

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER R5-2011-0903

AMENDING TIME SCHEDULE ORDER R5-2008-0009

REQUIRING KINDER MORGAN ENERGY PARTNERS, L.P.,  
THROUGH ITS OPERATING PARTNERSHIP SFPP, L.P.  
FOX ROAD PETROLEUM RELEASE SITE GROUNDWATER REMEDIATION SYSTEM  
SOLANO COUNTY

TO COMPLY WITH REQUIREMENTS PRESCRIBED IN ORDER NO. R5-2008-0008  
(NPDES PERMIT NO. CA0084760)

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Central Valley Water Board) finds that:

1. On 25 January 2008, the Central Valley Water Board adopted Waste Discharge Requirements (WDR) Order R5-2008-0008 (NPDES Permit), prescribing waste discharge requirements for Kinder Morgan Energy Partners, L.P., Through Its Operating Partnership SFPP, L.P. (hereafter Discharger), Fox Road Petroleum Release Site Groundwater Extraction and Treatment System (hereafter Facility), Solano County.
2. The Discharger owns and operates a groundwater treatment facility to treat groundwater contaminated with petroleum hydrocarbons. The Facility consists of four extraction trenches, 11 extraction wells, an oil-water separator, bag filters, thermal and catalytic oxidizers, an air stripper and granular activated carbon (GAC) vessels to remove the petroleum fuel constituents. The Discharger uses an anti-scaling or sequestering agent, an anti-foaming agent, sodium hypochlorite and sulfuric acid as amendments to facilitate treatment. Treated groundwater is discharged from Discharge Point No. 001 to Gibson Canyon Creek Flood Control Channel, a water of the United States and a tributary to the Sacramento – San Joaquin Delta via the Sweany Creek Channel, Ulatis Creek, and Cache Slough within the Grassland Watershed.
3. WDR Order R5-2008-0008, contains Final Effluent Limitation IV.A.1., which reads in part as follows:

*“The Discharger shall maintain compliance with the following effluent limitations at Discharge Point No. 001, with compliance measured at Monitoring Location EFF-001 as described in the attached MRP (Attachment E):”*

*“b. **Total Recoverable Iron.** For a calendar year, the annual average total recoverable iron concentration in the effluent shall not exceed **300 µg/L.***

*c. **Total Recoverable Manganese.** For a calendar year, the annual average total recoverable manganese concentration in the effluent shall not exceed **50 µg/L.**”*

4. Based on a limited dataset for iron and manganese at the time the NPDES Permit was adopted, the Central Valley Water Board found that the Facility could meet the final effluent limitations for iron, but could not meet the final effluent limitations for manganese. Therefore, the Central Valley Water Board also adopted Time Schedule Order R5-2008-0009, which included a compliance schedule and performance-based interim effluent limitations for manganese.
5. After the NPDES Permit was adopted and the Discharger began to monitor for iron and manganese it was discovered that the effluent concentrations for iron and manganese were higher than expected. The groundwater extraction and treatment system was shut down on 17 December 2008 due to elevated concentrations of iron and manganese that threatened to exceed effluent limitations.
6. In an effort to establish more accurate performance-based effluent limits the Discharger collected additional iron and manganese data in December 2008 and January, March, and June 2009 from various monitoring wells, extraction wells, and extraction trenches, within the groundwater extraction and treatment system. The maximum concentration of iron was 400,000 µg/L and the maximum concentration of manganese was 9,500 µg/L, which exceeded the effluent limitations of 300 µg/L for iron and 995 µg/L for manganese. In addition to providing additional information to establish performance-based limits, this monitoring was conducted to evaluate the possibility of limiting the iron and manganese concentrations from the Facility through strategic pumping.
7. On 19 March 2009, the Discharger submitted a Request for Revision of Interim Discharge Limits for Manganese and Iron (Report). The Report demonstrated that it was infeasible for the Discharger to achieve immediate compliance with manganese and iron effluent limitations. The Discharger requested a new compliance schedule and interim effluent limitations for iron and modified interim effluent limitations for manganese. Central Valley Water Board staff reviewed the 19 March 2009 submittal and requested the Discharger provide a plan to strategically pump the groundwater to minimize the iron and manganese concentrations. The Discharger proposed extraction from groundwater extraction Trench T-2, which is down gradient of the petroleum hydrocarbons plume and is likely to contain lower concentrations of iron and manganese than other areas of the groundwater extraction area. In December 2009, the Discharger collected samples from extraction Trench T-2, as well as, samples from extraction wells surrounding Trench T-2. The maximum iron and manganese concentrations from Trench T-2 were 8.5 mg/L and 2.3 mg/L, respectively. Interim limitations for iron and manganese based on this data were proposed by the Discharger and found to be acceptable by Central Valley Water Board staff.
8. In March 2010, methyl tertiary butyl ether (MTBE) was detected for the first time in the farthest downgradient monitoring well at a concentration of 3,400 µg/L. Several investigations were conducted in 2010 to determine the source of the MTBE migration pathway. The Discharger has proposed to use the existing groundwater extraction and treatment system to capture the MTBE plume and halt the migration. The requested

interim effluent limitations and compliance schedules for iron and manganese must be in place prior to turning on the groundwater extraction and treatment system.

9. This Order amends Time Schedule Order R5-2008-0009 to include a new compliance schedule and interim effluent limitations for iron, and modifies the interim effluent limitations for manganese.
10. Issuance of this Order is exempt from the provisions of the California Environmental Quality Act (Public Resources Code, Section 21000, *et seq.*), in accordance with Section 15321(a)(2), Title 14, California Code of Regulations.
11. The Central Valley Water Board has notified the Discharger and interested agencies and persons of its intent to amend Time Schedule Order R5-2008-0009 for this discharge and has provided them with an opportunity to submit their written views and recommendations.
12. Any person adversely affected by this action of the Central Valley Water Board may petition the State Water Resources Control Board (State Board) to review the action. The petition must be received by the State Board Office of the Chief Counsel, P.O. Box 100, Sacramento, CA, 95812-0100, within 30 days of the date on which the action was taken. Copies of the law and regulations applicable to filing petitions will be provided on request.

**IT IS HEREBY ORDERED THAT** pursuant to CWC Section 13300 and 13267, Time Schedule Order R5-2008-0009 be amended as shown in underline/strikeout format in Attachment I.

Any person aggrieved by this action of the Executive Officer may petition the State Water Resources Control Board (State Water Board) to review the action in accordance with CWC section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday (including mandatory furlough days), the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at: [http://www.waterboards.ca.gov/public\\_notices/petitions/water\\_quality](http://www.waterboards.ca.gov/public_notices/petitions/water_quality) or will be provided upon request.

This Order is effective upon the date of signature.

Original Signed by Kenneth D. Landau  
PAMELA C. CREEDON, Executive Officer

2 May 2011

Date

**Attachment I**

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

TIME SCHEDULE ORDER NO. R5-2008-0009-01

REQUIRING KINDER MORGAN ENERGY PARTNERS, L.P.,  
THROUGH ITS OPERATING PARTNERSHIP SFPP, L.P.  
FOX ROAD PETROLEUM RELEASE SITE GROUNDWATER REMEDIATION SYSTEM  
SOLANO COUNTY  
TO COMPLY WITH REQUIREMENTS PRESCRIBED IN ORDER NO. R5-2008-0008  
(NPDES PERMIT NO. CA0084760)

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Water Board) finds that:

1. On **25 January 2008**, the Regional Water Board adopted Waste Discharge Requirements (WDR) Order No. R5-2008-0008, prescribing waste discharge requirements for Kinder Morgan Energy Partners, L.P., Through Its Operating Partnership SFPP, L.P. (hereafter Discharger), Fox Road Petroleum Release Site Groundwater Remediation System (hereafter Facility), Solano County.
2. WDR Order No. R5-2008-0008, contains Final Effluent Limitation IV.A.1., which reads in part as follows:

*“The Discharger shall maintain compliance with the following effluent limitations at Discharge Point No. 001, with compliance measured at Monitoring Location EFF-001 as described in the attached MRP (Attachment E):*

*“a. The Discharger shall maintain compliance with the effluent limitations specified in Table 6:*

**Table 6. Effluent Limitations**

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Nitrate Nitrogen, Total (as N)	mg/L	10	--	--	--
Tertiary Butyl Alcohol	µg/L	--	20	--	--

***b. Total Recoverable Iron.** For a calendar year, the annual average total recoverable iron concentration in the effluent shall not exceed **300 µg/L.**”*

***c. Total Recoverable Manganese.** For a calendar year, the annual average total recoverable manganese concentration in the effluent shall not exceed **50 µg/L.**”*

3. The effluent limitations specified in Order No. R5-2008-0008 for iron and manganese are based on the Secondary Maximum Contaminant Level – Consumer Acceptance Level, a numeric receiving water standard incorporated by reference in the Basin Plan. The effluent limitation for nitrate is based on the Primary California Maximum Contaminant Level, a numeric receiving water standard incorporated by reference in the Basin Plan. The effluent limitations for tertiary butyl alcohol are technology-based effluents. The effluent limitations for iron, manganese, nitrate, and tertiary butyl alcohol are new or more stringent limitations, which were not prescribed in previous Order No. 5-01-078, adopted by the Regional Water Board on 27 April 2001.
4. California Water Code (CWC) section 13300 states: “*Whenever a regional board finds that a discharge of waste is taking place or threatening to take place that violates or will violate requirements prescribed by the regional board, or the state board, or that the waste collection, treatment, or disposal facilities of a discharger are approaching capacity, the board may require the discharger to submit for approval of the board, with such modifications as it may deem necessary, a detailed time schedule of specific actions the discharger shall take in order to correct or prevent a violation of requirements.*”
5. Federal regulations, 40 CFR 122.44 (d)(1)(i), require that NPDES permit effluent limitations must control all pollutants which are or may be discharged at a level which will cause or have the reasonable potential to cause or contribute to an in-stream excursion above any State water quality standard, including any narrative criteria for water quality. Beneficial uses, together with their corresponding water quality objectives or promulgated water quality criteria, can be defined per federal regulations as water quality standards.
6. In accordance with CWC section 13385(j)(3), the Regional Water Board finds that, based upon results of effluent monitoring, the Discharger is not able to consistently comply with the new effluent limitations for iron, manganese, nitrate, and tertiary butyl alcohol. These limitations are new requirements that becomes applicable to the Order after the effective date of adoption of the waste discharge requirements, and after 1 July 2000, for which new or modified control measures are necessary in order to comply with the limitations, and the new or modified control measures cannot be designed, installed, and put into operation within 30 calendar days.
7. Immediate compliance with the new effluent limitations for iron, manganese, nitrate, and tertiary butyl alcohol is not possible or practicable. The Clean Water Act and the California Water Code authorize time schedules for achieving compliance.
8. This Order provides a time schedule for the Discharger to develop, submit, and implement methods of compliance, including utilizing pollution prevention activities or constructing necessary treatment facilities to meet these new effluent limitations.
9. CWC sections 13385(h) and (i) require the Regional Water Board to impose mandatory minimum penalties upon dischargers that violate certain effluent limitations. CWC

section 13385(j) exempts certain violations from the mandatory minimum penalties. CWC section 13385(j)(3) exempts the discharge from mandatory minimum penalties “where the waste discharge is in compliance with either a cease and desist order issued pursuant to Section 13301 or a time schedule order issued pursuant to Section 13300, if all the [specified] requirements are met.”

10. Compliance with this Order exempts the Discharger from mandatory penalties for violations of effluent limitations for iron, manganese, nitrate, and tertiary butyl alcohol only, in accordance with CWC section 13385(j)(3). CWC section 13385(j)(3) requires the Discharger to prepare and implement a pollution prevention plan pursuant to section 13263.3(d)(2) of the California Water Code. Therefore, a pollution prevention plan will be necessary for iron, manganese and nitrate in order to effectively reduce the effluent concentrations by source control measures. The Discharger can operate the groundwater extraction system to minimize the concentrations of iron and manganese, therefore, this Order requires that the Discharger update its pollution prevention plan accordingly. Tertiary butyl alcohol naturally forms during the reduction of methyl tert-butyl ether, therefore, it is infeasible to reduce tertiary butyl alcohol through source control measures. Consequently, a pollution prevention plan is not required for tertiary butyl alcohol.
11. Since the time schedule for completion of action necessary to bring the waste discharge into compliance exceeds 1 year, this Order includes interim requirements and dates for their achievement. The time schedule does not exceed 5 years.

The compliance time schedule in this Order includes interim performance-based effluent limitations for iron, manganese and nitrate. The interim effluent limitations consist of a maximum daily effluent concentration derived using sample data provided by the Discharger. In developing the interim limitations for nitrate, where there are 10 sampling data points or more, sampling and laboratory variability is accounted for by establishing interim limits that are based on normally distributed data where 99.9 percent of the data points will lie within 3.3 standard deviations of the mean (*Basic Statistical Methods for Engineers and Scientists, Kennedy and Neville, Harper and Row*). Therefore, the interim limitations for nitrate in this Order are established as the mean plus 3.3 standard deviations of the available data. Where actual sampling shows an exceedance of the proposed 3.3-standard deviation interim limit, the maximum detected concentration has been established as the interim limitation. The interim effluent limitations for iron and manganese consist of a maximum daily effluent concentration derived using sample data provided by the Discharger from extraction Trench T-2 in December 2009. In developing the interim limitations for iron and manganese, the maximum concentrations were multiplied by a safety factor of two. Based on the Trench T-2 data, the interim effluent limitations for iron and manganese were calculated as 17 mg/L and 4.6 mg/L, respectively.

The statistical methods normally used to calculate performance-based effluent limits were found to be inadequate due to the large statistical variability of the data. The Discharger

is able to extract groundwater from multiple wells and trenches with metals concentrations that vary in each location. To statistically calculate a concentration that is coming from multiple locations with their own statistical variability is difficult. The proposed interim limitations are applicable only to extraction from trench T-2. If in the future groundwater extraction is required from a different area it may be necessary to revise the interim limitations.

Tertiary butyl alcohol (TBA) is a break down product of methyl tert-butyl ether. TBA has been increasing in the groundwater over the past year and it is likely to continue to increase. It is infeasible to determine a performance-based effluent limitation for TBA based on past data, because the data may not be representative of TBA levels in the future.

12. The Regional Water Board finds that interim limitations are established when compliance with the final effluent limitations cannot be achieved by the existing discharge. Discharge of constituents in concentrations in excess of the final effluent limitations, but in compliance with the interim effluent limitations, can significantly degrade water quality and adversely affect the beneficial uses of the receiving stream on a long-term basis. The interim limitations, however, establish an enforceable ceiling concentration until compliance with the effluent limitation can be achieved.
13. On **25 January 2008**, in Sacramento, California, after due notice to the Discharger and all other affected persons, the Board conducted a public hearing at which evidence was received to consider a Time Schedule Order under CWC section 13300 to establish a time schedule to achieve compliance with waste discharge requirements.
14. Issuance of this Order is exempt from the provisions of the California Environmental Quality Act (Public Resources Code section 21000, et seq.), in accordance with CWC section 15321 (a)(2), Title 14, of the California Code of Regulations.
15. Any person adversely affected by this action of the Board may petition the State Water Resources Control Board to review this action. The petition must be received by the State Water Resources Control Board, Office of the Chief Counsel, P.O. Box 100, Sacramento, CA 95812-0100, within 30 days of the date on which this action was taken. Copies of the law and regulations applicable to filing petitions will be provided on request.

**IT IS HEREBY ORDERED THAT:**

1. The Discharger shall comply with the following time schedule to ensure compliance with the iron, manganese, nitrate, and tertiary butyl alcohol effluent limitations at Section IV.A.1. contained in WDR Order No. R5-2008-0008 as described in the above Findings:

**Task**

**Date Due**

Submit Method of Compliance Workplan/Schedule

**Within 4 months of adoption of this Order**

Submit and Implement Pollution Prevention Plan pursuant to CWC section 13263.3(d)(2) for manganese and nitrate

**Within 12 months of adoption of this Order**

Submit and Implement an updated Pollution Prevention Plan pursuant to CWC section 13263.3(d)(2) for iron, manganese, nitrate, and tertiary butyl alcohol, which includes a plan to operate the groundwater extraction system to strategically pump from areas that minimize pollutant concentrations.

**1 September 2011**

Progress Reports<sup>1</sup>

**1 January, annually,** after approval of workplan until final compliance

Full compliance with iron, manganese, nitrate, and tertiary butyl alcohol limitations

**1 January 2013**

<sup>1</sup> The progress reports shall detail what steps have been implemented towards achieving compliance with waste discharge requirements, including studies, construction progress, evaluation of measures implemented, and recommendations for additional measures as necessary to achieve full compliance by the final date.

2. The following interim effluent limitations shall be effective immediately. The interim effluent limitations for iron, manganese, nitrate, and Tertiary butyl alcohol shall be effective until **31 December 2012**, or when the Discharger is able to come into compliance, whichever is sooner:

<b>Parameter</b>	<b>Units</b>	<b>Maximum Daily Effluent Limitation</b>
<u>Iron, Total Recoverable</u>	<u>mg/L</u>	<u>17</u>
<u>Manganese, Total Recoverable</u>	<u>µg/L-mg/L</u>	<u>9954.6</u>
<u>Nitrate Nitrogen, Total (as N)</u>	<u>mg/L</u>	<u>34</u>
<u>Tertiary Butyl Alcohol</u>	<u>µg/L</u>	<u>No Limit <sup>1</sup></u>

<sup>1</sup> It is infeasible to calculate a performance-based limit. See Finding 11.



3. For the compliance schedule required by this Order, the Discharger shall submit to the Regional Water Board on or before each compliance report due date, the specified document or, if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is being reported, the reasons for such noncompliance shall be stated, and shall include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Water Board by letter when it returns to compliance with the time schedule.
4. If, in the opinion of the Executive Officer, the Discharger fails to comply with the provisions of this Order, the Executive Officer may apply to the Attorney General for judicial enforcement. If compliance with these effluent limitations is not achieved by the full compliance date, the discharge would not be exempt from the mandatory minimum penalties for violation of certain effluent limitations, and would be subject to issuance of a Cease and Desist Order in accordance with CWC section 13301.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on **25 January 2008** and amended on **2 May 2011**.

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PAMELA C. CREEDON, Executive Officer