

Central Valley Regional Water Quality Control Board

11 September 2018

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NOTICE OF APPLICABILITY (NOA), CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD, ORDER NUMBER R5-2017-0036, WASTE DISCHARGE REQUIREMENTS FOR OIL FIELD DISCHARGES TO LAND, GENERAL ORDER NUMBER THREE, AERA ENERGY LLC, AFS DEHYDRATION PLANT, MIDWAY-SUNSET OIL FIELD, KERN COUNTY

Aera Energy LLC (Aera) operates the AFS Dehydration Plant, on the “Shale 14 Lease” (Lease) in the Midway-Sunset Oil Field, on the northeast side of Highway 33, and approximately 1.3 miles southeast of the town of Derby Acres. A single geomembrane lined surface impoundment (pond) that is used for temporarily holding produced wastewater (discharge) is present on the Lease. The pond, referred to by Aera as the “*AFS Dehydration Plant, Emergency Overflow Basin*” (AFS EOB) is in the northeast corner of Section 14 of T31S, R22E, MDB&M.

On 7 March 2018, Aera representatives submitted a technical report, dated 5 March 2018 and titled “*Technical Report For General Order Number Three, AFS Dehydration Plant, Midway-Sunset Oil Field, Kern County, California*” (Report). The Report was submitted as an update to a previous 8 May 2017 Notice of Intent (NOI) submitted by Aera for coverage of ponds in the Midway-Sunset Oil Field under General Orders for oil field wastewater discharges to land adopted by the Central Valley Regional Water Quality Control Board (Central Valley Water Board) on 6 April 2017. The Report requests coverage for the pond under Order Number R5-2017-0036, Waste Discharge Requirements General Order for Oil Field Discharges to Land, General Order Number Three (General Order Three).

Available information, including figures and cross-sections provided by Aera, indicates that the pond is constructed in alluvium. The pond is 115 feet (ft.) by 100 ft., by 7.5 ft. deep. The thickness of the geomembrane liner is not reported. The Report indicates the pond is used to contain produced wastewater when an “*upset*” occurs in the produced wastewater treatment and disposal system.

This letter serves as formal notice that General Order Three is applicable to the Lease. General Order Number **R5-2017-0036-004** is hereby assigned to all produced wastewater discharges into the pond. Aera should become familiar with all of the requirements, time schedules, prohibitions, and provisions of General Order Three, and Monitoring and Reporting Program R5-2017-0036 (MRP).

This letter also serves as formal notice that the portions of Cleanup and Abatement Order R5-2015-0746 (CAO) that apply to the "Shale 14 Lease" are hereby rescinded. The CAO was issued on 1 December 2015 for ponds at the Fulton, Lockwood, Moco 35, National USL, Shale 14, and W&S Leases in the Midway-Sunset Oil Field. Central Valley Water Board staff are currently reviewing the NOI technical report submitted by Aera representatives for coverage of ponds at the Lockwood Dehydration Plant (Lockwood Lease).

General Order Three regulates the discharge of produced wastewater into ponds. Aera's AFS EOB on the Shale 14 Lease is a "pond" based on the definition in General Order Three's Attachment A (Definition Of Terms). As stated in Water Code section 13263, all discharges of waste into waters of the state are privileges, not rights. General Order Three does not create a vested right for Aera to continue the discharges of waste to the pond. Failure to prevent conditions that create or threaten to create pollution or nuisance or cause degradation will be sufficient reason to modify, revoke, or enforce the provisions of General Order Three, as well as prohibit further discharge.

In 2006, the Central Valley Water Board, the State Water Resources Control Board (State Water Board), and regional stakeholders began a joint effort to address salinity and nitrate problems in the region and adopt long-term solutions that will lead to enhanced water quality and economic sustainability. Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) is a collaborative basin planning effort aimed at developing and implementing a comprehensive salinity and nitrate management program. The CV-SALTS effort might effect changes to the Basin Plan that would necessitate the re-opening of General Order Three.

FACILITY SPECIFIC REQUIREMENTS

1. Aera shall maintain exclusive control of the discharge and shall comply with all of the requirements and timelines of General Order Three and the MRP.
2. The required annual fee specified in the annual billing from the State Water Board shall be paid until coverage under General Order Three is officially terminated. Aera must notify the Central Valley Water Board in writing to request termination.
3. Under Discharge Specifications, Item B.2., General Order Three states: *"The discharge flow shall not exceed actual maximum monthly average produced wastewater flow to the pond between 26 November 2004 and 26 November 2014. The discharge flow also shall not exceed the maximum design flow of the Facility's limiting unit as described by the technical data in the NOI."* Aera has provided an estimation of the maximum monthly discharge volume of the pond. However, the estimates are based on limited data that may underestimate historic discharges. The Report states, *"operational procedures do not permit fluids to remain in the EOB. Fluids are either pumped out of the EOB and circulated back through the system or sent for disposal, typically within 48 hours of the upset condition being resolved."* Therefore, this NOA does not limit the Facility to a maximum monthly discharge volume at this time. However, the "design capacity" of the pond is identified in the Report as being 12,939 barrels with two feet of freeboard and shall not be exceeded. Any increase in discharge volume that would exceed the "design

capacity” constitutes a facility expansion requiring an evaluation under the California Environmental Quality Act (CEQA).

4. Aera shall not discharge produced wastewater outside of the pond except for a permitted dust control use. If Aera intends to apply for use of produced wastewater for dust control, a proposed management plan as described in Provision E.6 of General Order Three must be submitted at least **90 days** prior to the anticipated discharges.
5. **By 11 December 2018**, Aera shall, pursuant to Provision E.3 of General Order Three, submit written certification that acceptable flow meters have been installed at a location or locations to ensure the accurate measurement of all discharge flows. The certification shall be accompanied by: (1) a description of the flow metering devices installed, (2) a diagram showing their locations, and (3) evidence demonstrating that the devices were properly calibrated. An engineered alternative may be used if approved in writing by the Central Valley Water Board’s Executive Officer.
6. **By 12 November 2018**, Aera shall, pursuant to Provision E.4. of General order Three, submit either:
 - a. The results of a hydrogeological investigation demonstrating that there is no groundwater beneath the Facility discharge areas and that produced wastewater and constituents associated with other approved wastes discharged at the Facility will not migrate into areas where there is groundwater with designated beneficial uses. Upon the written concurrence of the investigation results by the Executive Officer, this provision shall be considered satisfied,

or

 - b. If there is first encountered groundwater underlying the Facility or the Executive Officer does not concur with the results of the investigation in Provision E.4.a., above, the Discharger shall demonstrate that the natural background groundwater quality for the Facility meets the Sources of Drinking Water Policy exception criteria and/or parallel exception criteria outlined in this General Order (Findings 22 through 24) and thus the current Basin Plan groundwater beneficial uses are eligible for de-designation in accordance with the compliance schedule provided in Tasks 1 through 10 of Provision 4.b.

The Report states that *“there is no groundwater present in the alluvium near the AFS facility,”* and that *“the first encountered fluid in the Tulare zone is oil at a depth of 1,200 feet in the well closest to the pond, SH14-220T (API 0403048713).”* The geophysical logs included in the Report’s figure labeled “D.11.a AFS Cross Section Map” show that fluids may be present at shallower depth intervals. This needs to be assessed.

7. Aera shall operate and maintain the pond sufficiently to protect the integrity of containment and berms and prevent overtopping and/or structural failure. Discharges not authorized by the General Order and not described in the NOI should be reported to Central Valley Water Board Fresno office. Discharge of wastes other than those

described in the NOI is prohibited. If the method of waste disposal changes, Aera must submit a Report of Waste Discharge (Form 200).

8. **By 12 November 2018**, Aera shall, pursuant to Provision E.7 of General Order Three, submit a solids management plan for approval by the Executive Officer. This plan shall include the information required by Provision E.7. Aera shall, also include the information described in General Order Three, Attachment B, Information Needs Sheet, Item B.8. (a. – c.).

According to information provided with the NOI, the discharge is contained within the pond. The NOI reports that, *“Oil and gas facilities that have not released storm water resulting in a discharge of a reportable quantity (RQ) for which notification is or was required pursuant to 40 CFR Parts 110, 117, and 302 at any time after November 19, 1987 are not required to be permitted unless the industrial storm water discharge contributed to a violation of a water quality standard.”* Order Number 2014-0057-DWQ (NPDES General Permit CAS000001) specifies waste discharge requirements for discharges of storm water associated with industrial activities. If the conditions or regulatory policies change, the Lease may need coverage under NPDES General Permit CAS000001. Coverage under NPDES General Permit CAS000001 is not needed at this time.

The MRP requires extensive monitoring requirements. Failure to comply with the requirements in General Order Three and the MRP could result in an enforcement action as authorized by provisions of the California Water Code. A copy of General Order Three and the MRP is included with the enclosures to this notice. A copy can also be found online at: https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/general_orders/5-2017-0036.pdf.

The MRP includes monitoring and reporting of chemicals and additives. Aera should become familiar with those requirements. The Central Valley Water Board will review the MRP periodically and revise requirements when necessary. The MRP can be modified if Aera provides sufficient data to support the proposed changes. If monitoring consistently shows no significant variation in magnitude of a constituent concentration or parameter after a statistically significant number of sampling events, Aera may request the MRP be revised by the Executive Officer to reduce monitoring frequency or minimize the list of constituents. The proposal must include adequate technical justification for reduction in monitoring frequency.

Aera must comply with the Central Valley Water Board’s Standard Provisions and Reporting Requirements for Waste Discharge Requirements, dated 1 March 1991 (Standard Provisions). A copy of the Standard Provisions is included with the enclosures to this notice. A copy can also be found online at: https://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/std_provisions/wdr-mar1991.pdf.

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Board to review this action in accordance with Water Code section 13320 and CCR, title 23, division 3, chapter 6, section 2050 and those that follow. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Notice of Applicability, except

that if the thirtieth day following the date falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day.

SUBMISSIONS

Area shall submit electronic copies of all work plans, reports, analytical results, and groundwater elevation data over the internet to the State Water Board Geographic Environmental Information Management System database (GeoTracker) at

http://www.waterboards.ca.gov/ust/electronic_submittal/index.shtml.

A frequently asked question document for GeoTracker can be found at

http://www.waterboards.ca.gov/ust/electronic_submittal/docs/faq.pdf.

Electronic submittals shall comply with GeoTracker standards and procedures, as specified on the State Water Board's web site. Uploads to GeoTracker shall be completed on or prior to the due date. The Geotracker site Global I.D. number that is associated with this NOA is T10000007033.

In addition documents that are less than 50 MB shall be sent via electronic mail to: centralvalleyfresno@waterboards.ca.gov. Documents that are 50 MB or larger shall be transferred to a disk and mailed to the Central Valley Water Board office at 1685 E Street, Fresno, CA 93706.

Please review the attached memorandum for more information. If you have any questions regarding this matter, please contact Zachary Jarvie of this office at (559) 445-5455 or at zachary.jarvie@waterboards.ca.gov.



Patrick Pulupa
Executive Officer

Enclosures: 11 September 2018 Memorandum
General Order Three
1 March 1991 Standard Provisions

cc: Bill Bartling, Chief Deputy of the Division of Oil Gas and Geothermal Resources,
Bakersfield
Howard D. Barlow, Senior Engineer, Amec Foster Wheeler Environment and Infrastructure,
Inc., Fresno
Keith Nakatani, Oil and Gas Program Manager, Clean Water Action
(NOA and Memorandum only, Via Email)
Andrew Grinberg, National Campaigns Special Projects Manager, Clean Water Action
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Bill Allayaud, California Director of Government Affairs, Environmental Working Group
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Central Valley Regional Water Quality Control Board

TO: Clay Rodgers
Assistant Executive Officer

W. Dale Harvey
Supervising Engineer
RCE No. 55628

FROM: Michael L. Pfister *MLP*
Senior Engineering Geologist
PG No. 5946

Zachary J. Jarvie *ZJJ*
Engineering Geologist

DATE: 11 September 2018

SUBJECT: NOTICE OF APPLICABILITY (NOA), CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD, ORDER NUMBER R5-2017-0036, GENERAL ORDER NUMBER THREE, WASTE DISCHARGE REQUIREMENTS FOR OIL FIELD DISCHARGES TO LAND, AERA ENERGY LLC, AFS DEHYDRATION PLANT, MIDWAY-SUNSET OIL FIELD, KERN COUNTY

Aera Energy LLC (Aera) operates the AFS Dehydration Plant on the "Shale 14 Lease" (Lease) in the Midway-Sunset Oil Field, on the northeast side of Highway 33, and approximately 1.3 miles southeast of the town of Derby Acres. The Lease has a single geomembrane lined surface impoundment (pond) that is used for temporarily holding produced wastewater (discharge). The pond is in the northeast corner of Section 14 of T31S, R22E, MDB&M. Aera identifies the pond as the "AFS Dehydration Plant, Emergency Overflow Basin" (AFS EOB). On 7 March 2018, Central Valley Regional Water Quality Control Board (Central Valley Water Board) staff received an email from staff at Amec Foster Wheeler Environmental and Infrastructure Inc. (Amec). The email contained a link to download a technical report, dated 5 March 2018 and titled "Technical Report For General Order Number Three, AFS Dehydration Plant, Midway-Sunset Oil Field, Kern County, California" (Report). This memorandum provides a summary and evaluation of the information provided.

BACKGROUND INFORMATION

Order R5-2017-0036, Waste Discharge Requirements General Order for Oil Filed Discharges to Land General Order Number Three (General Order Three) regulates oil field produced wastewater discharges where: 1) produced wastewater exceeds the maximum oil field discharge limits for electrical conductivity, chloride, and boron contained in the Water Quality Control Plan for the Tulare Lake Basin, Second Edition, Revised July 2016 (Basin Plan); and 2) there is no first encountered groundwater or first encountered groundwater is of poor quality and does not support beneficial uses as identified in the Basin Plan as municipal and domestic

supply (MUN), or agricultural supply (AGR), or industrial service supply (IND) or industrial process supply (PRO).

Regulatory History

On 15 January 2015, Central Valley Water Board staff (Staff) inspected several of the Aera ponds in the Midway-Sunset Oil Field. As a result of the inspection, in a Central Valley Water Board Letter dated 25 March 2015, staff conveyed an Inspection Report for the pond at the “Shale 14 Lease.” The Inspection Report describes the pond as being “plastic-lined” and containing “oil and water.”

On 1 April 2015, Staff issued “*California Water Code Directive Pursuant to Section 13267*” (13267 Order), which required that Aera “*collect representative samples of wastewater within each of the ponds.*” In response a report, dated 15 June 2015, was provided by Aera. Area reported that the pond was “*dry*” and that there was “*no fluid to sample.*”

On 1 December 2015, Cleanup and Abatement Order (CAO) R5-2015-0746 was issued to Aera for the Fulton, Lockwood, Moco 35, National USL, Shale 14, and W&S Leases in the Midway-Sunset Oil Field. In response to the CAO, Aera conveyed a letter dated 8 February 2016, and a one page work plan (Work Plan).

In May 2017, Central Valley Water Board staff received a Notice of Intent (NOI) package for coverage of eight ponds in the Midway-Sunset Oil Field under General Order Three. The NOI package included: an application fee; a completed Form 200, Application/Report of Waste Discharge General information form for Waste Discharge Requirements or NPDS Permits; and, a “*Technical Report for General Order Three...*”, dated 6 May 2017. In a letter dated 27 July 2017 Central Valley Water Board staff indicated that each pond or group of ponds in the Midway-Sunset Oil Field should be permitted separately, and that individual NOI’s must be submitted for each. The letter also advised Aera that prior to submitting a revised NOI for each pond or group of ponds, Aera should evaluate each independently to determine which can be covered under General Order Three or under General Order Two. The Report was submitted in response to the 27 July 2017 Letter.

POND CHARACTERISTICS AND CAPACITY

The Report describes the AFS EOB as being 115 feet (ft.) by 100 ft., by 7.5 ft. deep. The Report states that it is “*...constructed below surrounding grades with a 2-foot high berm around the perimeter. The interior slopes for the basin are constructed at slopes of 2 horizontal to 1 vertical (2:1).*” The Report states that it is “*...is lined with a geomembrane, but construction information identifying the specific liner material could not be located.*” The liner thickness and composition is not identified.

The Report indicates that two feet of freeboard will be maintained in the AFS EOB. This is required by the General Order Three’s Discharge Specifications, Item B.

DISCHARGE CHARACTERISTICS

The Report states, *“The AFS Dehydration Plant treats produced fluid...”* from the following Midway Sunset Oil Field Leases: W&S, Wier (non-government), Globe, Marvic, Dickenson Trust, Neely, Exeter BAOC, Anderson, Soudan, Bolivar, H&D, and Anderson Goodwin. The Report states that the pond is used to contain *“...overflow from upset conditions within the plant.”*

Flow Volumes

The Report states, *“The EOB is used for the emergency storage of produced fluids. Should an emergency arise (e.g., electrical power outage), fluids can be safely diverted to the EOB to ensure the vessels are not overpressured. After the emergency is resolved, the collected fluids can be removed by using the EOB pumps, or with a vacuum truck. Operational procedures are to begin removing fluids within 24 hours of discharge or when rains have ceased. The EOB is emptied after each discharge event. Operations staff inspect the netting and berms monthly.”*

The Report states, *“During the five-year period from 2013 through 2017, the maximum number of discharges per month (22) was recorded in June 2014. While volumes have not been tracked, operations estimates that the average fluid volume per discharge is one foot of fluid in the EOB. Based on the dimensions of the EOB, the average volume per discharge is estimated at 1,923 barrels (bbls). Based on an average of 5.56 discharges per month, the estimated monthly discharge volume is 10,699 bbls.”* The Report identifies the design capacity of the AFS EOB as being 12,939 bbls.

Under Discharge Specifications, Item B.2., General Order Three states, *“The discharge flow shall not exceed actual maximum monthly average produced wastewater flow to the pond between 26 November 2004 and 26 November 2014. The discharge flow also shall not exceed the maximum design flow of the Facility’s limiting unit as described by the technical data in the NOI.”*

Produced wastewater must not be allowed to over top and flow outside of the pond. General Order Three prohibits produced wastewater discharges outside of the pond.

Dust Control and Solid Reuse

With regards to the use of wastewater for dust control, the Report states, *“Consistent with Provision E.6 of the General Order, Aera proposes to utilize produced water for dust suppression in the oil field covered by this NOI. Analytical data, along with a detailed management plan will be supplied for this use and no application of produced water to land will occur until the Executive Officer approves the management plan.”*

With regards to solid wastes generated at the Facility the Report states, *“Solid wastes from the facility are recycled and shipped to the South Belridge Central Waste facility to be added to the road mix.”* The Report also states, *“Consistent with Provision E.7 of the General Order, Aera Energy LLC (Aera) proposes to continue to beneficially utilize solids generated from the oil field covered by this Notice of Intent (NOI) along with other Aera properties consistent with the*

current practices. Analytical data, along with a detailed management plan, consistent with Provision E.7 and items B.8 (a-c) will be supplied to describe both the centralized road mix processing facility in South Belridge and the regional use of that product for the construction of roads and well pads throughout Aera's operating properties."

Discharge Specification B.16 of General Order Three requires that the discharger monitor the accumulations of solids within the ponds and as necessary, remove them. Additional General Order Three requirements for solids are in Section D, titled "Solids Disposal Specifications."

Waste Constituents

The Report states, "No hazardous wastes are known to be generated at the facility. If any hazardous wastes are generated, they will be disposed in accordance with State and Federal laws."

The Report states, "Produced water was sampled out of the line that transports disposal water to Valley Water Management Company. The analytical results are summarized in Tables 3 through 6, and the laboratory report is provided as B.3.a AFS Laboratory Report in Appendix C." The chain of custody form for the sampling states that the "AFS pit" sample was collected on 2 November 2017. The sample results are summarized in **Table 1**, below.

Table 1 Selected constituent concentration data for the AFS EOB produced wastewater sample collected on 2 November 2017.

Sample Point: "MW-103," AFS Dehydration Plant Emergency Overflow Basin		
Constituents of Salinity	Concentration	Units
Total Dissolved Solids (TDS)	3,500	milligrams per Liter (mg/L)
Chloride	1,100	mg/L
Dissolved Boron	22	mg/L
Volatile Organic Compounds (VOC), and Polynuclear Aromatic Hydrocarbons (PAH)		
Benzene	9.4	micrograms per Liter (µg/L)
Ethylbenzene	32	µg/L
Isopropylbenzene	2.5	µg/L
n-Propylbenzene	3.3	µg/L
Toluene	13	µg/L
1,2,4-Trimethylbenzene	11	µg/L
1,3,5-Trimethylbenzene	2.5	µg/L
Total Xylenes	110	µg/L
Acenaphthene	0.58	µg/L
Fluorene	0.77	µg/L
Naphthalene *	4.2 / 2.9	µg/L
Phenanthrene	1.8	µg/L
Pyrene	0.38	µg/L
Radioactivity		
Gross Alpha	8.04 ± 6.75	picoCuries per Liter (pCi/L)
Gross Beta	14.3 ± 6.07	pCi/L
Radium-226	4.76 ± 5.24	pCi/L
Radium-228	6.02 ± 6.52	pCi/L
Total Uranium	<0.67	pCi/L

* Naphthalene was detected at concentrations of 4.2 µg/L with U.S. EPA method 8260B (VOC), and 2.9 µg/L with U.S. EPA method 8270C-SIM (PAH).

UNSATURATED SOIL AND GROUNDWATER CHARACTERISTICS

Regarding the types and depths of soil underlying the ponds, and first encountered fluids, the Report states, "The first encountered fluid in the Tulare zone is oil at a depth of 1,200 feet in the well closest to the pond, SH14-220T (API 0403048713). See attachment D.11.a AFS Cross Section Map in Appendix A. Well SH14-220T is represented by green diamonds on the cross section. The cross section indicates that air sands are present from the surface to

approximately 180 feet in depth, underlain by shales to the Basal Alluvial Clay at a depth of about 240 feet, then underlain by air sands present in the upper Tulare. The resistivity, microresistivity, and spontaneous potential logs also agree with this interpretation.”

With regards to underlying soils, the Report states: *“The alluvium is primarily composed of coalescing alluvial fan deposits with little consistent internal structure, the exception being a fine-grained zone up to 100 feet thick at its base. This basal alluvial unit varies from a clay to a fine silt and acts as a confining layer preventing vertical migration of fluids.”*

Provision 4 of General Order Three

Provision 4 of General order Three requires that Aera either: 1) demonstrate that *“...there is no groundwater beneath the Facility discharge areas and that produced wastewater and constituents associated with other approved wastes discharged at the Facility will not migrate into areas that there is groundwater with designated beneficial uses,”* or 2) obtain a Basin Plan amendment under the timeline outlined in General order Three Provision 4.b.

The Report states that, *“A Basin Plan Amendment will not be required. It has been demonstrated that no groundwater is present near the facility and the alluvium present in the Midway- Sunset Oil Field is separated geologically from the valley floor and its associated protected waters. See items D.11.a and D.12.b, and attachment D.11.a AFS Cross Section Map in Appendix A.”*

The Report states that, *“the first encountered fluid is not groundwater, but oil at about 1,200 feet in depth in the Tulare zone, as described in section D.11.a.”* The Report also states that, the *“...D.12.b North MWSS Cross Section (Appendix A) shows a representation of where the upper Tulare groundwater level is located with regards to the alluvium. This cross section also depicts the geological structure east of the North Midway-Sunset Oil Field, the Buena Vista Oil Field, and how the alluvium present in the Midway-Sunset Oil Field is separated from the valley floor.”*

Central Valley Water Board staff have reviewed the cross-sections described above. The figure labeled *“D.12.b. North MWSS Cross Section”* is a copy of one of two versions of Figure 6-45 from the 20 July 2016, *“Midway-Sunset Oil Field, Aquifer Exemption Application Package”* that was submitted to the California Division of Oil, Gas, & Geothermal Resources, District 4 (DOGGR) by *“Midway-Sunset Oil Field Operators.”* The *“D.12.b. North MWSS Cross Section,”* is annotated to show the map location of the AFS Dehydration Plant, and the version of Figure 6-45 used, comes from the revised and higher resolution figures. The cross-section indicates that the alluvium in which the pond is constructed is not hydraulically connected to the groundwater basins of the southern San Joaquin Valley. The figure labeled *“D.11.a AFS Cross Section”* depicts four geophysical well logs, the western most well is approximately 2,700 ft. northwest of the pond and the eastern most well is approximately 960 ft. north northeast of the pond. The cross-section includes annotations that interpret the log signatures. *“Air sands”* in the alluvium and Tulare Formation are identified by a *“cross over”* observed in the neutron and density geophysical logs. The log intervals where the crossover is not observed are interpreted as *“shale.”* The annotations from the figure state, *“When we go deeper, the sand turns into shale (clay), the density and neutron logs come together. The decreasing resistivity and micro-resistivity and SP also agree with this interpretation.”* Original copies of geophysical logs

depicted in the “D.11.a AFS Cross Section” are available on the DOGGR’s Well Finder online database. Central Valley Water Board staff have reviewed the available geophysical logs. Some of the logs indicate that fluids may be present in sands at depths shallower than 1,200 ft. below ground surface. Aera needs to provide more information regarding interpretations of the logs available for the lease area and more accurately assess the underlying hydrogeologic conditions.

The AFS EOB is located approximately 1,150 ft. north northeast of two unlined ponds operated by Engineers Oil Company (Engineers) on its Section 14 Lease facility. On 29 August 2017 the Central Valley Water Board Executive Officer issued to Engineers a NOA for coverage if its ponds under General Order Three, Order Number R5-2017-0036-001. The Engineers NOA indicates that the ponds qualify for General Order Three coverage via Provision 4.a.

Valley Water Management Company operates a series of produced wastewater disposal ponds approximately 6,000 ft. southeast of the AFS EOB pond. In the event that it is determined that a Basin Plan Amendment is needed, Central Valley Water Board staff encourage cooperation amongst others with ponds during the amendment process.

SUMMARY

The Report states that first encountered fluid is oil in the Tulare formation at a depth of 1,200 ft. below ground surface. Based on the conditions described in the Report, coverage under General Order Three appears to be appropriate for the ponds. As per Title 23, CCR, section 2200, the discharge shall be given a TTWQ (threat to water quality) and CPLX (complexity rating) of 3C. Aera is responsible for annual fees associated with this rating, unless conditions or regulatory policies change.