



Technical Memorandum

Date: March 21, 2017
To: Rock Zierman, CIPA
From: Megan Schwartz
RE: Status Update of Aquifer Exemption Packages

The following presents an updated summary of the status of aquifer exemption applications for those fields/zones which will require an exemption in order to continue injection operations.

Summary Table

Approved	EPA Review	Public Review Completed	Public Review In Progress	Public Review Pending	SWRCB Review	HQ Review	Local District Review	Still in Preparation
3	2	2	2	4	19	0	6	5

Aquifer Exemptions Approved by EPA

Oilfield	Formation	Date Submitted	Operator	Exemption Criteria	Well Type	Date Approved by EPA
Fruitvale	Santa Margarita, Etchegoin, Chanac	November 9, 2016	Hathaway, Summit Energy	A, c	EOR WD	February 9, 2017
Round Mountain	Vedder	November 30, 2016	Macpherson	A, b1, b2	EOR WD	February 9, 2017
Tejon	Transition	December 2, 2016	CRC	A, b1	EOR	February 9, 2017

Aquifer Exemption Submittals from DOGGR to EPA

Oilfield	Formation	Date Submitted	Operator	Exemption Criteria	Well Type	Status
Arroyo Grande	Dollie Sands	February 8, 2016	SPR		EOR WD	Package will be put out for another public review (likely 15-day review period without a hearing). Prior to

						initiating another public review, DOGGR and Operator will hold an informal meeting with EPA to discuss issues. Following public review, EPA will continue its review of the exemption package.
Mt. Poso	Vedder	February 15, 2017	Macpherson	A, b1	WD	Under review by EPA. No timeline provided by EPA for completion of review.

Aquifer Exemptions – Public Review Period Completed

Oilfield	Formation	Operator	Exemption Criteria	Well Type	Status
Livermore	Greenville Sands	E&B Natural Resources	A, b1	WD	Public review period ended January 25, 2017. DOGGR working on response to comments received.
San Ardo (includes McCool Ranch and Monterey County wells)	Lombardi and Aurignac	Chevron, Trio Petroleum, Aera	A, c	EOR WD	Initial Public review period ended February 16, 2017. Review period extended to March 3, 2017. DOGGR working on response to comments received.

Aquifer Exemptions under Public Review

Oilfield	Formation	Operator	Exemption Criteria	Well Type	Status
Kern Front	Vedder	CRC, Hathaway	A, c	EOR/WD	Preliminary concurrence letter from SWRCB submitted to DOGGR on February 13, 2017. Public review period notice published March 20, 2017. Public hearing to be held April 19 at 4PM.
Jasmin	Cantleberry	Hathaway	A, b1	EOR/WD	Submitted to SWRCB on September 28, 2016. Preliminary concurrence letter to DOGGR on February

					6, 2017. Public review period notice published March 20, 2017. Public hearing to be held April 19 at 4PM.
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Aquifer Exemptions – Preliminary Concurrence Received, Public Review Pending

Oilfield	Formation	Operator	Exemption Criteria	Well Type	Status
Lynch Canyon	Lanigan Sands	Eagle Petroleum	A, b1	EOR	Preliminary concurrence letter to DOGGR on February 3, 2017. Public review period anticipated to begin in March with hearing late April/early May.
Sespe	Basal Sespe	Seneca	A, b1	WD	Preliminary concurrence letter to DOGGR on February 3, 2017. Public review period anticipated to begin in March with hearing late April/early May. No update on approval of public materials
Poso Creek	Etchegoin, Chanac	Linn, E&B	A, b1	EOR	Submitted to SWRCB on September 7, 2016. Preliminary concurrence letter to DOGGR on February 15, 2017.
Poso Creek	Chanac	Hathaway	A, b1	EOR	Submitted to SWRCB on September 7, 2016. Preliminary concurrence letter to DOGGR on February 15, 2017.

Aquifer Exemptions Under Review at State Water Resources Control Board

Oilfield	Formation	Operator(s)	Exemption Criteria	Well Type	Status
Kern Front	Chanac	CRC, Hathaway	A, b1	EOR/WD	Submitted to SWRCB on September 12, 2016. SWRCB submitted questions to DOGGR on October 23, 2016. DOGGR responded December 22. DOGGR is working with operator to provide additional information for SWRCB review.
Elk Hills (Phase 1)	Tulare	CRC	A, b3, c	WD	Submitted to SWRCB July 28, 2016 and SWRCB continues its review.
McKittrick	Tulare	SPR, Linn, Chevron, Aera, E&B Natural Resources	A, b1	Tulare – EOR/WD Other formations - WD	Submitted to SWRCB on July 19, 2016. DOGGR submitted responses to questions from SWRCB on October 20, 2016. DOGGR met with SWRCB on December 2, 2016. SWRCB continues its review.
Midway-Sunset	Tulare, Miocene Shale, Potter, Spellacy, Lower Antelope Sands	SPR, Linn, Chevron, Aera, TRC, Holmes Western, Seneca	A, b1, c	EOR WD	Submitted to SWRCB on August 11, 2016. Inland District and SWRCB discussed package via teleconference on October 6, 2016. SWRCB still reviewing materials.
Kern River	Kern River	Chevron, E&B, Kern River Holdings, Gray Development	A, b1	EOR	Submitted SWRCB on July 27, 2016. DOGGR received questions from SWRCB on August 16, 2016 concerned about

Status Update of Aquifer Exemption Packages

Oilfield	Formation	Operator(s)	Exemption Criteria	Well Type	Status
					water wells in the area. DOGGR submitted response to SWRCB questions on November 4, 2016. SWRCB review continues.
Cymric	Tulare, Temblor, Eocene Sands	SPR, Linn, Chevron, Aera, E&B Natural Resources, TRC	Tulare – a, b1, c Phacoides – a, b1	Tulare – EOR/WD Phacoides - WD	Submitted to SWRCB on July 19, 2016. A working meeting between DOGGR and SWRCB was held December 20, 2016. SWRCB continues to review.
Cat Canyon	Sisquoc	ERG	A, b1	EOR WD	Submitted to SWRCB on June 27, 2016. DOGGR received questions from SWRCB on the package on September 29, 2016. Operator completed well surveys, submitted to DOGGR and SWRCB. DOGGR submitted responses to SWRCB the week of February 20, 2017.
South Belridge	Tulare	CRC, SPR, Aera, Vaquero, Linn, E&B, West American Energy, Belridge Operating Company	A, b1, c	EOR WD	Submitted to SWRCB during the week of August 22, 2016. DOGGR received questions on the package from both the SWRCB and RWQCB on November 30, 2016 and submitted responses in January 2017.
Eik Hills (Phase 2)	Tulare	CRC	A, b3, c	WD	Submitted to SWRCB on August 23, 2016. DOGGR received

Oilfield	Formation	Operator(s)	Exemption Criteria	Well Type	Status
					questions from SWRCB and submitted responses in December 2016.
Lost Hills (Phase I)	Tulare	Chevron, Seneca, CRC, Aera	A, b1, c	EOR	Submitted to SWRCB on August 23, 2016. DOGGR received questions on the package from both the SWRCB and RWQCB on November 30, 2016 and submitted responses in January 2017. SWRCB continues review.
Lynch Canyon	Santa Margarita	Eagle Petroleum	A, c	EOR/WD	Submitted to the SWRCB week of August 28, 2016. Operator submitted revised water sampling plan on December 19, 2016 and additional detailed program for workover on December 21. SWRCB is reviewing the sample plan and DOGGR will work with operator to implement.
Coalinga/Jacolitos	Tembler	Seneca, Chevron, Aera, Holmes		EOR	Submitted to SWRCB in mid-September 2016. DOGGR received questions from the SWRCB on November 30, 2016 and submitted responses to SWRCB. Additional questions from SWRCB were received on January 6, 2017.

Oilfield	Formation	Operator(s)	Exemption Criteria	Well Type	Status
Edison Field	Pyramid Hill, Vedder combined, Chanac, Fruitvale, Santa Margarita	Hathaway, Naftex	A, b1	Santa Margarita – WD All other formations - EOR/WD	Submitted to SWRCB on September 19, 2016. DOGGR sent SWRCB a new Chanac chapter on December 6, 2016 which includes updated well information. DOGGR received additional questions on Chanac in February 2017 and is working on responses.
Zaca	Monterey	Greka, Towne Exploration, Amrich	A, b1	WD	Submitted to SWRCB on October 19, 2016. DOGGR is working with SWRCB on their review. SWRCB gave a presentation on their comments on December 14, 2016. DOGGR submitted responses to questions in February 2017.
Holser	Holser (Modeio)	Mirada Petroleum	A, b1	WD	DOGGR received questions from SWRCB in September 2016 and is working with operator on responses. DOGGR resubmitted to SWRCB the week of November 7, 2016. DOGGR submitted additional information to SWRCB on December 28, 2016. SWRCB continues their review.
North Belridge	Tulare	Aera	A, b1	WD, EOR	Submitted to SWRCB the week of November 7, 2016.

Oilfield	Formation	Operator(s)	Exemption Criteria	Well Type	Status
					DOGGR received questions from the SWRCB on November 30, 2016 and submitted responses in December 2016.
Lompoc (includes the wells in the Lompoc Main and NW areas)	Monterey	SPR	A, b1	WD	Submitted to SWRCB in December 2016.
Casmalia	Monterey	Sierra Resources, Greka, ERG	A, b3	WD	Submitted to SWRCB the week of January 9, 2017.
Oxnard	Pliocene tar (Vaca sand)	CRC, Peak Energy, Vaca Energy	A, b1	EOR	Submitted to HQ and SWRCB the week of February 12, 2017.

Aquifer Exemption Under Review at Local DOGGR Offices

Oilfield	Formation	Operator(s)	Exemption Criteria	Well Type	Status
Edison Field Northeast	Chanac	Hathaway	A, b1	EOR	Under review at local district. Operator submitted updated figures and text on September 19, 2016. DOGGR completed the water well search on September 28, 2016. Still under local review.
Kettleman Hills, North Dome	San Joaquin, Etchegoin	CRC	A, b3, c	WD	Submitted to District office on August 10, 2016. Still under review at the local district. Operator is still working on the package.
Cat Canyon, Gato Ridge	Monterey, Santa Margarita	BE Conway, ERG, Greka, Aera, RMR Resources	A, b1	WD	Submitted to local district August 1, 2016. Revised packages submitted on August 8, 12, and 17, October 5 and November 11, 2016. Request for changes sent to Operator on February 1, 2017; Operator is currently revising the package. Review will be completed by the Inland District.
Rosedale Ranch	Chanac	Freedom Oil	A, b1	WD, EOR	Submitted to District office on August 15, 2016. District office requested operator revise the

Status Update of Aquifer Exemption Packages

					package. Operator is still working on revisions to the package.
Kreyenhagen		Solimar Energy		WD	Submitted to District office on August 15, 2016. Still under review at the local district.
Chico Martinez	Lower Tulare	Chico-Martinez Oil	A, b1, c	WD	Submitted to the District office. District office is working with operator to provide additional support material.

Aquifer Exemption Packages Still in Progress, Not Yet Submitted

Oilfield	Formation	Well Type	Operator(s)
Mountain View	Kern River, Chanac	EOR/WD	Sunray, Bennett Petroleum, Citadel
Kern Bluff	Chanac, Transition, Santa Margarita, Olcese, Vedder	EOR/WD	Citadel Exploration
Round Mountain South	Olcese		Pace Development
Lost Hills (Phase II)	Tulare	WD	CRC, Seneca, Aera, Chevron
Richfield		WD	Richfield Oil