a common blasting agent. It is highly soluble in water, and up to 30% of the explosive is not consumed by blasting. Aggregate washing is also a common practice, which can dissolve nitrate and aid its passage into the underlying aquifer.

In Summary

- The Edwards Aquifer Recharge Zone (EARZ) is the primary source of water for over 2.5 million people in South Central Texas, and therefore requires strict protection by the TCEQ and EAA.
- Quarries introduce pollutants such as ammonium nitrate and diesel fuel (ANFO) used as explosives.

- Groundwater in Comal County generally flows from west to east towards the Comal Springs in New Braunfels, home to several endangered aquatic species in the Comal Springs.
- An extensive system of caves and caverns in the EARZ are important to groundwater transmission.
- The Edwards and Trinity Aquifers in the EARZ are known to be interconnected across faults in the Balcones Fault Zone.
- A Cave-Prone Zone extends across the Vulcan Site indicating there is a high probability quarry pits will encounter large caves that are hydrologically connected to the underlying aquifers.
- TCEQ failed to provide due process for public participation in the permitting process.
- TCEQ failed to comply with its own statutory and regulatory requirements.

Conclusion

- On April 16, 2024, Texas Lieutenant Governor Dan Patrick publicly expressed his serious environmental concerns about a proposed, 600-acre cement production project plant with an associated quarry in Grayson County (kxii.com, Sherman, TX). In a letter sent to the TCEQ, he asked for an immediate pause in the permitting processes for all permanent cement production plants until the legislature can consider what is best for Texas communities. We strongly believe the TCEQ Commissioners grant our Motion to Overturn Vulcan Comal Quarry's WPAP Permit #13001906. This project has a projected life of over 80 years and will leave permanent pits over a highly sensitive portion of the EARZ, the source of drinking water for over 2.5 million Texans.
- The amount of time, effort, and money that my family has invested over the last 7 years in opposing this quarry has already affected our lives in a negative way. Our home, our sanctuary, and our quality of life will be stripped away if this facility is permitted.

For the reasons listed above, The Guckian family request the TCEQ Commissioners grant this Motion, reverse the ED's decision, and deny the WPAP.

Respectfully submitted,



Milann and Prudence Guckian
30954 FM 3009
New Braunfels, Tx 78132
830-885-2723 (H)
361-947-7101 (C)

Attachment A

Hydrogeology of the Edwards and Trinity Aquifers in the Vicinity of the Proposed Vulcan Quarry, Comal County, Texas

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Introduction

Vulcan Construction Materials, LLC, has proposed a major limestone aggregate quarry in central Comal County (Pape-Dawson Engineers, 2024) southwest of the intersection of highways SH-46 and FM 3009 (Texas Commission on Environmental Quality (TCEQ) Edwards Aquifer Permit#: 13001906) (Figure 1). The site encompasses 1,515 acres of which about 956 acres will be quarried. The site is entirely within the Edwards Aquifer Recharge Zone (TCEQ Recharge Zone Map).

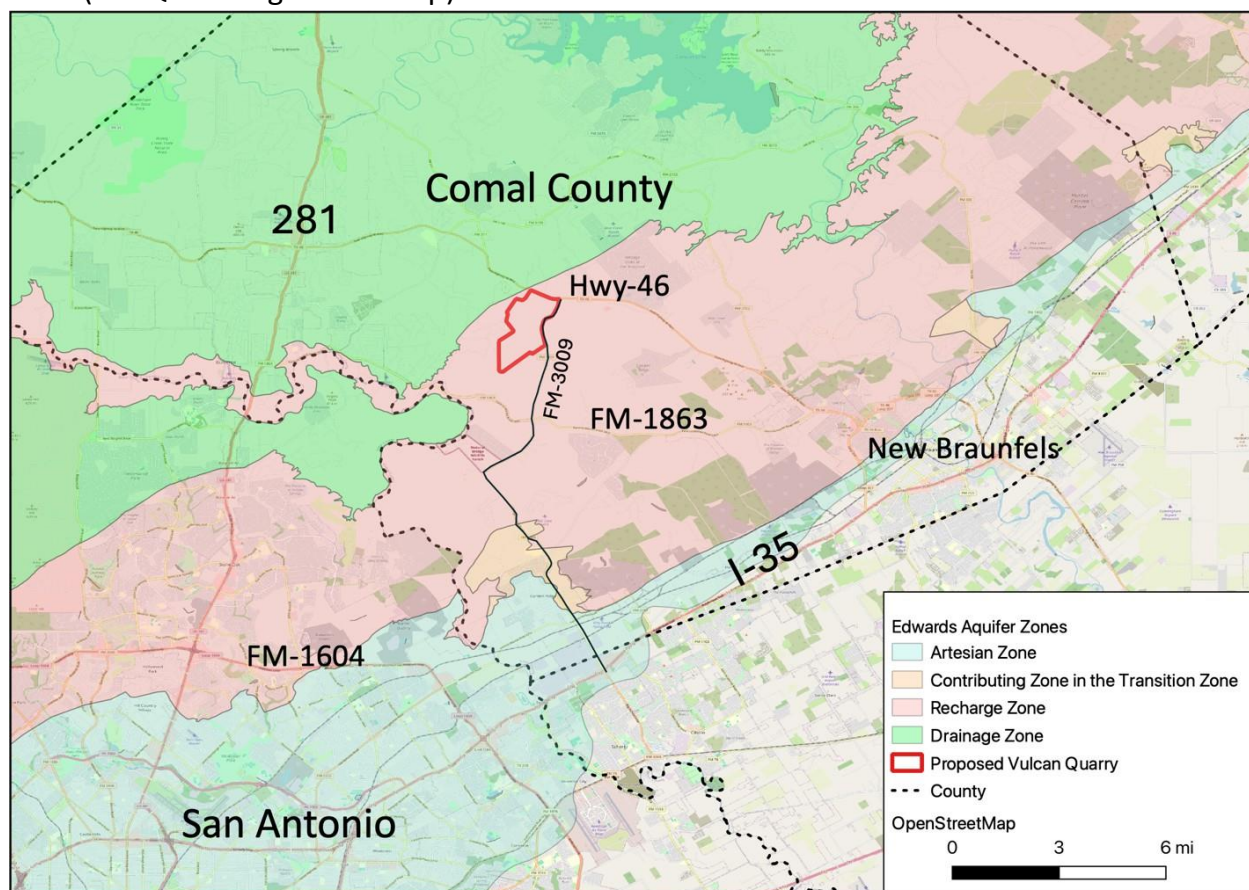


Figure 1. Location map of proposed quarry showing hydrogeologic zones (Source: J. Finneran).

Vulcan plans to extract rock from the Kainer (Edwards Group) and Upper Member of the Glen Rose (Trinity Group) Formations (Figure 2). These formations consist largely of limestone and are karstic in nature. A karst setting is characterized by voids in the rock such as caves, sinkholes, losing streams, and conduits through which water can infiltrate rapidly from the surface and flow through the rock and underlying aquifer. Eventually, much of this water will reach downgradient water-supply wells and springs. Thirty-seven sensitive

karst features have been documented on the proposed property (Pape-Dawson, 2024). Numerous sensitive features on surrounding properties have previously been documented. The presence of these features in high numbers indicates that water at the surface can easily enter these features, pass through a system of voids in the rock, then provide recharge to the water table of the underlying aquifer. Contaminants from the quarrying operation will be carried by this recharging water into the subsurface and the underlying aquifer to reach downgradient receptors such as water-supply wells and biota that live in and downstream of the springs.

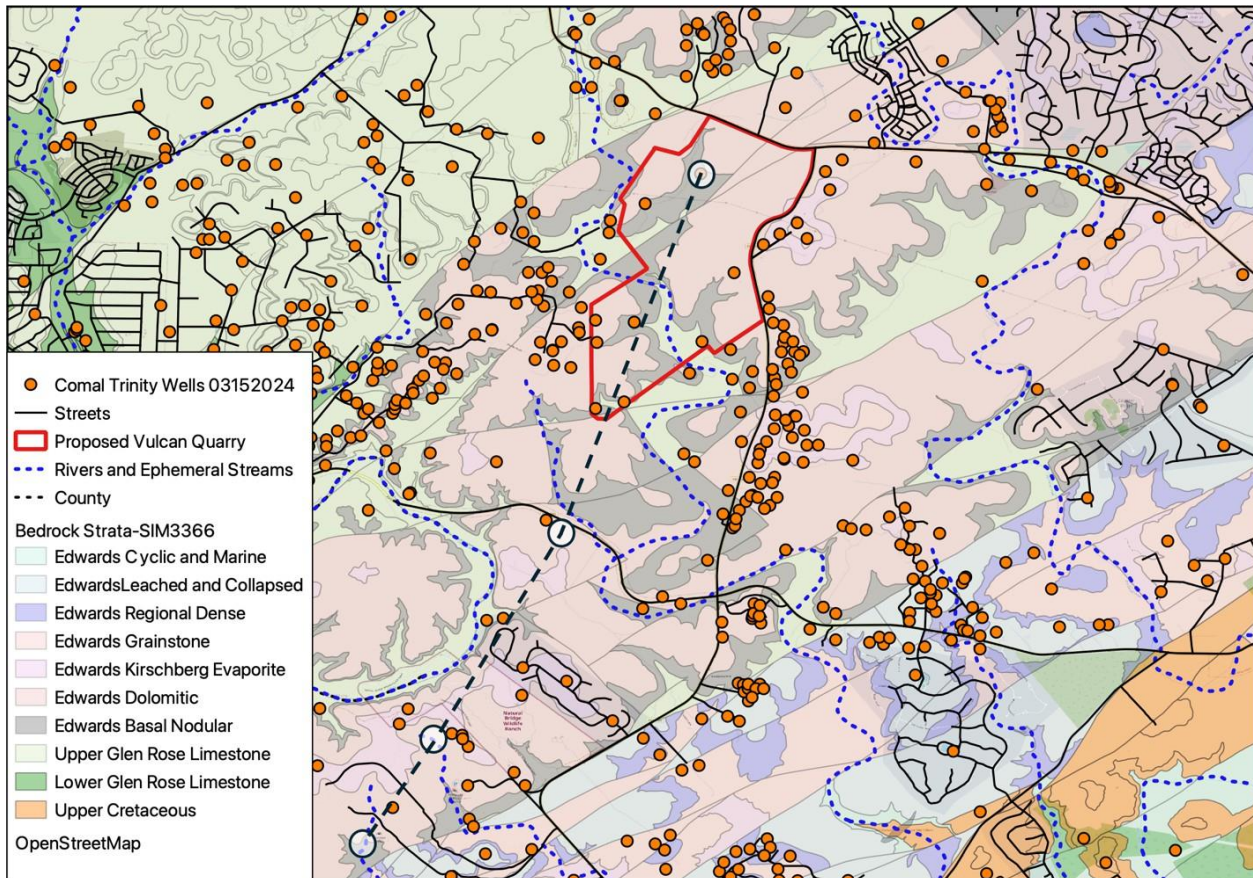


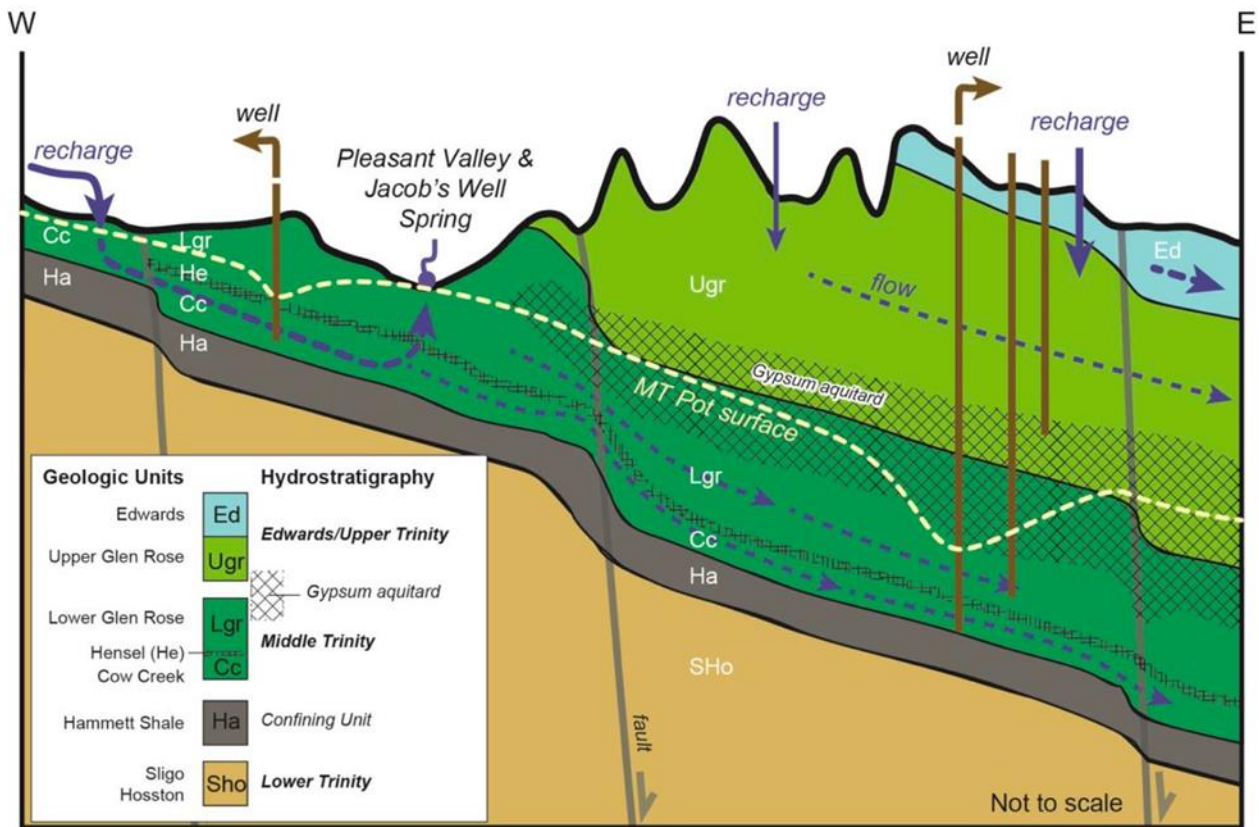
Figure 2. Geologic map of central Comal County showing water-supply wells (Source: J. Finneran).

Hydrogeology

The hydrogeology at the proposed quarry site is similar to the hydrogeology along strike to the northeast and southwest in Hays and Bexar counties, respectively. Significantly more studies have been conducted in these areas and the findings from these studies are applicable to the proposed quarry site. Some of these studies can be found in Clark et al. (2023a and 2023b), Hunt and Smith (2019), Gary et al. (2011), Johnson and Schindel (2006), Green et al. (2019), and Ferrill et al. (2003).

Figure 3 is a schematic cross section from Hays County showing the relationship between the various Edwards and Trinity hydrostratigraphic units (Hunt et al., 2017). Because of the similarity of the geology along strike, this figure provides a good representation of the hydrogeology beneath the proposed quarry site. Figure 4 is a hydrostratigraphic column for Hays and Travis Counties showing how the various geologic units relate to each other hydraulically. This column is similar to one by Clark et al. (2023) (Figure 5) which is representative of Comal and northern Bexar Counties. Even though some of the nomenclature is different many of the same hydraulic relationships are the same. One of the key concepts shown in these figures is that the lowermost Kainer/Basal Nodular- Walnut (lower Edwards) is hydraulically connected to the uppermost Upper Glen Rose (Upper Trinity) (Wong et al. 2014; Smith et al., 2018; Smith and Hunt, 2019). These studies have identified the potential for groundwater to move vertically between the Kainer and the uppermost Upper Glen Rose. Studies conducted by the Edwards Aquifer Authority have identified flow of groundwater laterally and across faults from the Upper Glen Rose into the Kainer then into the Person Formation (upper Edwards) (Figure 6) in northern Bexar County (Johnson et al., 2010).

Both hydrostratigraphic columns indicate that there are evaporite units in the lower section of the Upper Glen Rose. This is significant for groundwater flow because these units are generally very low in porosity and therefore limit vertical flow of groundwater. This generally sets a lower level for the overlying aquifer that consists of the Edwards and uppermost Upper Glen Rose. However, there is some potential for vertical flow along faults and fractures. Studies have generally shown that the amount of vertical flow between the Edwards/uppermost Upper Glen Rose and the Cow Creek (Middle Trinity) along these faults is minimal (Wong et al., 2014; Smith and Hunt, 2019). One exception to this is a Middle Trinity well (State Well Number 68-14-701) that demonstrates some hydraulic connectivity to Cibolo Creek (G. Veni, personal communication, April 5, 2024).



Hill Country Middle Trinity

- Karstic (caves, springs)
- Surface-groundwater interaction
- Conduit to diffuse flow
- Relatively fresh and young water

Balcones Fault Zone Middle Trinity

- Deeply confined
- Flow is lateral and from updip
- Discharge is unknown
- Fracture and diffuse flow with some karstification
- Relatively older and variable quality water

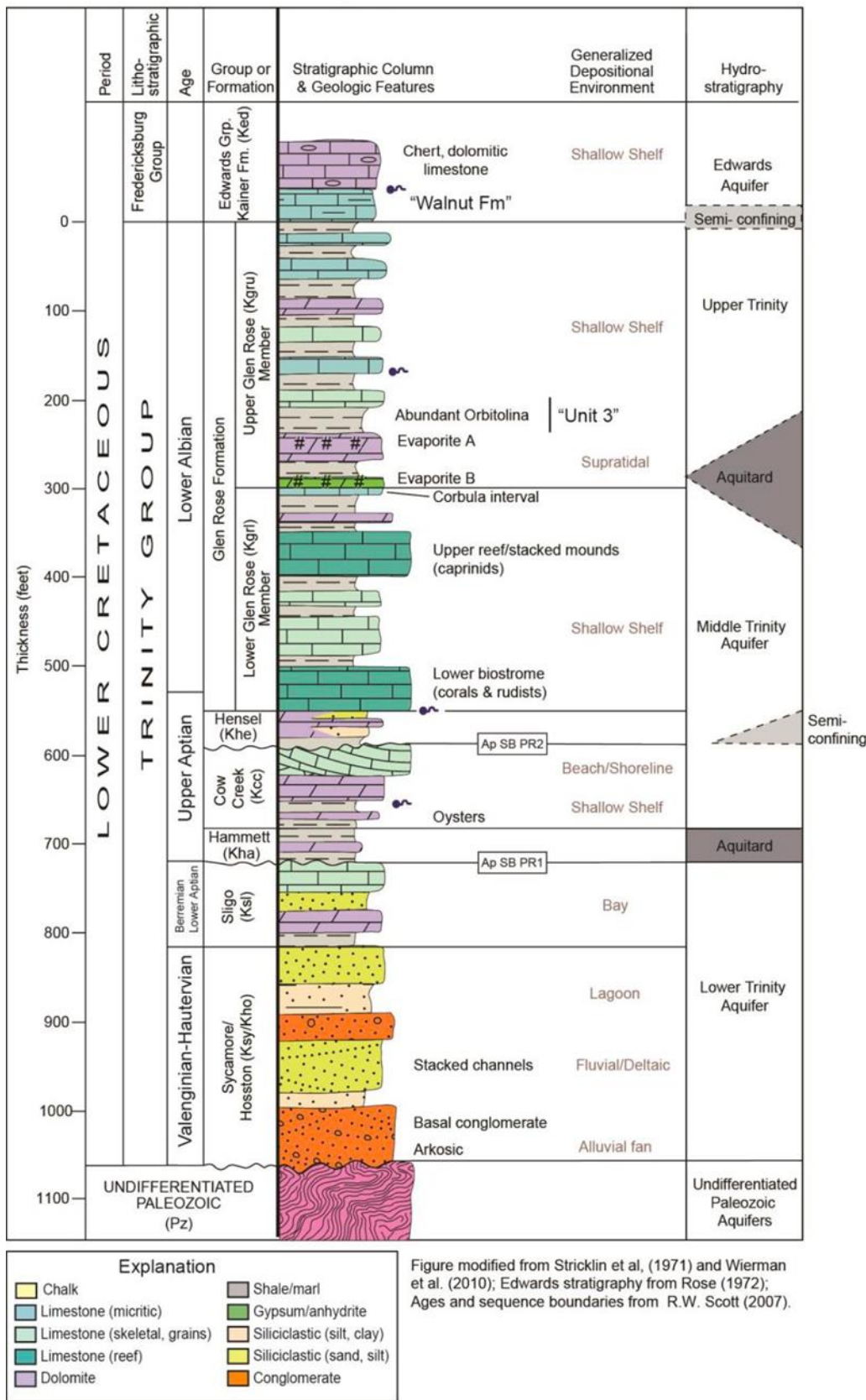


Figure 4. Stratigraphic and hydrostratigraphic column (Hunt et al., 2017).

Group or formation ¹	Member (formal and informal)		Hydrologic unit or informal hydrostratigraphic unit
Taylor Group (Pecan Gap Chalk)	**	Kpg	Upper confining unit (UCU)
Austin Group	**	Ka	
Eagle Ford Group	**	Kef	
Buda Limestone	**	Kb	
Del Rio Clay	**	Kdr	
Georgetown Formation	**	Kg	I
Person Formation	Cyclic and marine, undivided ²	Kpcm	II
	Leached and collapsed ²	Kplc	III
	Regional dense member ²	Kprd	IV
Kainer Formation	Grainstone ²	Kkg	V
	Kirschberg Evaporite ¹	Kkke	VI
	Dolomitic ²	Kkd	VII
	Burrowed ²	Kkb	Seco Pass***
	Basal nodular ²	Kkbn	VIII
Glen Rose Limestone	Upper Glen Rose Limestone ²	Kgrc	Cavernous
		Kgrcb	Camp
		Kgrue	Upper evaporite
		Kgruf	Fossiliferous
		Kgrlf	
		Kgrle	Lower evaporite
	Lower Glen Rose Limestone ²	Kgrb	Bulverde
		Kgrlb	Herff Falls***
		Kgrts	
		Kgrd	
		Kgrr	
		Kgrhc	Rust
			Honey Creek
Pearsall Formation	Hensell Sand ¹	Kheh	Hensell
	Cow Creek Limestone ¹	Kcccc	Cow Creek
	Hammett Shale ¹	Khah	Hammett

¹Formal.

²Informal.

**No further subdivision.

***Informal hydrostratigraphic unit name that has not been published previously.

Figure 5. Explanation of hydrostratigraphic units (Clark, 2023).

Geological Cross-Section of the Bannockburn Area

Legend:

- Upper Confining Units:** Eagle Ford and Younger Cretaceous Sediments, Buda Limestone, Dell Rio Clay.
- Sedimentary Group:** Edwards Group, Austin Fm., Buda Limestone, Dell Rio Clay.
- Georgetown:** Georgetown.
- Cyclotherium:** Cyclotherium.
- Leached/Conglomerate:** Leached/Conglomerate.
- Regional Dense:** Regional Dense.
- Grainstone:** Grainstone.
- Kinross:** Kinross.
- Dolomite:** Dolomite.
- Basal Nodular:** Basal Nodular.
- Upper Glen Rose (Lower Confining Unit):** Upper Glen Rose (Lower Confining Unit).
- Lower Glen Rose:** Lower Glen Rose.
- Herald/Gardenshire Shale:** Herald/Gardenshire Shale.
- Cox Creek:** Cox Creek.
- Continuous Sediments:** Continuous Sediments Greater than Cox Creek.
- Fault / Inferred Fault:** Fault / Inferred Fault.
- Well / Well Projected into Cross Section:** Well / Well Projected into Cross Section.
- Well Water Levels:** Well Water Levels.
- Inferred Water Level Elevation:** Inferred Water Level Elevation.
- Projected Casing Location:** Projected Casing Location.
- Inferred Route of Dye Travel:** Inferred Route of Dye Travel.

Well and Depth to Water, July 18, 2005 (in Meters above Mean Sea Level)

Well	Depth to Water (m)
AY 68-29-002	207.3m
AY 68-29-008	227.4m
AY 68-29-203	207.2m
AY 68-29-314	229.2m

Horizontal Scale in Meters: 0 to 1,000 meters.

Vertical Scale in Meters: 0 to 300 meters.

Vertical Exaggeration: 10X.

Surface Water Recharge

Recharge features, unless very large, are likely to be covered or filled with soil and vegetation, yet water can easily infiltrate this cover and soil. The 158-acre Bigbee tract immediately north of the proposed quarry site and across Hwy 46, 38 sensitive features were found, and this site has 1/10 the acreage of the proposed quarry site (Frost GeoSciences, 2021). Another site immediately southwest of the proposed quarry site was investigated for inclusion in a conservation easement program based on its significant potential for recharge through numerous recharge features (G. Schindel, personal

communication, April 12, 2024; Schindel, 2021). As mentioned above, the hydrogeology of the proposed quarry site is similar to that along strike to the northeast and southwest. Water recharging the subsurface will pass through a series of voids that have been formed by dissolution of the limestone, dolomite, and evaporite lithologies. These solution voids are more concentrated along faults and fractures, but interconnected voids can also develop in the absence of faults and fractures. The hydrostratigraphic column in Figure 5 shows that the uppermost hydrostratigraphic unit is called the Cavernous unit because of the large number of caves and smaller voids found in this region (Clark et al., 2023). Plans for the proposed quarrying operation indicate that the Cavernous unit will be significantly mined. A zone of high permeability was encountered in the Vulcan's Blue Pine Holdings #1 well between a depth of 63 and 143 ft. Circulation of drilling fluids and groundwater was lost into the formation over this interval (TWDB Submitted Drilling Reports). This zone of high permeability is correlative to the Cavernous zone and to major caves to the south such as Natural Bridge Caverns (Woodrud et al., 2017). It should be expected that as the quarry advances downward more voids (recharge features) will be encountered. With removal of surface material and the underlying bedrock, it is likely that the area will become more prone to infiltration of surface water and this infiltrating water will be heading directly toward the underlying aquifer. The proposed depth on the mining pits will put them in or near this permeable zone shown by the stratigraphic cross-section below (Figure 7) (J. M. Olivier, personal communication, April 4, 2024).

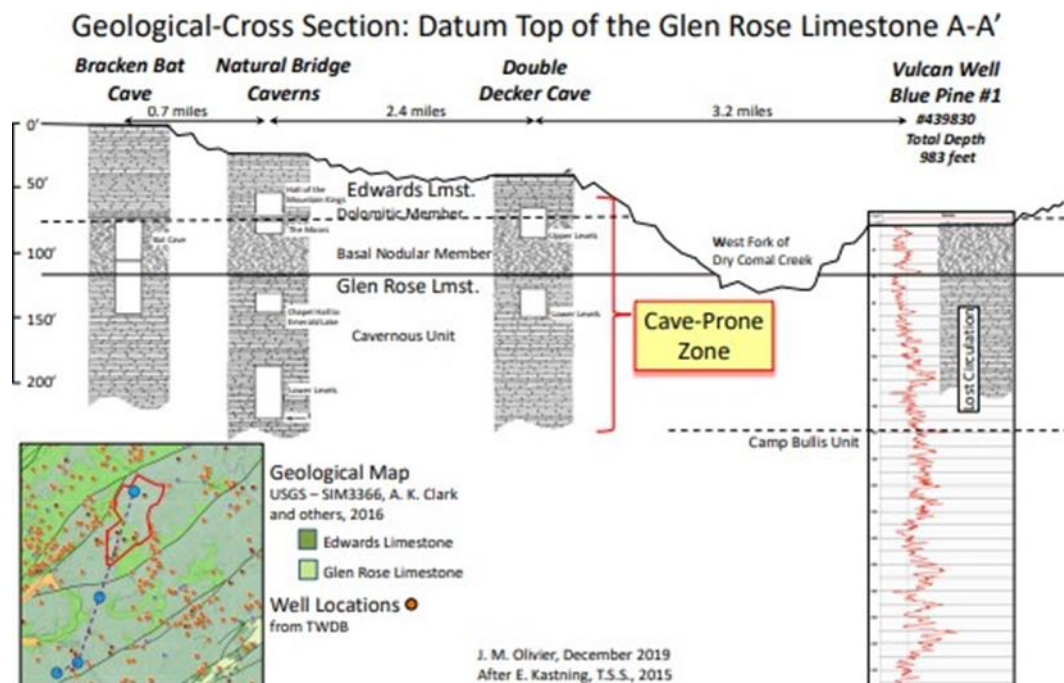


Figure 7. Geologic cross section showing the correlation between the well on the Vulcan site and caves in the same geologic units (Source: J. M. Olivier).

Groundwater Flowpaths

Once this infiltrating water reaches the water table of the aquifer, it will follow the hydraulic gradient. Some of this groundwater will be extracted by water-supply wells, much of it will discharge at the surface from springs, and some will remain in the aquifer following a flowpath into a deeper system many miles from where it first became recharge (Smith and Hunt, 2018).

Figure 8 is a potentiometric surface map of the Edwards Aquifer with water-level data from 2003 (Johnson et al., 2006). Even though no data were collected close to the proposed quarry site, the map suggests that flow from the site would move generally southeast then shift to the east then northeast toward Hueco and Comal Springs. A study following a 2,000-gallon diesel fuel spill in January 2000 at the DynoNobel explosives plant near the CEMEX Balcones Quarry in New Braunfels, Texas, shows flowpaths of the diesel fuel to both Hueco and Comal Springs (G. Schindel, personal communication, April 12, 2024). The proposed Vulcan quarry site is located seven miles NW from the plant. Groundwater flowing from the site would flow generally southeast until it reaches these flowpaths and would ultimately discharge to Hueco and Comal Springs. Some lesser components of the flow would bypass the springs and flow further downgradient towards San Marcos Springs.

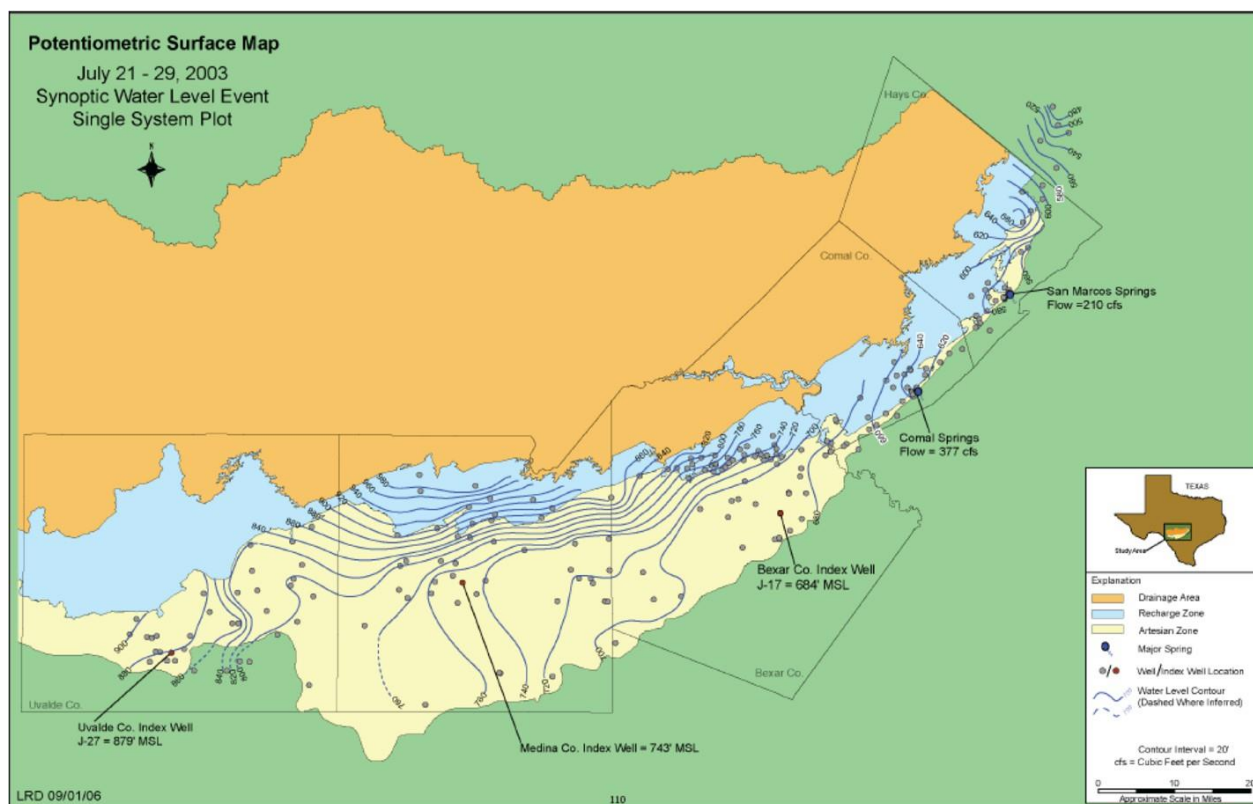


Figure 8. Potentiometric surface map showing approximate Edwards groundwater flow direction in south-central Comal County to be to the southeast (Johnson et al., 2006).

Water Quality

Because of the very porous nature of the lithologies beneath the proposed quarry site, any contamination generated by the quarrying operation would have a very direct and rapid impact on the underlying aquifer. Various studies have shown the potential for contamination of aquifers from the use of ammonium nitrate/fuel oil (ANFO) as an explosive. Contamination with nitrate can occur from poor handling of ANFO prior to an explosion and from incomplete combustion of the ANFO. Studies have shown that the amount of ANFO that does not combust during an explosion could be as high as 28% (BME, 2016 and Brochu, 2010). This leaves a considerable amount of nitrate available to be dissolved by water passing through the area of the blast. Once dissolved in the water, the nitrate is unlikely to break down into less hazardous components and will travel downgradient along the groundwater flowpaths.

Assuming the proposed quarry becomes active, there will be a significant likelihood for groundwater to become contaminated with nitrate and other hazardous substances from the site. Nearby wells could experience nitrate levels above the EPA's maximum concentration limit safe for human consumption of 10 mg/L (N). Wells and springs further downgradient of the quarry would likely see increases in nitrate concentrations but less so than wells immediately downgradient of the quarry. Some of this water with elevated nitrate could make its way to Hueco and Comal Springs. Several protected, aquatic, endangered species live in Comal Springs.

Water Levels

TCEQ requires that quarrying operations limit the downward expansion of a quarry to a level that is 25 ft above the highest expected water level (TCEQ, 2012). This level would either be set for water levels in December 2007, if available, or during a period equivalent to 90% of high rainfall. Because of limited water-level data on and near the site, it is difficult to determine what that level would be in the aquifer beneath different parts of the quarry site under varying rainfall conditions. To adequately evaluate water levels in the aquifer, the applicant should be required to do a thorough evaluation of data that are available and to collect data from onsite and nearby wells. A listing of wells and limited water-level data are included in Appendix A of this report (J. Doyle, personal communication, April 10, 2024). Because a water table is rarely a flat surface, a number of wells need to be measured within a short time period. These data then need to be compared to data collected during different wet and dry periods to determine appropriate water levels on all sides of the property. Water-level data from Hays (Hunt and Smith, 2019) and Bexar Counties (Johnson and Schindel, 2006), indicate that in the portions of the Edwards Aquifer at some distances from the major springs, hydraulic gradients can be as much as 100 ft per mile. Such a high gradient could be present beneath the quarry site, but it should be anticipated that there could be at least a 50-ft difference in water levels from one side of the site to the other. This difference in water levels would significantly impact the depth to which the quarry could be mined.

The WPAP (Pape-Dawson Engineers, 2024) for the site states that the mining areas will not be mined below an elevation of 1040 ft msl. According to the WPAP, this level of the quarry bottom will provide a 25-ft bufer above the high water level of the aquifer. A review of available water-level data indicates that at times, the bottom of the quarry will be flooded by the underlying aquifer (Figure 9). Water-level data from five wells close to the perimeter of the quarry boundary were evaluated to estimate expected water levels beneath the quarry and proposed depths of the excavations (Appendix B) (J. Finneran, personal communication, April 16, 2024). The White #4 well (#520690) had a water level of 1022 ft-msl on 12/5/07. At this water level plus the 25-ft bufer, the bottom of the quarry would be out of compliance. Another well (Tucker, EAA #Wxxx-137) had a water level of 1048 ft on 12/14/98. At this water level, the bottom of the quarry would be 8 ft below the water level in the aquifer.

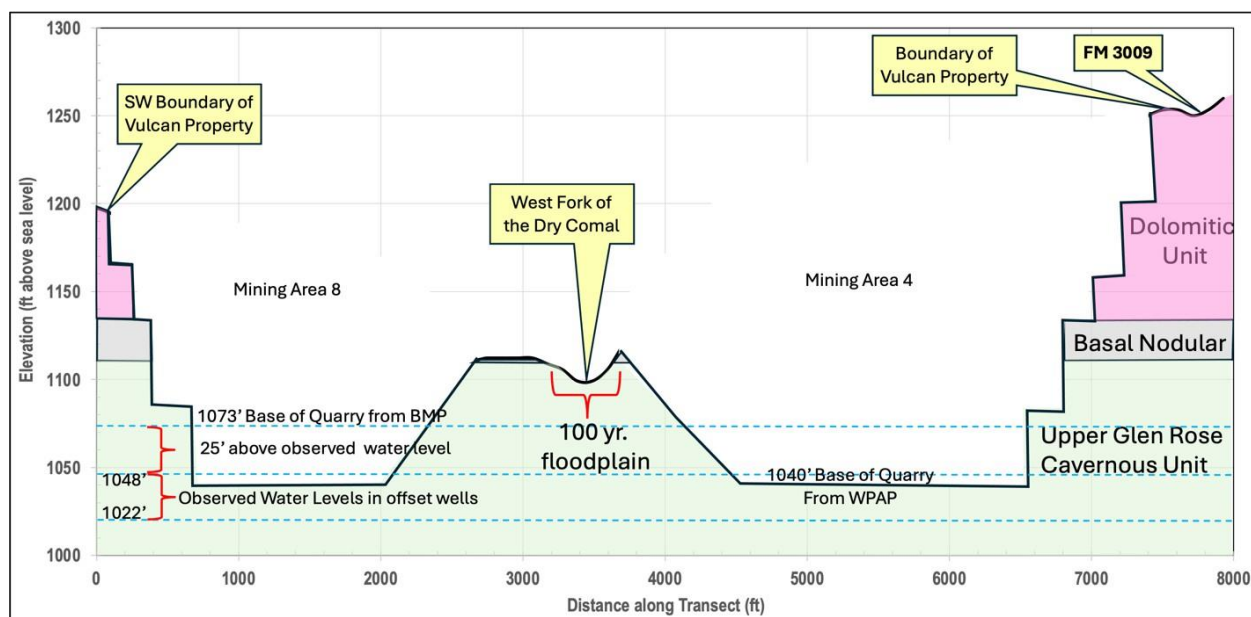


Figure 9. Schematic cross section with estimated topography after mining and water levels based on available data (J. Finneran, personal communication, April 16, 2024).

Groundwater Availability

Recent studies (Watson and Smith, 2023) have shown that intense growth in central Texas, particularly the Hill Country, has brought about significantly increased pumping from the Edwards and Trinity Aquifers. This increased pumping combined with the severe droughts that the region experiences frequently is causing numerous wells to go dry. Many springs either cease flowing during these periods, or the amount of flow is significantly reduced. Reduced spring flow leads to reduced flow in streams on which many people depend on. And these reduced flows also have negative impact on the ecology immediately in the spring area and downstream stretches. And, decreased groundwater availability increases the potential for contamination from various sources.


An analysis of the proposed quarries needs for water based on water use per ton of quarried material shows that approximately 383 acre-ft (125,000,000 gallons) of groundwater per year would be needed (M. Podenberger, personal communication, April 13, 2024). Groundwater availability studies from the Edwards and Trinity Aquifers in Hays County have estimated that pumping 383 acre-ft of groundwater per year could cause sufficient water-level declines in adjacent wells such that during periods of drought those wells could cease to yield water.

Conclusions

A permit for the quarry should not be considered until the following issues are addressed:

- Elevations of the aquifer should be determined prior to any excavation. The elevation of 1040 ft-msl for the bottom of the quarry, as stated in the WPAP, is likely to be out of compliance with the required buffer of 25 ft. And it is also likely that water levels in the aquifer will be above the elevation of 1040 ft-msl during periods of high water levels.
- The Geologic Assessment shows that 37 sensitive features were found. This number is anomalously low for the geology in this area. Further evaluation of recharge features is needed to determine areas that will require protective buffers. In addition, a dye-trace study should be conducted to determine flowpaths of groundwater from the site and to determine which downgradient wells might be impacted by contaminants coming from the quarry.
- The operation of a quarry will contribute contamination to the underlying aquifer. To determine background water-quality conditions, water-supply wells immediately downgradient of the quarry should be sampled and analyzed for nitrates and total petroleum hydrocarbons prior to issuing a permit for the quarry.

A thorough evaluation of existing data and data collected by the studies stated above will show that the aquifer beneath this site is highly sensitive to contamination. Because of the sensitivity of the site and the magnitude of the quarry, a permit should not be granted.



Brian A. Smith
April 17, 2004

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Well_Number	Latitude	Longitude	Location	Date Drilled	Use	TD	Elevation	Hole Size	Casing Size	Comp_Type	Top	Bot	Yield	Acquirer	Surface Geol	Water Level	Water Elev.	Database	
17890	29.753195	-98.303472	Elizabeth James 30838 FM3009, New Braunfels, 78132	3/10/03	D		595.00	1161.00	8.75	4.50	P	255.00	595.00	12.00	Upper Trinity	Kkd	260.00	901.00	SDR
42322	29.781111	-98.325833	Doug Harrison Off Hwy 46, New Braunfels, 78130	8/11/03	D		940.00	1182.00	8.00	5.00	OH	400.00	940.00	10.00	Middle Trinity	Kgrcb	420.00	762.00	SDR
47428	29.755278	-98.286611	Torry L. Hurt 31341 Beck Rd., Bulverde, 78163	10/18/04	D		650.00	1141.00	9.50	4.50	P	150.00	650.00	10.00	Upper Trinity	Kgrc	335.00	806.00	SDR
62403	29.750805	-98.327444	Nathan and Kira Olson 245 Saur Road, Bulverde, 78163	6/28/05	D		740.00	1160.00	9.50	5.00	P	540.00	740.00	8.00	U & M Trinity	Kkd	401.00	759.00	SDR
80300	29.762778	-98.326611	Richard Hehs 2520 Shearer Rd, Bulverde, 78163	4/11/06	D		860.00	1112.00	8.75	5.00	P	660.00	860.00	12.00	Middle Trinity	Kbkn	425.00	687.00	SDR
91867	29.759465	-98.324722	Steve Southwell 435 Third Fork, Bulverde, 78163	7/26/06	D		840.00	1113.00	5.50	0.00	OH	540.00	840.00	8.00	Middle Trinity	Kgrc	420.00	693.00	SDR
148952	29.779444	-98.321944	Doug Harrison Highway 46 Diamond H Ranch, New Braunfels	12/06/06	D		920.00	1262.00	8.00	5.00	OH	550.00	920.00	30.00	Middle Trinity	Kbkn	369.00	893.00	SDR
148953	29.779444	-98.322222	Doug Harrison Highway 46 Diamond H Ranch, New Braunfels	1/13/06	D		700.00	1271.00	8.00	5.00	P	665.00	700.00	10.00	Middle Trinity	Kbkn	370.00	901.00	SDR
165144	29.781111	-98.327778	Doug Harrison 700 Harrison Road, New Braunfels, 78132	12/10/08	D		800.00	1205.00	8.00	4.50	P	640.00	780.00	20.00	Middle Trinity	Kgruf	420.00	785.00	SDR
184564	29.783334	-98.308889	Ron Bigbee 10900 Hwy 46 West, New Braunfels, 78132	9/13/06	D		860.00	1266.00	8.00	5.00	P	680.00	860.00	10.00	Middle Trinity	Kbkn	430.00	836.00	SDR
189338	29.745777	-98.284616	Michael Olsen 414 Saur Rd., Bulverde, 78163	7/24/09	D		1000.00	1205.00	9.00	4.50	S	800.00	1000.00	15.00	Middle Trinity	Kkd	520.00	685.00	SDR
197965	29.784167	-98.325278	Doug Harrison 1650 INDEPENDENCE DRIVE, NEW BRAUNFELS, 78132	9/13/09	D		860.00	1204.00	9.50	4.50	P	660.00	860.00	0.00	Middle Trinity	Kgrc	456.00	748.00	SDR
197966	29.784167	-98.325278	Doug Harrison 1650 INDEPENDENCE DRIVE, NEW BRAUNFELS, 78132	9/13/09	D		660.00	1204.00	12.25	8.63	P	660.00	860.00	0.00	Middle Trinity	Kgrc	456.00	748.00	SDR
390602	29.754723	-98.303612	Millann Guckian 30739 FM3009, New Braunfels, 78132	1/27/15	D		980.00	1193.00	8.00	4.50	OH	800.00	980.00	8.00	Middle Trinity	Kkd	472.00	721.00	SDR
400505	29.762923	-98.318860	Lee Page 215 Blue Pine Holding, New Braunfels, 78132	8/9/15	D		400.00	1247.00	6.00	6.00	OH	282.00	410.00	10.00	Upper Trinity	Kgrc	347.00	750.00	SDR
417876	29.752778	-98.306611	LOT 4 DOENHE OAKS, NEW BRAUNFELS, 78132	3/8/16	D		460.00	1296.00	6.00	6.00	OH	342.00	460.00	5.00	Upper Trinity	Kkd	330.00	966.00	SDR
420134	29.786389	-98.313889	LOT 3 DOENHE OAKS, NEW BRAUNFELS, 78132	2/1/16	D		440.00	1299.00	6.00	6.00	OH	321.00	440.00	7.00	Upper Trinity	Kbkn	274.00	1025.00	SDR
439830	29.770222	-98.312083	Blue Pine Holding 10901 TX 46 HWY 3009/ TX 46	1/21/17	IRR		983.00	1143.00	9.88	6.00	OH	632.00	943.00	15.00	Middle Trinity	Kbkn	121.00	1022.00	SDR
454726	29.771971	-98.294277	Carlos Baneleros 9801 Hwy 46 (east of FM3009) W111-780	6/21/17	IRR		680.00	12											

SDR: TWDB Submitted Drillers Reports

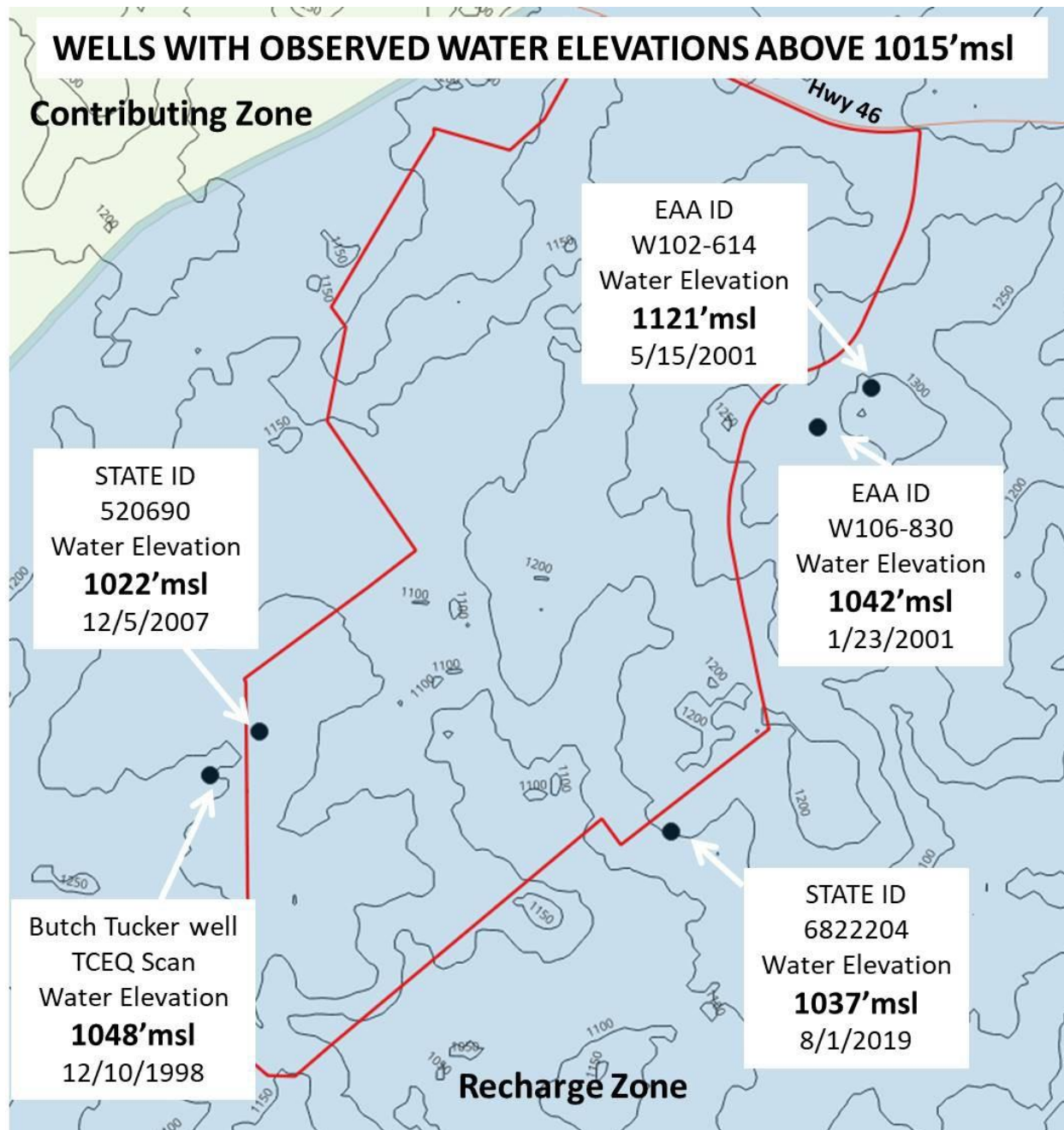
GWDB: TWDB Groundwater Database

EAA: Edwards Aquifer Authority

TCEQ: Texas Commission on Env

WPAP: Pape-Dawson, 2024, Water Pollution Abatement P

Appendix B. Location Map and Well Records



Source: J. Doyle

EXHIBIT E
TO ORIGINAL PETITION

**TCEQ DOCKET NO. 2024-115-EAQ
PROGRAM ID NO. 13001906**

**IN THE MATTER OF THE
APPROVAL OF A WATER
POLLUTION ABATEMENT PLAN
BY VULCAN CONSTRUCTION
MATERIALS, LLC**

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**BEFORE THE TEXAS
COMMISSION ON
ENVIRONMENTAL QUALITY**

DECLARATION OF DON EVERINGHAM

1. My name is Don Everingham, my date of birth is November 10, 1947, and my address is 601 Pfeiffer Road Bulverde, Texas 78163.
2. I am over eighteen (18) years of age and of sound mind and am otherwise competent and capable of making this declaration. The facts testified to in this declaration are within my personal knowledge and are true and correct.
3. I am a retired engineer.
4. I have reviewed the Water Pollution Abatement Plan (WPAP) submitted by Vulcan Construction Materials, LLC (“Vulcan”) on March 21, 2024 for the Vulcan Comal Quarry.
5. An estimate based on the amount of material to be quarried at Vulcan shows that the proposed quarry would use approximately 383 acre-ft (125,000,000 gallons) of groundwater per year (assuming one 800-ton-per-hour portable crusher consumes 40,000 gallons of water/hour).
6. I prepared a report entitled *Water required to remove Fine & Ultrafine Material from Aggregate production* regarding Vulcan’s WPAP. A true and correct copy of this report is attached as **Exhibit 1** to this declaration.
7. Based on this analysis, it is my professional opinion that the Executive Director’s decision to approve Vulcan’s WPAP should be overturned.

I declare under penalty of perjury that the foregoing is true and correct.

Executed in Comal County, State of Texas, on the 31 day of July, 2024.

Don Everingham

Don Everingham, Declarant

EXHIBIT 1

to Declaration of Don Everingham

Water required to remove Fine & Ultrafine Material from Aggregate production

The water usage for crushers and screening plants has a required amount of water for general operations to remove fine and Ultrafine tailings. Flocculants can be added to the water to increase the removal of the fine unusable material that maybe in mineral and organic forms (50 gallons/ton), is generally considered the starting point for Aggregate Production in Karst/limestone formations. (Karst formations may have large amounts of soil such as clay layers and organic material from surface drainage into the lower formation layers that mining may occur). The amount can vary depending on moisture in the material to be processed after blasting/stockpiled materials, these materials are transported to the crusher and screening plants as broken rock of various dimensions and composition.

Once the operation is up and running the quantity of water used can vary depending on the size and type of crusher,(s), and screening decks used. (Most plants are custom built using predesigned plant components usually rated in tons per hour (TPH). Impact crushers commonly used in Texas Aggregate production can produce up to 20-30 percent more fines than using a cone crusher, thus requiring a high volume of water.

Water based on quantity or volume used,(required for removal of fine and Ultrafine particles) will have a carrying or removal capacity which can be increased by using flocculants and increasing or decreasing gallons per minute, (GPM), to arrive at the optimum flow rate for washing the aggregate product. This slurry water is then sent to a fine tailings pond for settling time to allow the fine materials to settle out (separating from the water and mineral waste. Flocculants will remain, for the most part in the water and recycled usually with makeup water added from clean surface or well water sources, some process water will forever be attached to the fines and ultra fine particles, and this is why fine or material from the holding pond must be stored within vaults/dams onsite and can never be used as building materials.

If the mine uses a clarifier, recycled water maybe recover up to 80% of the total required water needed for operations, this most likely would be on the high side although some newer technologies using press separation claim up to 90%(???). This reuse figure heavily depends on the size of the tailing ponds and the amount of time allowed for separation of fine tailings.

In addition, there is the loss of water absorbed by the aggregate material when it is stockpiled and this depends on the water holding capacity of the processed material,(s). There is also a loss of water from the evaporation from the tailings pond, in Texas this can be as high as 20%, spillage from the clarifier and additional System leaks like plumbing etc. can also require more make up water.

Bottomline, 50 Gallons per ton is a very valid number without detailed process tests and sample data monitoring. This figure does not include water for dust control in or out of the operations area, the additional water requirement also depends on seasonal temperatures, wind speed, open versus cover conveyor systems, chemical additive, and a few other considerations like equipment speed on quarry roads and track out from commercial trucking to name a few items that can be easily overlooked.