

BEFORE THE ENVIRONMENTAL APPEALS BOARD
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C.

_____)	
In re:)	
)	Appeal No. SDWA 22-01
Panoche Energy Center, LLC)	
)	
UIC Permit No. R9UIC-CA1-FY17-2R)	
_____)	

Certified Index of Administrative Record

I, Abigail Farrell, a Physical Scientist and the technical lead for UIC Permit No. R9UIC-CA1-FY17-2R, certify that the administrative record for the final permit decision is complete. The administrative record includes, to the best of my knowledge, the documents that form the basis of the final permit decision required under 40 C.F.R. § 124.18. The below Administrative Record Index references all documents in the administrative record for this final permit decision.

Abigail Farrell 12/20/2022

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United States Environmental Protection Agency, Region 9
Panoche Energy Center, LLC
Final Class I UIC Permit (No. R9UIC-CA1-FY17-2R)
Administrative Record Index

I. Draft Permit Docket

a. Permit materials for Panoche Energy Center, LLC (“PEC”)

AR#	Date of doc	Title/Description/Subject	Author/sender	Addressee
1	3/1/2019	2019 Update and Re-submittal of PEC's 2017 UIC Permit Renewal Application: Panoche Energy Center, by Haley & Aldrich, Inc.	PEC	EPA
1a		Attachment A – Area of Review Methods		
1b		Attachment B – Maps of Wells/Area and Area of Review		
1c		Attachment C – Corrective Action Plan and Well Data		
1d		Attachment D – Maps and Cross Section of USDWs		
1e		Attachment F – Maps and Cross Sections of Geologic Structure of Area		
1f		Attachment H – Operating Data		
1g		Attachment I – Formation Testing Program		
1h		Attachment J – Stimulation Program		
1i		Attachment K – Injection Procedures		
1j		Attachment L – Construction Procedures		
1k		Attachment M – Construction Details		
1l		Attachment O – Plans for Well Failures		
1m		Attachment P – Current Monitoring Program		
1n		Attachment Q – Plugging and Abandonment Plan		
1o		Attachment R – Necessary Resources		
1p		Attachment S – Aquifer Exemptions		
1q		Attachment T – EPA Permits Held by Facility		
1r		Attachment U – Description of Business		

b. Documentation supplied by permit applicant

2	8/2006	Application for Certification, Volume I, Panoche Energy Center: Section 5.0 – Environmental Information	PEC	California Energy Commission
3	10/20/2017	2017 UIC Permit Application: Panoche Energy Center, 43883 W. Panoche Road, Firebaugh, California 93622, by Haley & Aldrich, Inc.	PEC	EPA
3a		Attachment A – Area of Review Methods		
3b		Attachment B – Maps of Wells/Area and Area of Review		
3c		Attachment C – Corrective Action Plan and Well Data		
3d		Attachment D – Maps and Cross Section of USDWs		
3e		Attachment F – Maps and Cross Sections of Geologic Structure of Area		
3f		Attachment H – Operating Data		
3g		Attachment I – Formation Testing Program		
3h		Attachment J - Stimulation		
3i		Attachment K – Injection Procedures		
3j		Attachment L – Construction Procedures		
3k		Attachment M – Construction Details		
3l		Attachment O – Plans for Well Failures		
3m		Attachment P – Current Monitoring Program		
3n		Attachment Q – Plugging and Abandonment Plan		
3o		Attachment R – Necessary Resources		
3p		Attachment S – Aquifer Exemptions		
3q		Attachment T – EPA Permits Held by Facility		
3r		Attachment U – Description of Business		
4	1/3/2018	Submittal of Additional Information in Reply to EPA’s Administrative Review of PEC’s 2017 UIC Permit Application	Haley Aldrich	George Robin, EPA
5	1/3/2018	Modifications to 2017 UIC Permit Application	Haley Aldrich	George Robin, EPA
6	2/15/2018	Surety Performance Bond: U.S. Environmental Protection Agency Underground Injection Control Financial Responsibility Requirement	PEC	
7	4/11/2018	Approved — Financial Assurance Class 1 NH Permit No. CA10600001	David Albright, EPA	Melvin Murphy, PEC
8	12/2020	Mud Column Characteristics and Conditions in the Cheney Ranch Field	PEC	EPA

c. Draft permit

9	7/27/2020	United States Environmental Protection Agency Underground Injection Control Program Draft Permit Class I Non-hazardous Waste Injection Wells Permit No. R9UIC-CA1-FY17-2R with comments	EPA	PEC
10	4/12/2021	United States Environmental Protection Agency Underground Injection Control Program Draft Permit Class I Non-hazardous Waste Injection Wells Permit No. R9UIC-CA1-FY17-2R	EPA	PEC
10a		Appendix A – Project Maps		
10b		Appendix B - Well Schematics		
10c		Appendix C – EPA Reporting Forms		
10d		Appendix D – Logging Requirements		
10e		Appendix E – EPA Region 9 UIC Pressure Falloff Requirements		
10f		Appendix F – EPA Region 9 Step Rate Test Procedure Guidelines		
10g		Appendix G - Plugging and Abandonment Plan		
10h		Appendix H - Operating Data		
11	7/27/2020	Email – Draft for release to PEC - Panoche draft permit 7-27-2020	Michele Dermer, EPA	Robin Shropshire, PEC
12	9/25/2020	Panoche Energy Center, LLC comments on UIC Permit No. R9UIC-CA1-FY17-2R – Compare Final	Ankur Tohan, K&L Gates	David Albright, EPA
13	9/25/2020	Email – PEC Draft Permit Comment Letter	Ankur Tohan, K&L Gates	Desean Garnett, EPA
14	1/25/2021	Panoche Energy Center, LLC comments on UIC Permit No. R9UIC-CA1-FY17-2R – Final with Attachments	Ankur Tohan, K&L Gates	David Albright, EPA
15	5/10/2021	PEC / EPA Region 9 Correspondence		

d. Statement of Basis and Supporting Documents

16	4/29/2021	Email Chain – ESA, NOAA, and EPA		
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e. Supporting Documents for Draft Permit NHPA Section 106 Compliance

17	9/8/2021	National Historic Preservation Act (NHPA), Section 106 Review for Proposed Underground Injection Control Permit	David Albright, EPA	Julianne Polanco, SHPO
17a		Area of Potential Effects (APE): Panoche Energy Center (PEC) UIC Permit		

17b		Volume I, Application for Certification, Panoche Energy Center - Submitted to the California Energy Commission, August 2006: Section 5.7 Cultural Resources,		
17c		Phase I Cultural Resource Survey for the Proposed Monitoring Well Location: Panoche Energy Center, Fresno County, California - July 2021		
18	10/5/2021	RE: Section 106 consultation for the proposed Renewal of Underground Injection Control Permit for the Panoche Energy Center injection wells in the City of Firebaugh, Fresno County, California.	Julianne Polanco, SHPO	David Albright, EPA

f. Supporting Documents for Draft Permit - ESA

19	10/5/2021	Informal Consultation under Section 7 of the Endangered Species Act regarding UIC Permit No. R9UIC-CA1-FY17-2R Panoche Energy Center (PEC) Class I Non-hazardous Waste Injection Wells; Section 5, Township 15 South, Range 13 East, Mount Diablo Base and Meridian (MDB&M), Fresno County, CA	David Albright, EPA	Mike Fris, FWS
19a		Formal Consultation Regarding the Panoche Energy Center, Fresno County, California	Asst Field Supervisor, ES Program, Sacramento	Field Supervisor, Sacramento FWS Office
19b		Action Area: Panoche Energy Center (PEC) UIC Permit		
19c		List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project	FWS	
20	1/25/2022	Informal Consultation on the Panoche Energy Center Additional Waste Injection Well Installation Project, Fresno County, California	Patricia Cole, FWS	David Albright, EPA

g. Other documents for the draft permit (40 C.F.R. § 124.9(b)(5))

21	7/26/1988	UIC Class I Regulations, Final Rule, 53 Fed. Reg. 28118 (July 26, 1998)	EPA UIC implementing regulations	
22	1988	Report of Examination of Mud Conditions (PEC Supporting Technical Literature Part 1)	Agency Information Consultants, Inc.	

23	6/7/1993	EPA Environmental Appeals Board (EAB) UIC Appeal – Suckla Farms, Inc. and City of Fort Lupton, Colorado, Petitioners	EPA EAB	Suckla Farms, Inc. and City of Fort Lupton, Colorado, Petitioners
24	1/24/1994	EPA EAB UIC Appeal – Beckman Production Services Permit No. MI-093-2D-0004	EPA EAB	Beckman Production Services
25	1996	USGS Survey Water-Resources Investigations Report (Utah Study)		
26	1996	Contractor Report (PEC Supporting Technical Literature Part 3)		
27	10/2005	Northern San Joaquin Valley Geographic Figures (PEC Supporting Technical Literature Part 2)	TODD Engineers	
28	6/12/2015	EPA 16 E.A.D 769, 2015 WL 3782844 – Windfall Oil & Gas, Inc. UIC Permit No. PAS2D020BCLE	EPA	Windfall Oil & Gas, Inc.
29	6/29/2017	EPA EAB UIC Appeal – Archer Daniels Midland Co. UIC Permit No. IL-115-6A-0001	EPA EAB	Archer Daniels Midland Co.
30	2/20/2018	Administrative Review Letter	David Albright, EPA	Mel Murphy PEC
31	5/18/2018	Permit Renewal Application Technical Review	D. Albright EPA	Mel Murphy PEC
32	7/12/2018	Summary of Responses and Questions to the UIC Permit Renewal Application	PEC	
33	9/7/2018	Permit Renewal Application Response to PEC Questions	Melvin Murphy, PEC	David Albright, EPA
34	8/8/2019	EPA EAB UIC Appeal – Jordan Development Co. UIC Permit No. MI-051-2D-0031	EPA EAB	Jordan Development Co.
35	6/21/2019	Comments on PEC’s March 2019 Updated Permit Application	EPA	PEC
36	10/2019	Response to EPA Comments on PEC’s 2019 Update and Re-submittal of the 2017 Permit Renewal Application	Haley & Aldrich	PEC
37	11/7/2019	Wellbore Re-Entry Mud Property Expert Opinion	Hadaway	PEC and EPA
38	12/3/2019	UIC Permit Renewal Application Class I Non-Hazardous Permit R9UIC-CA1-FY17-2R Technical Review	David Albright, EPA	Robin Shropshire, PEC
39	1/17/2020	Response to USEPA Comment No. 1d from letter dated December 3, 2019	PEC	EPA
40	Unknown	PEC Supporting Technical Literature Part 4		

II. Public Comments

41		Intentionally left blank		
42	5/11/2021	Email Chain Public Submission Attachment - RE: PEC comment letter / Draft UIC permit		
43	5/11/2021	PEC Comments on Draft Permit	Ankur Tohan, K&L Gates	David Albright, EPA
43a		Attachment 1 – PEC EPA Correspondence		
43b		Attachment 1 – Draft Permit Comment (7.27.20)		
43c		Attachment 2 – Jan 2020 Comment Letter		
43d		Attachment 3 – Sept 25, 2020 Letter		
43e		Attachment 4 – Jan 25, 2021 Letter		
43f		Attachment 5 – PEC Tech Comments on Draft Permit, Permit Comment Matrix		
43g		Attachment 5 - Panoche Wastewater Injection Schematic		
43h		Attachment 5 – PEC IW1 Schematic		
43i		Attachment 5 – PEC IW2 Schematic		
43j		Attachment 6 – Mud Column Characteristics and Conditions in the Cheney Ranch Field		
43k		Attachment 7 – Supporting Technical Literature		
43l		Attachment 7.1 – Appendix 4-3g “Report of Examination of Mud Conditions,” dated 1988.		
43m		Attachment 7.2 – “High-Temperature Flow Properties of Water-Base Drilling Fluids,” Journal of Petroleum Technology, 1980.		
43n		Attachment 7.3 – “Drilling Fluids Reference Manual,” Baker Hughes, revised 2006.		
43o		Attachment 7.4 – “Determining the Area of Review for Industrial Effluent Disposal Wells,” University of Texas at Austin Graduate Program, S.E. Barker, 1981.		
43p		Attachment 7.5 – “Permit Application for Class I Non-Hazardous Injection Well, California Specialty Cheese,” dated October 2005.		
43q		Attachment 7.6 – “Chemours Delisle Plant 2017 HWDIR Exemption Petition Reissuance Application, Section 4.0 Area of Review,” September 2018.		
43r		Attachment 7.7 – “Factors that Can Cause Abandoned Wells to Leak as Verified by		

		Case Histories from Class II Injection, Texas Railroad Commission Files,” by Clark, J.E., Howard, M.R., and Sparks, D.K., 1987, International Symposium on Subsurface Injection of Oilfield Brines.		
43s		Attachment 7.8 – “Gulf Coast Borehole Closure Text Well Orangefield, Texas,” by Clark, J.E., Papadeaus, P.W., Sparks, D.K. and McGowen, R.R., presented at Texas Water Commission Annual Meeting in October 1991 by E.I. du Pont de Nemours & Co., Inc.		
43t		Attachment 7.9 – “Technical Basis for Area of Review, An Engineering Study Prepared for the Chemical Manufacturers Association,” by Collins, R.E., 1986.		
43u		Attachment 7.10 – “Drilling Mud as a Hydraulic Seal in Abandoned Wellbores,” by Collins, R.E. and Kortum, D., Research & Engineering Consultants, Inc., Englewood, Colorado, 1989.		
43v		Attachment 7.11 – “Draft Report: A Review of Literature and Laboratory Data Concerning Mud Filled Holes,” by Chemical Manufacturing Association, Washington, D.C., October 1989.		
43w		Attachment 7.12 – “Bentonite as a Waste Isolation Pilot Plant Shaft Sealing Material,” by Jaak Daeman, J. and Ran, C., Prepared by Sandia National Laboratories Albuquerque, New Mexico and Livermore, California, for the United States Department of Energy under Contract DE-AC04-94AL85000, 1996.		
43x		Attachment 7.13 – “Factors Affecting the Area of Review for Hazardous Effluent Disposal Wells,” by Davis, K.E., Proceedings of the International Symposium on Subsurface Injection Liquid Wastes, 1986.		
43y		Attachment 7.14 – “Composition and Properties of Oil Well Drilling Fluids,” by Gray, George R., Darley, E.C.H, and Rogers, Walter, Fourth Edition, Gulf Publishing Co., 1980, Excerpt.		
43z		Attachment 7.15 – “Investigation of Artificial Penetrations in the Vicinity of Subsurface Disposal Wells,” by Johnson, O.C. and		

		Green, C.J., Texas Department of Water Resources, 1979.		
43aa		Attachment 7.16 – “Pressure Effects of the Static Mud Column in Abandoned Wells,” by Johnson, O.C. and Knape, B.K., Texas Water Commission, 1986.		
43ab		Attachment 7.17 – “Permeability, porosity and surface characteristics of filter cakes from water- bentonite suspensions,” by Kelessidis, V.C., Tsamantaki, C., Pasadakis, N., E. Repouskou, E., and Hamilaki, E., WIT Transactions on Engineering Sciences, Vol 56, 200 Attachment 7.		
43ac		Attachment 7.18 – “Groundwater Flow in Low-Permeability Environments,” by Neuzil, C.E., Water Resources Research, Vol. 22, No. 8, pages 1163-1195, August 1986, Water Resources Division, U.S. Geological Survey, Reston, VA.		
43ad		Attachment 7.19 – “Long-Term Properties of Clay, Water-Based Drilling Fluids,” by Pearce, Mark S., PhD., Envirocorp Services & Technology, Inc., 1989.		
43ae		Attachment 7.20 – “The Effect of Temperature on the Flow Properties of Clay-Water Drilling Methods,” by Srinivasan, A. and Gatlin, C., University of Tulsa, Tulsa, OK, Technical Note 2025, 1958.		
43af		Attachment 7.21 – “Understanding the Temperature Effect on Rheology of Water-Bentonite Suspensions,” by Vryzas, Z., Wubulikasimu, et al., Annual Transactions of the Nordic Rheology Society, Vol. 24, 2016.		
43ag		Attachment 7.22 – “Abandoned Oil and Gas Industry Wells and Their Environmental Implications,” by Warner, D.L., UIPC Summer Meeting Proceedings, 1988.		
43ah		Attachment 7.23 – “Confining Layer Study: Supplemental Report,” by Warner, D.L. and Syed, T., Engineering Enterprises, Inc., prepared for EPA Region V under contract No. 68-01-7011,1986.		

III. Transcript of Public Hearing

		<i>No public hearing requested</i>		
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IV. Response to Comments and Supporting Material

44	12/3/2019	Underground Injection Control (UIC) Permit Renewal Application - Class 1 Non-Hazardous (NH) Permit No. R9UIC-CA1-FY17-2R Technical Review	David Albright, EPA	Robin Shropshire, PEC
45	12/18/2020	EPA and Panoche Energy Center - 12/18/20 Meeting Agenda	EPA	PEC
46	1/25/2021	Panoche Energy Center, LLC follow up December 18, 2020 meeting with EPA on UIC Permit No. R9UIC-CA1-FY17-2R	Ankur Tohan, K&L Gates	David Albright, EPA
47	9/27/2021	Hilmar Cheese Company Permit No. R9UIC-CA1-FY15-2R	EPA	
47a		Appendix A – Project Location Maps		
47b		Appendix B – Well Schematics		
47c		Appendix C – EPA Reporting Forms		
47d		Appendix D – EPA Region 9 Radioactive Tracer Survey and Temperature Logging Guidelines		
47e		Appendix E – EPA Region 9 UIC Pressure Falloff Requirements		
47f		Appendix F – EPA Region 9 Step Rate Test Procedure Guidelines		
47g		Appendix G – Plugging and Abandonment Plans		
47h		Appendix H – Monitoring Well Work Plan		
47i		Appendix I – WD-2 Step Rate Test Report		
48	9/30/2022	Response to Comments	EPA	Ankur Tohan, Buzz Hines, Robin Shropshire

V. Other Permit Records

49	2001	Class I UIC Program: Study of the Risks Associated with Class I Underground Injection Wells	EPA	
50	2008	Permit No. CA10600001	EPA	PEC
51	10/20/2020	Email – Meeting Planning	Ankur Tohan, K&L Gates	Desean Garnett, EPA

52	12/16/2020	Email – Mud Conditions in the Cheney Ranch Field	Ankur Tohan, K&L Gates	Desean Garnett, EPA
53	12/18/2020	Email – Summary Responses to 3 Questions Asked by EPA, ahead of 12/18/2020 meeting	Ankur Tohan, K&L Gates	Desean Garnett, EPA
54	12/18/2020	Meeting Agenda		
55	12/18/2020	Meeting Notes		
56	12/18/2020	Email – Follow-up from the December 18, 2020 Meeting	Ankur Tohan K&L Gates	Desean Garnett, EPA
57	1/15/2021	Letter Following Up from the December 18, 2020 Meeting	Ankur Tohan, K&L Gates	David Albright, EPA
58	2021	Permit No. CA10600001 Fact Sheet	EPA	PEC
59	2021	Permit No. CA10600001 Public Notice of Intent	EPA	PEC
60	4/11/2021	Affidavit of Publication	EPA	County of Dallas, TX
61	4/12/2021	Ad Submission Order	Michele Dermer, EPA	The Legals Adportal
62	1987	Supporting Documentation – 1987 EPA Corrective Action Requirement Guidance	EPA	
63	3/30/2009	Supporting Documentation – URS Well Completion Reports for IW1 and IW2		
64	1/31/2012	Supporting Documentation – AMEC Q42011 Monitoring Report		
65	1/30/2013	Supporting Documentation – 4Q2012 Monitoring Report		EPA
66	2013	Supporting Documentation – 2013 EPA Class VI Guidance	EPA	
67	1/27/2014	Supporting Documentation – HAI 4Q2013 Monitoring Report		
68	1/27/2015	Supporting Documentation – 4Q2014 Monitoring Report		
69	1/27/2016	Supporting Documentation – HAI 4Q2016 Monitoring Report		
70	1/26/2017	Supporting Documentation – HAI 4Q2016 Monitoring Report		
71	10/20/2017	Supporting Documentation – UIC Permit Application		
72	1/26/2018	Supporting Documentation – HAI 4Q2017 Monitoring Report		
73	1/25/2019	Supporting Documentation – HAI 4Q2018 Monitoring Report		
74	3/1/2019	Supporting Documentation – Update and Resubmittal of PECs 2017 Permit Renewal Application		

75	6/21/2019	Supporting Documentation – EPA Shropshire letter enclosure		
76	6/21/2019	Supporting Documentation – EPA Shropshire letter		
77	10/14/2019	Supporting Documentation – HAI Response to Comments		
78	1/17/2020	Supporting Documentation – PEC Response to EPA Comments (final with attachments)	PEC	EPA
79	1/24/2020	Supporting Documentation – HAI 4Q2019 Monitoring Report		
80	2020	Supporting Documentation – CalGEM Statutes and Regulations		
81	2018	Supporting Documentation – Geostock Sandia, LLC - Chemours Delisle Plant 2017 HWDIR Exemption Petit		

VI. Final Permit Documents

82	9/30/2022	Notice of Final Permit Decision	EPA	PEC
83	9/30/2022	Fact Sheet	EPA	PEC
84	9/30/2022	Permit No. R9UIC-CA1-FY17-2R	EPA	
84a		Appendix A – Project Maps		
84b		Appendix B – Well Schematics		
84c		Appendix C – EPA Reporting Forms		
84d		Appendix D – Logging Requirements		
84e		Appendix E – EPA Region 9 UIC Pressure Falloff Requirements		
84f		Appendix F – EPA Region 9 Step Rate Test Procedure Guidelines		
84g		Appendix G – Plugging and Abandonment Plan		
84h		Appendix H – Operating Data		