

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2011-XXXX

WASTE DISCHARGE REQUIREMENTS
AEROJET-GENERAL CORPORATION
WHITE ROCK NORTH DUMP GROUNDWATER TREATMENT FACILITY
SACRAMENTO COUNTY

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

1. On 22 July 2002, the Aerojet-General Corporation ("Discharger") submitted an initial Report of Waste Discharge ("RWD") for groundwater remediation project (the "Project") to address volatile organic contaminants ("VOCs") and perchlorate at the former White Rock North Dump. The Discharger submitted a revised RWD on 8 November 2010. The Discharger also submitted supplemental information on 1 April 2003, 9 February 2004, 9 July 2004, 2 August 2005 and 7 November 2005 along with bi-annual groundwater monitor reports. The treatment facility is on property owned by Grantline Road Properties.
2. The Project site location is shown on Attachment A, which is attached hereto and made part of this Order by reference.
3. The Project is located in eastern Sacramento County, south of White Rock Road and west of Grant Line Road in Rancho Cordova, in Section 32, T9N, R7E MDB&M (latitude 38°58'30"N, longitude 121°18'34"). Agricultural and light industrial activities border the project location. The project site plan is shown on Attachment B, which is attached hereto and made part of this Order by reference.
4. The Project is on Assessor's Parcel No. 072-0110-022.
5. The objectives of the Project are to implement the second phase of a groundwater remedy for contamination emanating from the White Rock North Dump pursuant to Cleanup and Abatement Order R5-96-150, issued by the Board on 3 May 1996. Groundwater beneath the White Rock North Dump was found to contain VOCs, consisting primarily of trichloroethylene ("TCE") and its breakdown products, and perchlorate. Currently, TCE is found at concentrations up to 2100 micrograms per liter ($\mu\text{g/L}$), with a Primary Drinking Water Standard ("MCL") of 5 $\mu\text{g/L}$ and a California Public Health Goal ("PHG") of 1.7 $\mu\text{g/L}$. Perchlorate is found at concentrations up to 700 $\mu\text{g/L}$ beneath the dump. The MCL and PHG for perchlorate are both 6 $\mu\text{g/L}$.
6. The Discharger completed an interim groundwater extraction and treatment system to control polluted groundwater associated with the dump at the dump boundary. A series

of five extraction wells pumps a total of up to 80 gallons per minute (“gpm”) to the Discharger’s Sector B groundwater extraction and treatment system (“GET B”) on its Superfund Site just north of the dump. The operation of that facility is conducted under the 1989 Partial Consent Decree for the Superfund Site. The water is treated to remove the pollutants prior to discharge on the Superfund Site.

Project Layout and Operation

7. Groundwater beneath and downgradient of the White Rock North Dump contains the pollutants perchlorate and TCE, and much lower concentrations of other VOCs including cis-1,2-dichloroethylene, vinyl chloride, tetrachloroethylene (“PCE”), 1,1-dichloroethylene, 1,1-dichloroethane, and 1,2-dichloroethane. There are two plumes of pollution at the site. An eastern plume is associated with the dump and consists of TCE and its breakdown products (VOCs listed above). The western plume consists of perchlorate and TCE and is emanating from the upgradient Superfund Site. The two plumes likely merge downgradient of the dump. In addition, another plume from the Superfund Site is located north and east of the dump. In addition to VOCs and perchlorate, this plume contains n-nitrosodimethylamine (“NDMA”), which is associated with liquid rocket testing conducted in Sectors A and B at the Superfund Site. Cleanup efforts are underway at the Superfund Site to control this northern and eastern plume to prevent NDMA and VOCs from migrating further downgradient and adversely impacting water users and this project.
8. The Project covered by this order has already been constructed and targets the west and east plumes downgradient (south) of the dump. The Project consists of a groundwater treatment system adjacent to the water supply well serving the Teichert sand and gravel processing plant east of Grant Line Road. That supply well has detectable concentrations of TCE and perchlorate. The treatment system consists of an air-stripper to remove the TCE and any other VOCs and an ion-exchange system to remove perchlorate (discussed further below in Finding 9). Two extraction wells, 4625 and 4702, have been placed to intercept the downgradient toe of the plume. The estimated 325 gpm combined flow produced by the wells is piped to the treatment system. The treated groundwater is provided to Teichert for use at its processing plant. If Teichert requires more water than what can be provided by the two extraction wells, then the Teichert supply well is utilized with its water also being processed through the groundwater treatment system. The Teichert Grant Line processing facility operates under Waste Discharge Requirements Order R5-2002-0123.
9. The treatment facility is designed to treat up to 900 gpm with approximately 150 gpm from extraction well 4625, 175 gpm from extraction well 4702 and up to 575 gpm from the Teichert production well. The influent from well 4625 and the Teichert well is piped through bag filters to remove particulates and sediment. From there, the water is processed through two ion exchange vessels operated in series to remove perchlorate. Thence, that flow is combined with the flow from well 4702 and sent to the counter-flow air stripper to remove the VOCs. A transfer pump then pumps the water to either Teichert or to the Discharger’s property near the GET B facility. In addition, a 12,000-

gallon storage tank, recirculation filter and pump are provided for temporary storage in case of a power outage or unexpected shutdown.

10. Treated groundwater is preferentially provided to Teichert for use in their processing facility on Grant Line Road and/or a potential future processing plant on Scott Road. If Teichert does not need all or any of the water, the excess water is then transferred via pipeline to Aerojet's Superfund site and discharged into Rebel Hill Ditch along with treated groundwater from Aerojet's GET A and GET B facilities. See Figure X for the location of these discharge points.
11. The treatment system is capable of removing perchlorate to 4 µg/L or less, and VOCs of concern to less than 0.5 µg/L, the standard practical quantitation limit for the VOCs of concern at the site.
12. The ion-exchange process uses a perchlorate-specific ion exchange resin that is disposed of when the resin's capacity for taking up perchlorate is exhausted. The resin is then replaced with fresh resin and the spent resin taken to a permitted disposal facility.
13. If additional groundwater extraction wells are determined to be needed to control the pollution, then those wells will be constructed and added to the system. If additional treatment capacity is needed, then this Order will be re-opened and revised as needed.
14. In the future, once the Record of Decision for Operable Unit 5 is completed and an enforcement order for implementation is issued, the GET A and GET B facilities will no longer be covered by the Partial Consent Decree. This Order will be re-opened and revised to include the operation and discharge from those two groundwater treatment facilities.

REGULATORY CONSIDERATIONS

15. *The Water Quality Control Plan, Fourth Edition, for the Sacramento and San Joaquin River Basins*, Fourth Edition, revised September 2009 (the "Basin Plan"), designates beneficial uses, establishes water quality objectives ("WQOs"), contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Resources Control Board ("State Water Board"). Pursuant to Water Code section 13263(a), waste discharge requirements must implement the Basin Plan's provisions.
16. Surface water drainage from the treatment facility would potentially be to Morrison Creek. Future development of the area will establish drainage to Morrison Creek, tributary to Stone Lakes, tributary to the Sacramento River. The beneficial uses of the Sacramento River are municipal and domestic supply; agricultural irrigation and stock watering supply; process and service industrial supply; contact recreation, other noncontact recreation; warm and cold freshwater habitat; warm and cold migration; warm water spawning; wildlife habitat; and navigation. Rebel Hill Ditch on the

Discharger's Superfund Site does not discharge off the property and recharges groundwater.

17. The designated beneficial uses of underlying groundwater include:
 - a. Municipal and domestic water supply (MUN);
 - b. Agricultural water supply (AGR);
 - c. Industrial service supply (IND); and
 - d. Industrial process supply (PRO).
18. The Basin Plan establishes numerical and narrative water quality objectives for surface and groundwater within the basin, and recognizes that water quality objectives are achieved primarily through the Board's adoption of waste discharge requirements and enforcement orders. Where numerical water quality objectives are listed, these are limits necessary for the reasonable protection of beneficial uses of the water. Where compliance with narrative water quality objectives is required, the Board will, on a case-by-case basis, adopt numerical limitations in orders, which will implement the narrative objectives to protect beneficial uses of the waters of the state.
19. The Basin Plan identifies numerical water quality objectives for waters designated as municipal supply. These are the maximum contaminant levels ("MCL") specified in the following provisions of the California Code of Regulations, title 22: Tables 64431-A (Inorganic Chemicals) and 64431-B (Fluoride) of Section 64431, Table 64444-A (Organic Chemicals) of Section 64444, and Table 64449-A (Secondary Maximum Contaminant Levels-Consumer Acceptance Limits) of Section 64449. The Basin Plan's incorporation of these provisions by reference is prospective, and includes future changes to the incorporated provisions as the changes take effect. The Basin Plan recognizes that the Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.
20. The Basin Plan contains narrative water quality objectives for chemical constituents, tastes and odors, and toxicity. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants or animals. The chemical constituent objective requires that groundwater shall not contain chemical constituents in concentrations that adversely affect beneficial uses. The tastes and odors objective requires that groundwater shall not contain tastes or odors producing substances in concentrations that cause nuisance or adversely affect beneficial uses.
21. Water Code section requires the Central Valley Water Board to consider various factors, including economic considerations, when adopting water quality objectives into its Basin Plan. Water Code section 13263 requires the Board to address the factors in Water Code section 13241 when adopting waste discharge requirements. The State Board,

however, has held that a Regional Board need not specifically address the Water Code section 13241 factors when implementing existing water quality objectives in waste discharge requirements, because the factors were already considered when the water quality objectives were adopted. These waste discharge requirements implement water quality objectives that have already been adopted. Therefore, no additional analysis of the Water Code section 13241 factors is required.

22. State Water Board Resolution 92-49 (“Resolution 92-49”) requires that actions of the Central Valley Water Board that require the cleanup and abatement of discharges that cause or threaten to cause pollution or nuisance must conform to the provisions of State Water Board Resolution 68-16 (“Resolution 68-16”) and the Basin Plan. Pursuant to Resolution 92-49, the Central Valley Water Board shall ensure that dischargers are required to clean up and abate the effects of discharges in a manner that promotes attainment of either background water quality, or, if background levels of water quality cannot be restored, the best water quality which is reasonable and which complies with the Basin Plan, including applicable WQOs.
23. Resolution 68-16 requires that the Board, in regulating discharges, must maintain high quality waters of the State until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and potential beneficial uses, and will not result in water quality less than that described in plans and policies (e.g., quality that exceeds WQOs). The extraction and treatment process will remove perchlorate and VOCs from the groundwater and restore the groundwater to beneficial uses. This Order is consistent with Resolution 68-16 since (1) the purpose is to accelerate and enhance remediation of groundwater pollution and such remediation will benefit the people of the State; (2) the discharge facilitates a project to evaluate the effectiveness of cleanup technology in accord with Resolution 92-49; (3) the degradation is limited in scope and duration; (4) best practicable treatment and control, including adequate monitoring and hydraulic control to assure protection of water quality, is required; and (5) the discharge will not cause WQOs to be exceeded in the groundwater.
24. These Waste Discharge Requirements deal with water quality as it relates to the discharge from the treatment system. Cleanup criteria for groundwater at this site will be established in a revision to the Cleanup and Abatement Order and are **no further discussed further** as a part of this order. The applicable WQOs are the narrative toxicity objective, Primary and Secondary Maximum Contaminant Levels, and the taste and odor objective, as found in the Basin Plan. Numerical limits in this Order implement those Objectives. The following are the numerical WQOs for potential pollutants of concern at the site:

Constituent	WQO	Reference
Perchlorate	6 µg/L	Maximum Contaminant Level
trichloroethylene	1.7 µg/L	California Public Health Goal
1,2-dichloroethane	0.4 µg/L	California Public Health Goal

cis-1,2-dichloroethylene	6 µg/L	Maximum Contaminant Level
1,1-dichloroethylene	6 µg/L	Maximum Contaminant Level
1,1-dichloroethane	3 µg/L	California Public Health Goal
vinyl chloride	0.05 µg/L	California Public Health Goal

25. The action to adopt these Waste Discharge Requirements for the Aerojet-General Corporation is exempt from the provisions of the California Environmental Quality Act (Pub. Resources Code § 21000 et seq.) (“CEQA”) because it: (1) authorizes activity that will result in a minor modification to land pursuant to California Code of Regulations, title 14 (“Title 14”), section 15304; (2) consists of an action by a regulatory agency authorizing actions for the protection of the environment pursuant to Title 14, section 15308; and (3) authorizes minor cleanup actions costing \$1.5 million or less that are taken to prevent, minimize, stabilize, mitigate, or eliminate the release or threat of release of a hazardous waste or substance pursuant to Title 14, section 15330. No additional construction is required for this project.
26. The discharge is exempt from the requirements of *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste*, set forth in the Title 27 of the California Code of Regulations (“Title 27”), which allows a conditional exemption from some or all of the provisions of Title 27. The exemption, pursuant to Title 27, section 20090(b), is based on the following:
- a. The Central Valley Water Board is issuing Waste Discharge Requirements.
 - b. The discharge is in compliance with the applicable Basin Plan.
 - c. The wastewater does not need to be managed according to the California Code of Regulations, title 22, as a hazardous waste.
- Title 27, section 20090(d) allows exemption for a project to cleanup a condition of pollution that resulted from an unauthorized release of waste based on the following:
- d. Wastes removed from the immediate place of release will be discharged according to the Title 27 regulations; and
 - e. The remedial actions intended to contain wastes at the place of release shall implement the Title 27 regulations to the extent feasible.

27. Water Code section 13267(b) provides that:
- In conducting an investigation specified in subdivision (a), the Regional Board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish under penalty of perjury, technical or monitoring program reports which the Regional Board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. In requiring these reports, the

Regional Board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.

The technical reports required by this Order and the attached MRP R5-2010-xxxx are necessary to assure compliance with these WDRs. The Discharger operates the facility that discharges the waste subject to this Order.

28. The California Department of Water Resources sets standards for the construction and destruction of groundwater wells, as described in *California Well Standards Bulletin No. 74-90* (June 1991) and *Water Well Standards: State of California Bulletin No. 94-81* (December 1981). These standards, and any more stringent standards implemented by the Regional Water Board or adopted by Sacramento County pursuant to Water Code section 13801 apply to all monitor, extraction and injection wells.
29. Section 3020(b)(2) of the Resource Conservation and Recovery Act ("RCRA") states that, prior to injection into or above an underground source of drinking water, contaminated groundwater shall be "...treated to substantially reduce hazardous constituents prior to such injection." In a letter dated 10 December 1999, the United States Environmental Protection Agency, Office of Solid Waste and Emergency Response ("OSWER") states, "if extracted groundwater is amended at the surface (i.e., "treated") before reinjection, and the subsequent in-situ bioremediation achieves a substantial reduction of hazardous constituents the remedy would satisfy Section 3020(b)(2)." Therefore, the injection of groundwater within the treatment zone at this site, with or without the treatment for VOCs, complies with Section 3020(2) (b) of RCRA.
30. Pursuant to Water Code section 13263(g), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.

Public Notice

31. All the above and the supplemental data and information and details in the attached Information Sheet, which is incorporated by reference herein, were considered in establishing the following conditions of discharge.
32. The Central Valley Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the treatment technology discussed in this Order, and has provided them with an opportunity to submit their written comments and recommendations.
33. In a public meeting, all comments pertaining to these Waste Discharge Requirements were heard and considered.

IT IS HEREBY ORDERED that, pursuant to Water Code sections 13263 and 13267, the Aerojet-General Corporation, in order to meet the provisions contained in Division 7 of the Water Code, and regulations and guidelines adopted thereunder, shall comply with the following:

A. DISCHARGE PROHIBITIONS

1. The discharge of any waste or other materials not specifically regulated by this Order is prohibited.
2. Creation of a condition of pollution, contamination, or nuisance, as defined by Water Code section 13050, is prohibited.
3. The discharge of wastes to surface water or surface water drainage courses is prohibited.
4. Discharge of waste classified as 'hazardous' under California Code of Regulations, title 23, section 2521, or classified as 'designated', as defined under Water Code section 13173, is prohibited.

B. DISCHARGE SPECIFICATIONS

1. The flow through the treatment facility shall not exceed 900 gallons per minute (gpm).
2. The discharge shall not cause pollution or nuisance as defined by the Water Code.
3. The discharge of treated groundwater shall be only be to Teichert for their use at its Grant Line Road and/or Scott Road facilities, or to Rebel Hill Ditch as shown on Attachment A, a part of this Order.

C. EFFLUENT LIMITATIONS

1. Treated effluent discharged from the treatment plant shall not exceed the following limits:

<u>Constituent</u>	<u>Units</u>	<u>30-Day Average</u>	<u>Daily Maximum</u>
TCE	µg/L	0.5	0.8
cis-1,2-DCE	µg/L	0.5	1.0
1,1-DCA	µg/L	0.5	1.0
PCE	µg/L	0.5	0.5
Perchlorate	µg/L	4.0	6.0

<u>Constituent</u>	<u>Units</u>	<u>30-Day Average</u>	<u>Daily Maximum</u>
n-nitrosodimethylamine	µg/L	0.002	0.004

D. PROVISIONS

1. The Discharger shall comply with all applicable Standard provisions and Reporting Requirements for Waste Discharge Requirements, dated 1 March 1991, which are attached hereto and by reference are a part of this Order. This attachment and its individual paragraphs are commonly referenced as Standard Provisions.
2. The Discharger may be required to submit technical reports pursuant to Water Code section 13267 as directed by the Executive Officer. The technical reports required by this Order are necessary to assure compliance with this Order.
3. All technical reports required herein that involve planning, investigation, evaluation, or design or other work requiring interpretation or proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code, sections 6735, 7835 and 7835.1. To demonstrate compliance with the California Code of Regulations, title 16, sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.
4. **Within 15 days from the adoption of this order**, the Discharger shall submit an Operation and Maintenance (“O&M”) Plan for the groundwater treatment facilities. The O&M Plan shall instruct field personnel on how to manage the day-to-day discharge operations to comply with the terms and conditions of this Order and how to make field adjustments, as necessary. A copy of the O&M Plan shall be kept at the facility for reference by operating personnel. Key personnel shall be familiar with its contents. The O&M plan shall be modified as needed to respond to changes in system operations.
5. The Discharger shall comply with the Monitoring and Reporting Program R5-2011-XXXX, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.
6. A copy of this Order shall be maintained at the project site and be available at all times to operating personnel.
7. The discharger shall maintain in good working order and operate as efficiently as possible any facility or control system installed by the discharger to achieve

compliance with these Waste Discharge Requirements.

8. The discharger shall promptly report to the Central Valley Water Board any violation of this Order, material change in the character, location, or volume of the discharge.
9. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the discharger, the discharger shall notify the succeeding owner or operator of the following items by letter, in advance of the transfer of ownership or control, and a copy of the notice must be forwarded to the Central Valley Water Board:
 - a. existence of this Order; and
 - b. the status of the dischargers' annual fee account
10. This Order does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, nor protect the discharger from his liability under Federal, State, or Local laws, nor create a vested right for the discharger to continue the waste discharge.
11. Chemical, bacteriological, and bioassay analyses must be conducted at a laboratory certified for such analyses by the State Department of Health Services.
12. All reports, or other documents required by these WDRs, and other information requested by the Central Valley Water Board shall be signed by a person described below or by a duly authorized representative of that person.
 - a. For a corporation: by a responsible corporate officer such as: (a) a president, secretary, treasurer, or vice president of the corporation in charge of a principal business function; (b) any other person who performs similar policy or decision making functions for the corporation; or (c) the manager of one or more manufacturing, production, or operating facilities if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
 - b. Reports required by this Order, and other information requested by the Central Valley Water Board may be signed by a duly authorized representative provided:
 - i. the authorization is made in writing by a person described in paragraph (a) of this provision;
 - ii. the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity

such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company; and

- iii. the written authorization is submitted to the Regional Water Board prior to or together with any reports, information, or applications signed by the authorized representative.
 - c. Any person signing a document under paragraph (a) or (b) of this provision shall make the following certification: "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted, is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."
13. The discharger shall permit authorized staff of the Central Valley Water Board:
- a. entry to the project site covered by these Waste Discharge Requirements or in which any required records are kept;
 - b. access to copy any records required to be kept under terms and conditions of this Order;
 - c. inspection of monitoring equipment or records; and
 - d. sampling of any discharge.
14. In the event the Discharger is unable to comply with any of the conditions of this Order due to:
- a. breakdown of any facility or control system or monitoring equipment installed by the Discharger to achieve compliance with this Order;
 - b. migration or application of substances, pollutants or byproducts outside the specified treatment area;
 - c. accidents caused by human error or negligence; or

d. other causes such as acts of nature;

the discharger shall notify the Central Valley Water Board by telephone as soon as he or his agents have knowledge of the incident and confirm this notification in writing within two weeks of the telephone notification. The written notification shall include pertinent information explaining reasons for the noncompliance and shall indicate the steps taken to correct the problem and the dates thereof, and the steps being taken to prevent the problem from recurring.

15. The Central Valley Water Board may review this Order periodically and may revise requirements when necessary. In addition, the discharger shall file a report of waste discharge with the Executive Officer at least 120 days before making any material change or proposed change in the character, location, or volume of the discharge.
16. Project coverage under these Waste Discharge Requirements may be terminated, by the Executive Officer at any time upon giving reasonable notice to the Discharger.

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Board to review the action in accordance with Water Code 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, 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 or will be provided upon request.

I, Pamela C. Creedon, Executive Officer, do hereby certify that 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 XX XXXX 2011.

PAMELA C. CREEDON, Executive Officer

12/24/2010 AMM