CALIFORNIA REGIONAL WATER QUALITY CONTROL REGIONAL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2005-0132

WASTE DISCHARGE REQUIREMENTS

FOR
THE BOEING COMPANY
INACTIVE RANCHO CORDOVA TEST SITE
AGRICULTURAL WELL AND GUN CLUB WELL DISCHARGES
SACRAMENTO COUNTY

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

1. On 5 July 2005, the Boeing Company (hereafter Discharger) submitted a Report of Waste Discharge (RWD) for two groundwater treatment facilities to treat and dispose of groundwater extracted at two non-potable water supply wells downgradient from the Inactive Rancho Cordova Test Site (IRCTS). The extracted water will be used for dust control and construction compaction from one well and landscape irrigation at the other well.

2. For the purposes of this Order, the groundwater treatment facility (GWTF) shall mean the groundwater treatment plant and the designated discharge facilities. The facility site locations are shown on Attachment A, which is attached hereto and made part of this Order by reference.

3. The GWTF for the Agricultural Well (AG Well) is located in the Sunridge development south of Douglas Road in Rancho Cordova, in Section 20, T8N, R7E MDB&M. Agricultural and open space activities border the GWTF. The application area is shown on Attachment B, which is attached hereto and made part of this Order by reference.

4. The GWTF for the Gun Club Well is located at 11551 Douglas Road, Sacramento, in Section 7, T8N, R7E MDB&M. Industrial and open space activities border the GWTF. The application area is depicted on Attachment B.

5. The AG Well treatment facility is on Assessor's Parcel No. 067-0650-009, and the discharge areas are on Assessor's Parcel Nos. 067-0650-001 through 028, and 067-0040-004. The Gun Club Well treatment facility and discharge areas are on Assessor Parcel No. 067-0030-002-0000

6. Groundwater pollution emanating from sources on the Inactive Rancho Cordova Test site have been detected in the AG Well located south of Douglas Road and the Gun Club Well located west of Sunrise Boulevard and north of Douglas Road. The pollution consists primarily of elevated concentrations of the volatile organic constituent (VOC) trichloroethylene (TCE) and perchlorate, a component of solid rocket propellant. The two wells have been found to contain low concentrations of TCE and no perchlorate. The AG Well served ranching and limited farming in the vicinity of the well. The area is currently being converted to a large housing tract that is part of the Sunrise Douglas development. The AG Well was put to use as a supply of water for dust control and compaction of soils for construction of the housing development. Finding TCE in the well led to discontinuance of use of the well and the search for alternate sources. There are no

other readily available sources of water in close proximity to the construction area. Water for dust control and compaction is currently being trucked to the construction site. The Gun Club Well is used to irrigate the landscaping and for non-potable purposes (sinks and toilets) at the Gun Club. Drinking water for the club is supplied by bottled water. There is not an existing supply of unpolluted water that can easily be used in lieu of the existing well.

7. The Discharger, along with the Aerojet-General Corporation is in the process of completing the design and construction of a groundwater extraction and treatment system to contain the groundwater pollution in the southern portion of the IRCTS.

**Gun Club Well Treatment Facility and Discharge**

8. The Gun Club Well produces 200-250 gallons per minute (gpm). During the summer time the well is used to produce up to 20,000 gallons per day for irrigation of the landscaping at the Gun Club. Little to no use of the well occurs between November and March. The average monthly flow during April to October is 217,000 gallons.

9. Currently, only TCE has been detected in the Gun Club Well, and not on a consistent basis. The highest measured concentration of TCE in samples collected from the well is 0.75 µg/L. The Primary Drinking Water Standard for TCE is 5.0 µg/L and the Public Health Goal is 0.8 µg/L. Perchlorate has not been detected in the well, although it is found in the groundwater upgradient from the well. The Public Health Goal is 6 µg/L. There is no Primary or Secondary Drinking Water Standard for perchlorate.

10. The initial treatment system consists of two granular activated carbon (GAC) vessels operated in series. GAC has been demonstrated to cost-effectively remove TCE to below 0.5 µg/L. When concentrations of TCE in the effluent of the lead vessel equal concentrations in the influent to the lead vessels, the lead and lag vessels will be switched and the GAC replaced in the former lead vessel. The spent carbon is transported to a permitted facility for reactivation and destruction of the adsorbed VOCs. A bag filter will be used in front of the GAC vessels to remove particulates, thereby reducing the potential for clogging and extending the life of the GAC.

11. If needed, treatment facilities for the removal of perchlorate will be added to the GWTF. The perchlorate removal would consist of two ion exchange vessels operated in series in a manner similar to that used for the GAC vessels. Perchlorate is sorbed onto the resin and the resin is changed out when it no longer can remove perchlorate to the effluent limitation. Ion exchange has been demonstrated to effectively remove perchlorate to less than 4 µg/L. Upgradient concentrations of perchlorate in groundwater will be used to determine when it is appropriate to install the ion exchange vessels.

**AG Well Treatment Facility and Discharge**

12. The AG Well will be used to produce up to 700 gpm. The water will be used 5 days a week, 8 hours per day, for a period of 6 months during the year. The construction operations are expected to continue for up to 5 years. The maximum output per day is 0.336 million gallons. The water will be used on an interimittent basis for mass grading.

13. Currently, only TCE has been detected in the AG Well, with the initial detection occurring in June 2004, reaching a high of 6.5 µg/L in September 2004. Perchlorate has not been detected in the well and it is not found in the plume upgradient from the AG Well.

14. The treatment system consists of GAC vessel(s) to remove the TCE to below effluent limits. When concentrations of TCE in the effluent of the lead vessel equal one-half the effluent limit, then the GAC will be replaced. The spent carbon is transported to a permitted facility for reactivation and destruction of the adsorbed VOCs. A bag filter may be used in front of the GAC vessels to remove particulates, thereby reducing the potential for clogging and extending the life of the GAC.

**Groundwater Degradation**

15. State Water Resources Control Regional Board (SWRCB) Resolution No. 68-16 (hereafter Resolution No. 68-16 or the "Antidegradation Policy") requires the Regional Board in regulating the discharge of waste to maintain high quality waters of the state (i.e., background water quality) 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 beneficial uses, and will not result in water quality less than that described in the Regional Board's policies (e.g., quality that exceeds water quality objectives).

16. The discharge will consist of extracted groundwater being treated to remove the VOCs and placed on ground. Given the application of the treated water is applied at low rates only for dust control, compaction and landscape irrigation, and the fact that groundwater is over 100-feet below ground surface, it is extremely unlikely that the treated groundwater will recharge groundwater. However, if recharge does occur, the recharge water will be of similar quality as the groundwater to which it is being recharged since the recharge water is being returned to the aquifer from which it was extracted and after having the pollutants of concern removed. Therefore, no degradation of the groundwater will occur due to the discharge. Accordingly, the discharge is consistent with the antidegradation provisions of Resolution No. 68-16.

17. This Order does not require that the Dischargers conduct groundwater monitoring. Groundwater monitoring and analyses are already required under orders issued by the Regional Board and Department of Toxic Substances Control (DTSC), with oversight by DTSC and Regional Board staff.

**Basin Plan, Beneficial Uses, and Regulatory Considerations**

18. The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition*, (hereafter Basin Plan) designates beneficial uses, establishes water quality objectives, 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 Regional Board. These requirements implement the Basin Plan.

19. Surface water drainage is 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.

20. The beneficial uses of the underlying groundwater are municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply.

21. 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 Regional 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 Regional 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.

22. The Basin Plan identifies numerical water quality objectives for waters designated as municipal supply. These are the maximum contaminant levels (MCLs) specified in the following provisions of Title 22, California Code of Regulations: 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 Regional Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.

23. 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.

24. On 1 December 2001, in accordance with the California Environmental Quality Act (CCR, Title 14, Section 15261 et. seq.), the Department of Toxic Substances Control certified a final Class 6 Categorical Exemption for the groundwater treatment facilities.

25. Section 13267(b) of the California Water Code provides,in pertinent part, that: "In conducting an investigation specified in subdivision (a), the regional Regional Board may require that any person who has discharged, discharges, or is suspected of 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 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." The

monitoring and reporting progam and technical reports required by this Order and the attached "Monitoring and Reporting Program, Order No. R5-2005-0132" are necessary to assure compliance with these waste discharge requirements. The Dischargers operate the facility that discharges the waste subject to this Order.

26. The California Department of Water Resources sets standards for the construction and destruction of groundwater wells (hereafter DWR Well Standards), as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 94-81* (December 1981). These standards, and any more stringent standards adopted by the Dischargers or county pursuant to Water Code section 13801, apply to all extraction and monitor wells.

27. State regulations that prescribe procedures for detecting and characterizing the impact of waste constituents from waste management units on groundwater are found in Title 27. While the GWTFs are exempt from Title 27 (27CCR, Section 20090(b)), the data analysis methods of Title 27 are appropriate for determining whether the discharge complies with the terms for protection of groundwater specified in this Order.

28. Pursuant to Water Code section 13263(g), subdivision (g), all discharges of waste into waters of the state is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge. Pursuant to Water Code section 13050, subdivision (e), "waters of the state" means any surface water or groundwater, including saline waters, within the boundaries of the state.

**Public Notice**

29. The Regional Board considered all the above findings and the supplemental information and details in the attached Information Sheet, which is incorporated by reference herein, in establishing the following conditions of discharge.

30. The Regional Board has notified the Dischargers and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge, and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

31. The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge.

**IT IS HEREBY ORDERED** that The Boeing Company, its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted hereunder, shall comply with the following:

## A. Discharge Prohibitions

1. Discharge of wastes to surface waters or surface water drainage courses is prohibited.

2. Bypass or overflow of untreated or partially treated waste is prohibited.

3. Discharge of waste classified as 'hazardous' under 23 CCR section 2521 or 'designated', as defined in Water Code section 13173 is prohibited.

## B. Discharge Specifications

1. The daily average flow shall not exceed shall not exceed 20,000 gallons per day for the Gun Club Well and 340,000 gallons per day for the AG Well.

2. Objectionable odor originating at the facility shall not be perceivable beyond the limits of the property owned by the Dischargers.

3. The discharge shall only be in a manner as described in Finding Nos. 1, 4, 5, and 6.

## C. Effluent Limitations

1. Treated effluent discharged from the Gun Club Well treatment facilities shall be less than the following limits:

| Constituent | Units | 30-Day Average | Daily Maximum |
|---|---|---|---|
| TCE | µg/L | 0.8 | 1.6 |
| perchlorate | µg/L | 4.0 | 6.0 |

2. Treated effluent discharged from the Agricultural Well treatment facilities shall be less than the following limits:

| Constituent | Units | 30-Day Average | Daily Maximum |
|---|---|---|---|
| TCE | µg/L | 2.5 | 5.0 |
| cis-1,2-Dichloroethylene | µg/L | 3.0 | 6.0 |
| perchlorate | µg/L | 4.0 | 6.0 |

## D. Activated Carbon and Ion Exchange Resin Disposal Specifications

1. Transportation and disposal of GAC and ion exchange resin shall be only by a permitted hauler and disposed at a permitted regeneration/disposal facility.

## E. Provisions

1. All of the following reports shall be submitted pursuant to Water Code section 13267 of the California Water Code and shall be prepared as described by Provision 4.

   a. Within **30-days following completion of construction**, the Dischargers shall submit Operation and Maintenance (O&M) Plans for each of the groundwater treatment facilities. The O&M Plans 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 Plans shall be kept at the facilities for reference by operating personnel. Key personnel shall be familiar with its contents.

**OTHER REPORTS**

2. In accordance with California Business and Professions Code sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. All technical reports specified herein that contain work plans for, that describe the conduct of investigations and studies, or that contain technical conclusions and recommendations concerning engineering and geology shall be prepared by or under the direction of appropriately qualified professional(s), even if not explicitly stated. Each technical report submitted by the Dischargers shall contain a statement of qualifications of the responsible licensed professional(s) as well as the professional's signature and/or stamp of the seal.

3. The Dischargers shall comply with the Monitoring and Reporting Program No. R5-2005-0132, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.

4. The Dischargers shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements", dated 1 March 1991, which are attached hereto and made part of this Order by reference. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)."

5. The Dischargers shall use the best practicable cost-effective control technique(s) including proper operation and maintenance, to comply with discharge limits specified in this order.

6. As described in the Standard Provisions, the Dischargers shall report promptly to the Regional Board any material change or proposed change in the character, location, or volume of the discharge.

7. The Dischargers shall report to the Regional Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the “Emergency Planning and Community Right to Know Act of 1986.”

10. The Dischargers shall submit to the Regional 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, then the Dischargers shall state the reasons for such noncompliance and provide an estimate of the date when the Dischargers will be in compliance. The Dischargers shall notify the Regional Board in writing when it returns to compliance with the time schedule.

11. In the event of any change in control or ownership of land or waste discharge facilities described herein, the Dischargers shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office.

12. At least **90 days** prior to termination or expiration of any lease, contract, or agreement involving disposal or recycling areas or off-site reuse of effluent, used to justify the capacity authorized herein and assure compliance with this Order, the Dischargers shall notify the Regional Board in writing of the situation and of what measures have been taken or are being taken to assure full compliance with this Order.

13. The Dischargers must comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Violations may result in enforcement action, including Regional Regional Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or recession of this Order.

14. A copy of this Order shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.

15. The Regional Board will review this Order periodically and will revise requirements when necessary.

I, THOMAS R. PINKOS, 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 Regional Board, Central Valley Region, on 16 September 2005.

_____
THOMAS R. PINKOS, Executive Officer

7/11/05:AMM

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2005-0132

FOR
THE BOEING COMPANY
INACTIVE RANCHO CORDOVA TEST SITE
AGRICULTURAL WELL AND GUN CLUB WELL DISCHARGES
SACRAMENTO COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring a groundwater extraction and treatment system. This MRP is issued pursuant to Water Code Section 13267. The Dischargers shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer. Regional Board staff shall approve specific sample station locations prior to implementation of sampling activities.

All samples should be representative of the volume and nature of the discharge or matrix of material sampled. The time, date, and location of each grab sample shall be recorded on the sample chain of custody form.

Field test instruments (such as those used to test pH and dissolved oxygen) may be used provided that:

1. The operator is trained in proper use and maintenance of the instruments;
2. The instruments are calibrated prior to each monitoring event;
3. Instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and
4. Field calibration reports are submitted as described in the "Reporting" section of this MRP.

## INFLUENT MONITORING

During regular operation samples for influent monitoring shall be collected at a point prior to the lead GAC unit at each of the groundwater treatment facilities. Influent monitoring shall include the following:

| Constituent | Units | Type of Sample | Sampling Frequency | Reporting Frequency |
|---|---|---|---|---|
| Influent Flow | gpd | Meter | Continuously | Quarterly |
| Monthly Average Daily Flow | gpd | Calculated | Monthly | Quarterly |
| VOCs[1] [WAC1] | µg/l | Grab | Monthly | Quarterly |
| pH | pH units | Grab | Monthly | Quarterly |
| perchlorate[2] | µg/L | Grab | Monthly | Quarterly |

[1] Volatile organic contaminants by EPA Method 8260 or 601/602, or an equivalent method with a reporting limit of no greater than 0.5 µg/l. Values between the detection level and the reporting level should be reported as trace.

[2] If treatment for perchlorate removal is added to the treatment facility

## EFFLUENT MONITORING

During regular operation effluent samples shall be collected before discharge and shall be representative of the volume and nature of the discharge. Effluent monitoring shall include the following for each of the two treatment facilities:

| Constituent | Units | Type of Sample | Sampling Frequency | Reporting Frequency |
|---|---|---|---|---|
| Effluent Flow | gpd | Meter | Continuously | Quarterly |
| Monthly Average Daily Flow | gpd | Calculated | Monthly | Quarterly |
| VOCs[1] in Effluent[WAC2] | µg/L | Grab | Monthly | Quarterly |
| VOCs[1] between GAC Vessels[WAC3] | µg/L | Grab | Bi-Weekly | Quarterly |
| pH | pH units | Grab | Monthly | Quarterly |
| Perchlorate[2] in Effluent | µg/L | Grab | Monthly | Quarterly |
| Perchlorate[2] between vessels | µg/L | Grab | Bi-weekly | Quarterly |

1 Volatile organic contaminants by EPA Method 8260 or 601/602, or an equivalent method with a reporting limit of no greater than 0.5 µg/l. Values between the detection level and the reporting level should be reported as trace.
2 If treatment for perchlorate removal is added to the groundwater treatment facility

## REPORTING

In reporting monitoring data, the Dischargers shall arrange the data in tabular form so that the date, sample type (e.g., effluent, pond, etc.), and reported analytical result for each sample are readily discernible. The data shall be summarized in such a manner to clearly illustrate compliance with waste discharge requirements and spatial or temporal trends, as applicable. The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall be reported to the Regional Board.

As required by the California Business and Professions Code Sections 6735, 7835, and 7835.1, all Groundwater Monitor Reports shall be prepared under the direct supervision of a Registered Engineer or Geologist and signed by the registered professional.

### A. Quarterly Monitor Reports

Daily, bi-weekly, and monthly monitoring data shall be reported in quarterly monitor reports. Monthly reports shall be submitted to the Regional Board by the **1st day of the second month after the quarter** (i.e. the January-March Report is due by 1 May). At a minimum, the Quarterly reports shall include:

1. Results of influent and effluent monitoring:

2. A comparison of monitoring data to the discharge specifications and an explanation of any violation of those requirements. Data shall be presented in tabular format;
3. If requested by staff, copies of laboratory analytical report(s); and
4. A calibration log verifying calibration of all hand-held monitoring instruments and devices used to comply with the prescribed monitoring program.
5. A log of GAC replacement and ion exchange resin replacement (if applicable), along with transportation date(s) and destination of disposal.

A letter transmitting the self-monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Dischargers have previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the penalty of perjury statement by the Dischargers, or the Dischargers' authorized agent, as described in the Standard Provisions General Reporting Requirements Section B.3.

The Dischargers shall implement the above monitoring program on the first day of the month following adoption of this Order.

Ordered by: _____
THOMAS R. PINKOS, Executive Officer

16 September 2005
(Date)

7/11/05:AMM

INFORMATION SHEET

ORDER NO. R5-2005-0132
THE BOEING COMPANY
SACRAMENTO COUNTY

**Background**

The Boeing Company, as directed by the Regional Water Quality Control Board, Central Valley Region (hereafter Regional Board) and the Department of Toxic Substances Control, is initiating cleanup of groundwater beneath the Inactive Rancho Cordova Test Site (IRCTS). The IRCTS consists of approximately 4000 acres in eastern Sacramento County to the east of Sunrise Boulevard, south of White Rock Road, and north of Douglas Road. Past rocket testing operations and disposal practices by The McDonnell-Douglas Corporation and/or The Aerojet-General Corporation, have caused the groundwater beneath the IRCTS to have become polluted with volatile organic contaminants (VOCs) and perchlorate.

Groundwater leaving the IRCTS to the south and southwest is contaminated by VOCs and perchlorate. The primary VOCs in the groundwater are trichloroethylene (TCE) and cis-1,2-Dichloroethylne (cis-1,2-DCE) at concentrations up to 380 micrograms per liter (µg/L) and 25 µg/L, respectively. Perchlorate has been found at concentrations up to 1,200 µg/L.

The Boeing Company is in the process of completing interim remedial actions to halt the spread of the groundwater pollution and clean it up. Groundwater extraction wells are being installed and treatment facilities are being constructed. During this period of time, two off-site water production wells were found to contain low levels of TCE. An agricultural well (AG Well) south of Douglas Road and the IRCTS was found to contain up to 6.5 µg/L TCE. The well had originally supplied water to ranching and limited farming activities in the vicinity of the well. The property was included in a large residential housing project and the well was used to supply water for dust control and compaction during construction. When monitoring showed that the initially clean AG Well contained TCE, the use of the well was discontinued and water is currently being trucked to the site. The other water supply well (Gun Club Well) services the Cordova Shooting Center needs for landscape irrigation and non-potable uses (sinks and toilets). Bottled water is supplied for potable purposes. The Cordova Shooting Center is west of the IRCTS, west of Sunrise Boulevard, and north of Douglas Road. Samples collected from the Gun Club Well have been found to contain up to 0.75 µg/L TCE and no perchlorate. Higher concentrations of TCE, along with perchlorate, are found in the groundwater upgradient.

**Wellhead Treatment Facilities**

The treatment systems constructed by The Boeing Company consist primarily of bag filters followed by GAC vessels containing up to 10,000-pounds each of granular activated carbon (GAC). The GAC vessels are operated in series. GAC has been demonstrated to cost-effectively remove TCE to below 0.5 µg/L (Primary Drinking Water Standard of 5 µg/L, Public Health Goal of 0.8 µg/L). When concentrations of TCE in the effluent of the lead vessel equal concentrations in the influent to the lead vessels, the lead and lag vessels will be switched and the GAC replaced in the former lead vessel. The spent carbon is transported to a permitted facility for reactivation and destruction of the adsorbed VOCs. The bag filter will be used in front of the GAC vessels to remove particulates, thereby reducing the potential for clogging and extending the life of the GAC. Also upgradient in the plume affecting the

AG Well are 1,2-dichloroethylene (cis-1,2-DCE). GAC will effectively remove cis-1,2-DCE to below 0.5 µg/L (Primary Drinking Water Standard is 6 µg/L).

If needed, treatment for removal of perchlorate will be added to the Gun Club Well in the future. The treatment system for perchlorate is nearly identical to that provided for removal of VOCs except that the vessels are filled with an ion-exchange resin specifically designed to remove perchlorate. As with GAC, as the lead bed becomes saturated, the lead and lag vessels are switched and fresh resin is added to the former lead vessel.

The Gun Club Well produces 200-250 gallons per minute (gpm). The treatment system for the Gun Club Well is designed to treat up to 250 gallons per minute. During the summer time the well is used to produce up to 20,000 gallons per day for irrigation of the landscaping and non-potable purposes (sinks and toilets) at the Gun Club. Little use of the well occurs between November and March. The average monthly flow from April to October is 217,000 gallons.

The AG Well will be used to produce up to 700 gpm. The water will be used 5 days a week, 8 hours per day, for a period of 6 months during the year. The construction operations are expected to continue for up to 5 years. The maximum output per day is 0.336 million gallons. The water will be used on an intermittent basis for mass grading. The treatment system for the AG Well may only utilize a single GAC vessel, instead of the two described above for the Gun Club Well. In this instance the GAC is changed when the effluent concentration reaches one half of the effluent limitation.

**Basin Plan, Beneficial Uses, and Regulatory Considerations**

Surface water drainage from the GWTFs is to Morrison Creek. The *Water Quality Control Plan for the California Regional Water Quality Control Board Central Valley Region, Fourth Edition* (Basin Plan), designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin. Beneficial uses often determine the water quality objectives that apply to a water body. For example, waters designated as municipal and domestic supply must meet the maximum contaminant levels (MCLs) for drinking waters. The Basin Plan sets forth the applicable beneficial uses (industrial, agricultural, and domestic supply in this instance) of groundwater, procedure for application of water quality objectives, and the process for and factors to consider in allocating waste assimilation capacity.

**Antidegradation**

The antidegradation directives of Water Code section 13000 require that waters of the State that are better in quality than established water quality objectives be maintained "consistent with the maximum benefit to the people of the State." Waters can be of high quality for some constituents or beneficial uses and not for others. Policies and procedures for complying with this directive are set forth in the Basin Plan (including by reference State Water Board Resolution No. 68-16, "Statement of Policy With Respect to Maintaining High Quality Waters in California," or "Antidegradation" Policy).

Resolution No. 68-16 is applied on a case-by-case, constituent-by-constituent basis in determining whether a certain degree of degradation can be justified. It is incumbent upon the Discharger to provide technical information for the Regional Board's evaluation. This technical information must fully characterize:

- All waste constituents to be discharged;
- The background quality of the uppermost layer of the uppermost aquifer;
- The background quality of other waters that may be affected;
- The underlying hydrogeologic conditions;
- Waste treatment and control measures;
- How treatment and control measures are justified as best practicable treatment and control;
- The extent the discharge will impact the quality of each aquifer; and
- The expected degradation to water quality objectives.

In allowing a discharge, the Regional Board must comply with Water Code 13263 in setting appropriate conditions. The Regional Board is required, relative to the groundwater that may be affected by the discharge, to implement the Basin Plan and consider the beneficial uses to be protected along with the water quality objectives essential for that purpose. The RegionalBoard need not authorize the full utilization of the waste assimilation capacity of the groundwater (Water Code section 13263, subdivision (b)) and must consider other waste discharges and factors that affect that capacity.

As stated above, groundwater will be extracted, treated to remove VOCs and discharged to land. Any water that might be returned to the aquifer, though extremely unlikely, will be as good a quality, if not better, than the background groundwater at the site. No degradation should occur as a result of the discharge.

**Title 27**

Title 27, CCR, section 20005 et seq. ("Title 27"), contains regulations to address certain discharges to land. Title 27 establishes a waste classification system, specifies siting and construction standards for containment of classified waste, requires extensive monitoring of groundwater and the unsaturated zone for any indication of failure of containment, and specifies closure and post-closure maintenance requirements. Generally, no degradation of groundwater quality by any waste constituent is acceptable. The proposed discharge will not degrade groundwater quality.

**Proposed Order Terms and Conditions**

**Discharge Prohibitions and Specifications**

The proposed Order establishes discharge flow limits of 20,000 gallons per day for the Gun Club Well and 340,000 gallons per day for the AG Well. The proposed Order's discharge specifications for VOCs

are based on the treatment technologies employed and to maintain all beneficial uses of the groundwater.

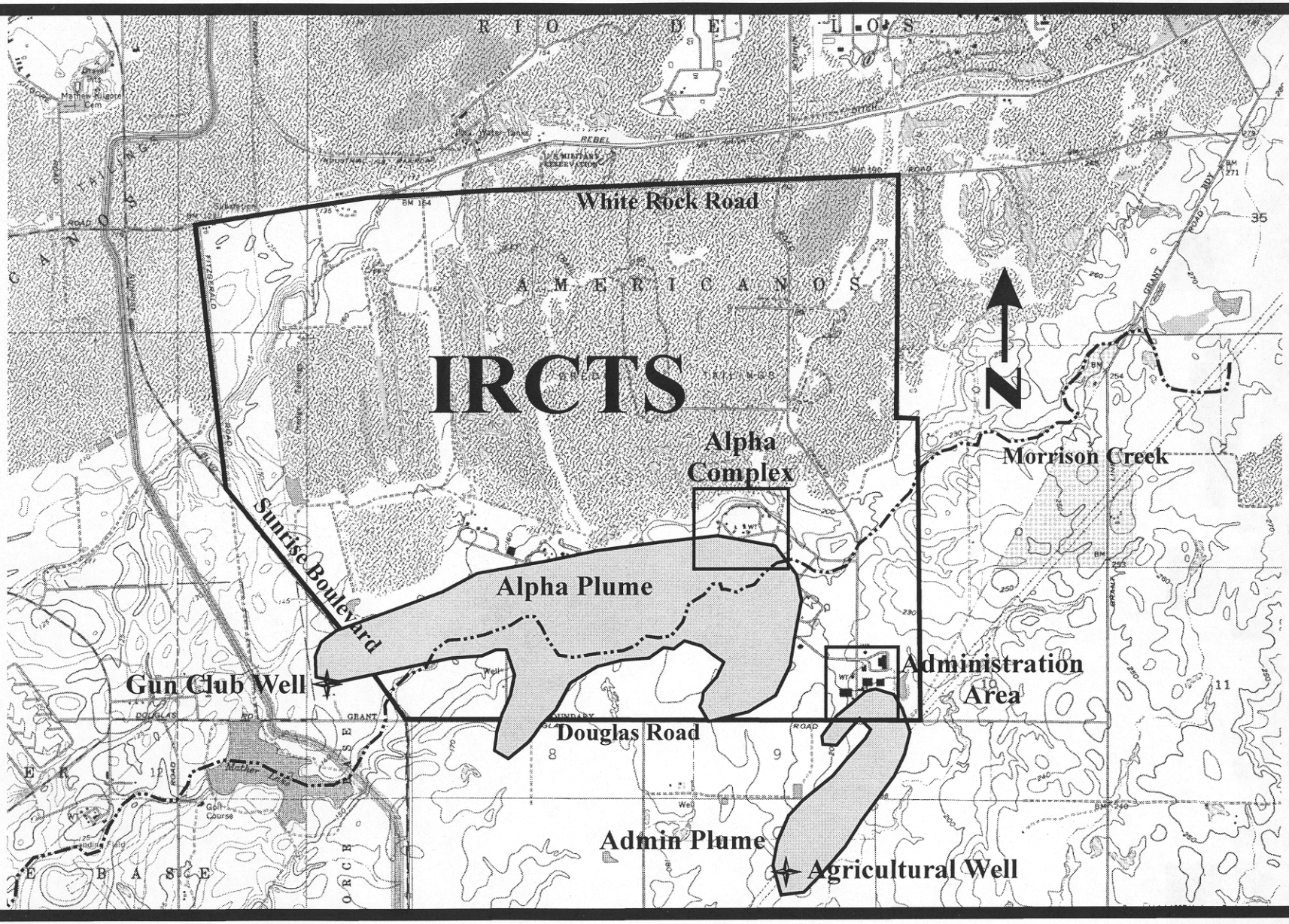
**Monitoring Requirements**

Water Code section 13267 authorizes the Regional Board to require monitoring and technical reports as necessary to investigate the impact of a waste discharge on waters of the state. In recent years there has been increased emphasis on obtaining all necessary information, assuring the information is timely as well as representative and accurate, and thereby improving accountability of any discharger for meeting the conditions of discharge. Water Code section 13268 authorizes assessment of civil administrative liability where appropriate.

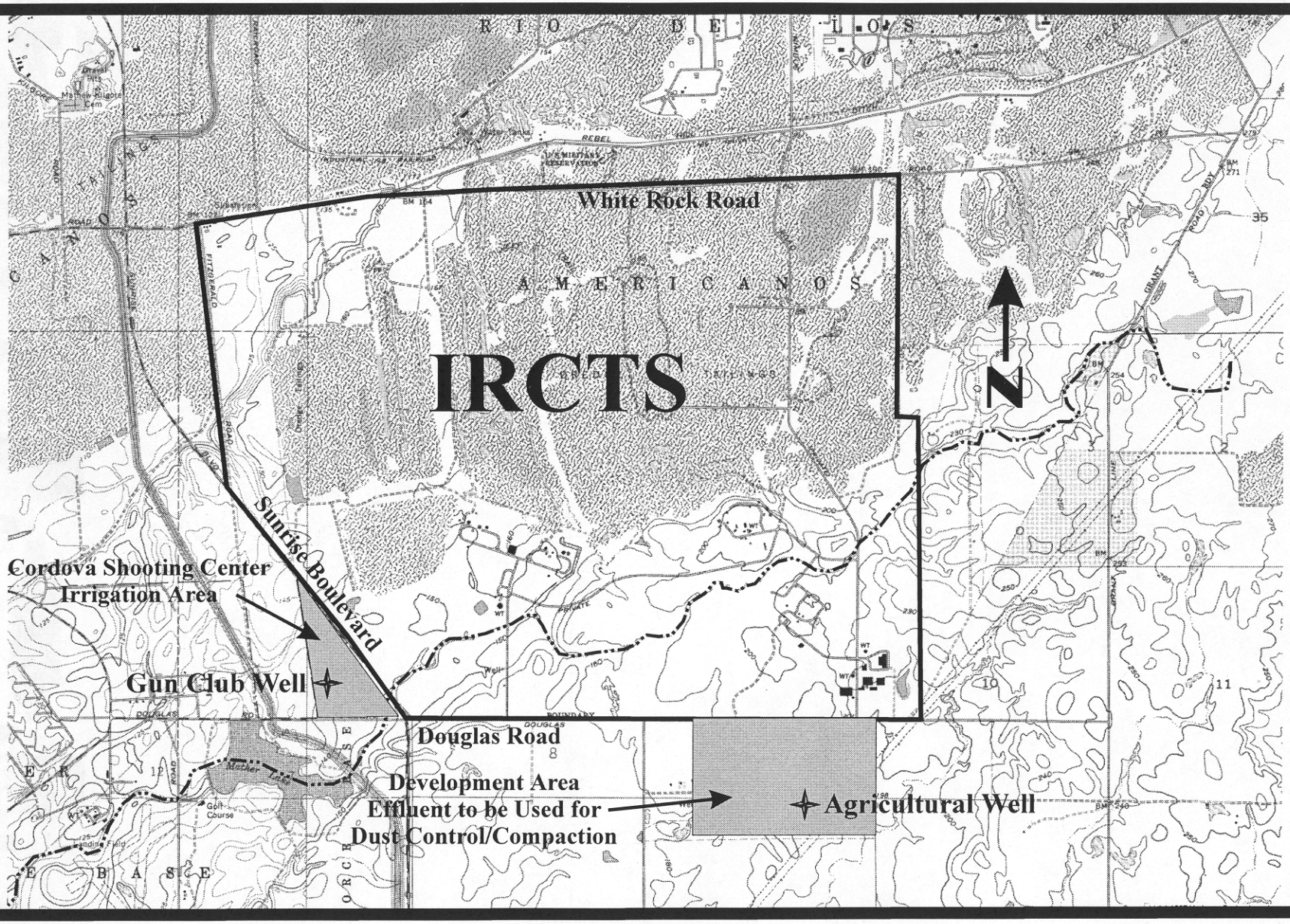
This Order requires influent and effluent monitoring requirements, including flow rates. In order to adequately characterize its effluent, the Discharger is required to monitor for VOCs and pH.

The Discharger need not conduct groundwater monitoring under this Order. Groundwater monitoring is already being performed pursuant to the Imminent and Substantial Endangerment Order and with oversight provided by the Regional Board and Department of Toxic Substances Control staff. Effects of the discharge on groundwater need not be monitored under this Order as the application of the effluent as allowed effectively precludes recharge of the groundwater by the effluent.

AMM:07/11/05




**Attachment A**
**The Boeing Company**
**Agricultural Well and Gun Club Well Discharges**
**Inactive Rancho Cordova Test Site**
**Sacramento County**




**Attachment B**
**The Boeing Company**
**Agricultural Well and Gun Club Well Discharges**
**Inactive Rancho Cordova Test Site**
**Sacramento County**