

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2005-0018

NPDES NO. CA0085049

WASTE DISCHARGE REQUIREMENTS
FOR
THE BOEING COMPANY
SOUTHERN GROUNDWATER STUDY AREA EXTRACTION AND TREATMENT SYSTEM
INACTIVE RANCHO CORDOVA TEST SITE
SACRAMENTO COUNTY

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

1. The Boeing Company (Boeing or Discharger) submitted a Report of Waste Discharge, dated 23 August 2004 and supplemental information dated 24 September 2004, and applied for authorization to discharge waste under the National Pollutant Discharge Elimination System (NPDES) from two groundwater extraction and treatment systems in the Southern Groundwater Study Area (SGSA) of the Inactive Rancho Cordova Test Site (IRCTS).
2. Boeing operated a rocket-testing facility in eastern Sacramento County near Rancho Cordova and Folsom. The facility is on property known as the IRCTS and is currently owned by the Aerojet-General Corporation (Aerojet). See Attachment A, a part of this Order. Boeing, along with Aerojet, performed practices that have caused the release of pollutants into the vadose zone and groundwater at the IRCTS. The main pollutants of concern at the IRCTS are perchlorate, a component of solid rocket propellant, and volatile organic contaminants (VOCs) such as trichloroethylene (TCE) used in the cleaning of equipment.
3. The SGSA, as depicted in attachment B, a part of this Order, is the groundwater beneath the southern portion of the IRCTS and south of the IRCTS. Two plumes of pollutants from the IRCTS are migrating in the groundwater in the SGSA to the south and southwest across Douglas Road and underneath the new Sunrise Douglas development. See Attachment C, a part of this Order. One plume is associated with releases from the Alpha Complex and contains TCE, cis-1,2-dichloroethylene (1,2-DCE), and perchlorate. The second plume is associated with releases from the Administration Area and contains TCE and 1,2-DCE. These plumes of pollutants create or threaten to create a condition of pollution or nuisance. Cleanup actions are being conducted in response to an Imminent and Substantial Endangerment Order issued by the Department of Toxic Substances Control (DTSC).
4. To comply with the ISEO, Boeing submitted a plan proposing to initially extract groundwater from approximately four locations on, and south of, the IRCTS. The two extraction and treatment systems (GETs), Alpha System and Administration System, are discussed separately below.

Alpha Area GET

5. The treatment system and discharge are in Section 24, T8N, R5E, MDB&M. The treatment system is at Latitude N38° 33' 34" Longitude W121° 14' 3". The discharge from the Alpha GET is to Morrison Creek, at Latitude N38° 34' 55", Longitude W121° 14' 3" and is identified in this permit as Outfall 001. Morrison Creek discharges into Stone Lake over 18 miles downstream from the discharge point, and eventually to the Sacramento River. See Attachment D, a part of this Order.
6. The Report of Waste Discharge for the Alpha GET, including data from sampling nearby groundwater wells, describes the discharge as follows:

Monthly Average Flow:	0.648 mgd
Daily Peak Flow:	0.792 mgd
Design Flow:	0.864 mgd
Average Temperature:	72°F summer; 67°F winter
pH	7.8-8.4

<u>Constituent</u>	<u>mg/L</u>
COD	<10
Total Suspended Solids	<10
Chlorides	3.6
Sulfate	6.2
Manganese	<0.02
Aluminum	<0.050
Zinc	0.026
Arsenic	0.001
Lead	0.001
Hardness (as CaCO ₃)	53
Barium	0.042
Copper	0.006
Chromium	<0.002
Nickel	0.002
All Volatile Organic Contaminants	<0.0005
Perchlorate	<0.004
Total Dissolved Solids	150

7. Approximately 450 gallons per minute (gpm) of groundwater from groundwater extraction well EX-25 will be treated at a GET adjacent to Douglas Road. The treatment system will consist of bag filtration, up to four 60-cubic foot ion exchange resins vessels operated in two trains of two in series for perchlorate removal, and two 10,000-pound granular activated

carbon (GAC) vessels operated in series for removal of TCE and 1,2-DCE. As the GAC and ion exchange vessels are operated in series, when concentrations of pollutants in the effluent from the lead vessel is approximately equal to the influent, the lag vessel is switched to the lead mode and the other vessel becomes the lag vessel after having replaced the carbon or ion exchange resin, respectively. The spent carbon and/or resin are transported to a permitted facility for destruction of the adsorbed volatile organics and/or perchlorate.

8. GAC has been demonstrated to be able to reduce volatile organic contaminants, which include TCE and 1,2-DCE, to less than 0.0005 mg/L. The ion exchange perchlorate treatment system has been demonstrated to be able to remove perchlorate to below 0.004 mg/l.

Administration Area GET

9. The treatment system and discharge are in Section 10, T8N, R7E, MDB&M. The treatment system is at Latitude N38° 33' 39" Longitude W121° 21' 27". The discharge from the Admin GET is to Morrison Creek, at Latitude N38° 34' 10", Longitude W121° 12' 24" and is identified in this permit as Outfall 002, upstream of the discharge from the Alpha Area GET, or to recharge wells (Outfall 003) as described below in Finding No. 10.
10. The Administration Area GET has been operational as an interim system since 2002. The interim system operated a single groundwater extraction well at a flow rate of 1-5 gpm. The water was treated using GAC and discharged to a vadose zone recharge well under Waste Discharge Requirements Order No. R5-2002-0008. Excessive biofouling of the recharge well, and the low flow from the extraction well, led to the shutdown of the interim system in Spring 2004. Since then, Order No. R5-2002-2008 was revised by Order No. R5-2004-0117 to allow the discharge from three new extraction wells from aquifer testing and long-term operation to a new recharge well (IW-01), in addition to the vadose zone recharge well. The estimated flow rate of 150-250 gpm from the three extraction wells may not be accommodated by IW-01 and the vadose zone recharge well. Therefore, this permit allows that treated groundwater in excess of the capacity of the recharge wells be discharged to Morrison Creek.
11. The Report of Waste Discharge for the Administration Area GET, including data from sampling nearby groundwater wells and the previously operated GET system, describes the discharge as follows:

Monthly Average Flow:	0.360 mgd
Daily Peak Flow:	0.432 mgd
Design Flow:	0.360 mgd
Average Temperature:	72°F summer; 67°F winter
pH	7.8-8.4

Constituent

mg/L

COD	<10
Total Suspended Solids	<10
Chlorides	5.2
Sulfate	3.1
Manganese	<0.02
Aluminum	<0.050
Zinc	0.020
Arsenic	0.001
Lead	<0.001
Hardness (as CaCO ₃)	58
Barium	0.042
Copper	0.006
Chromium	<0.002
Nickel	<0.02
All Volatile Organic Contaminants	<0.0005
Perchlorate	<0.004
Total Dissolved Solids	150

12. Approximately 150 to 250 gallons per minute (gpm) of groundwater from groundwater extraction wells EX-20, EX-21, and EX-22 will be treated at a GET in the western portion of the Administration Area. The treatment system will consist of a 6,650 gallon equalization tank bag filtration, bag filters, and two 5,000-pound GAC vessels operated in series for removal of TCE, 1,2-DCE, and Freon-113. As the GAC exchange vessels are operated in series, when concentrations of pollutants in the effluent from the lead vessel is approximately equal to the influent, the lag vessel is switched to the lead mode and the other vessel becomes the lag vessel after having replaced the carbon. The spent carbon and/or resin are transported to a permitted facility for destruction of the adsorbed volatile organics.
13. Recharge Well IW-01 is screened from 290 to 390 feet below ground surface in the Mehrten Formation. The extracted groundwater is taken from the Laguna and Mehrten Formations, as well as, the transition zone between the formations. The quality of the injected water is essentially equivalent to that found in the receiving formation.
14. Freon-113 has been detected in groundwater at the Administration Area, but not in the extraction wells. GAC has been shown to be able to reduce Freon-113 to less than 0.0005 mg/L.

Basin Plan Findings

15. The Board adopted the *Water Quality Control Plan, Fourth Edition, for the Sacramento and San Joaquin River Basins* (hereafter Basin Plan). The Basin Plan designates the beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve water quality objectives for all waters of the Basin. These requirements implement the Basin Plan.
16. The U.S. Environmental Protection Agency (EPA) and the Board have classified these discharges as minor discharges.
17. The permitted discharge to surface water allows some degradation of water quality but is consistent with federal antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16 (Antidegradation Policy) because the permitted discharge is required to result in best practicable treatment or control of the discharge necessary to assure that pollution or nuisance will not occur and will maintain the highest water quality consistent with the maximum benefit of the people of the state
18. The Basin Plan at page II-2.00 states: “Existing and potential beneficial uses which currently apply to surface waters of the basins are presented in Figure II-1 and Table II-1. The beneficial uses of any specifically identified water body generally apply to its tributary streams.” The Basin Plan does not specifically identify beneficial uses for Morrison Creek, but the Basin Plan does identify present and potential uses for the Sacramento – San Joaquin Delta, to which Morrison Creek is tributary. The Basin Plan identifies the following beneficial uses for the Sacramento – San Joaquin Delta: municipal and domestic supply, agricultural irrigation, agricultural stock watering, industrial process water supply, industrial service supply, body contact water recreation, other non-body contact water recreation, warm freshwater aquatic habitat, cold freshwater aquatic habitat, warm fish migration habitat, cold fish migration habitat, warm spawning habitat, wildlife habitat, and navigation. The Basin Plan states on page II-1.00: “Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning...” and with respect to disposal of wastewaters states that “... disposal of wastewaters is [not] a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses.”

Upon review of the flow conditions, habitat values, and beneficial uses of Morrison Creek, and based on hydraulic continuity, aquatic life migration, and existing and potential water rights, the Regional Board finds that the following beneficial uses identified in the Basin Plan for the Sacramento - San Joaquin Delta are applicable to Morrison Creek:

a. Domestic Supply and Agricultural Supply

The Regional Board is required to apply the beneficial use of MUN to Morrison Creek based on State Board Resolution 88-63, which was incorporated into the Basin Plan pursuant to Regional Board Resolution 89-056. In addition, the State Water Resources Control Board (SWRCB) has issued water rights to existing water users along Morrison

Creek for irrigation and the Sacramento – San Joaquin Delta downstream of the discharge for domestic and irrigation uses.

b. Water Contact and Noncontact Recreation and Esthetic Enjoyment

The Regional Board finds that the discharge flows through residential areas, there is ready public access to Morrison Creek, and exclusion of the public is unrealistic. Prior to discharge into the Sacramento – San Joaquin Delta, Morrison Creek flows through areas of general public access, residential areas, to the Sacramento – San Joaquin Delta. The Sacramento – San Joaquin Delta also offers recreational opportunities.

c. Warm and Cold Freshwater Aquatic Habitat

The California Department of Fish and Game found several warm water species in Morrison Creek. They also reported that a study conducted by the Sacramento Regional County Sanitation District found Chinook salmon, a cold water species, in the Bufferlands area, which includes Upper and Lower Beach Lakes. Morrison Creek seasonally flows into the Bufferlands area, which is within the legal boundary of the Sacramento-San Joaquin Delta. CWA Section 101(a) establishes an interim goal of protecting fish and wildlife and recreation uses, i.e., the “fishable/swimmable” goal. The State is required to protect fish and wildlife and recreation uses unless it specifically removes those uses in compliance with the federal regulations at 40 CFR 131.10.

The Regional Board also finds that based on the available information and on the Discharger’s application, that Morrison Creek, absent the discharge, is an ephemeral stream. The ephemeral nature of Morrison Creek means that the designated beneficial uses must be protected, but that no credit for receiving water dilution is available. Although the discharge, at times, maintains the aquatic habitat, constituents may not be discharged that may cause harm to aquatic life.

19. State Water Resources Control Board (SWRCB) Resolution No. 68-16 (hereafter Resolution 68-16 or the “Antidegradation Policy”) requires the 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 Board’s policies (e.g., quality that exceeds water quality objectives).
20. The beneficial uses of the underlying groundwater are municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply.
21. The discharge will consist of extracted groundwater being, treated to remove the VOCs, and recharged back to the aquifers whence it was extracted. The recharge water will be of similar quality as the groundwater to which it is being recharged. Therefore, no degradation of the

groundwater will occur due to the discharge. Accordingly, the discharge is consistent with the antidegradation provisions of Resolution 68-16.

22. This Order does not require that the Dischargers conduct groundwater monitoring. Groundwater monitoring and analyses are already required under orders issued by the Department of Toxic Substances Control (DTSC), with oversight by DTSC and Board staff.
23. 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 Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.
24. 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 odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses.

Reasonable Potential Analysis

25. USEPA adopted the *National Toxics Rule* (NTR) on 5 February 1993 and the *California Toxics Rule* (CTR) on 18 May 2000. These Rules contain water quality standards applicable to this discharge. The State Water Resources Control Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (known as the State Implementation Plan), which contains guidance on implementation of the *National Toxics Rule* and the *California Toxics Rule*.
26. 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.

27. Federal regulations require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause, or contribute to an in-stream excursion above a narrative or numeric water quality standard. Based on information submitted as part of the application and from past monitoring, the Board finds that the proposed discharge has a reasonable potential to exceed standards and objectives for the constituents discussed in the Information Sheet for the following constituents:
- a. **Trichlorethylene (TCE).** The effluent limitation for TCE is set at 0.0005 mg/L, below the California Public Health Goal and Primary Drinking Water Standard of 0.0008 mg/L and 0.005 mg/L, respectively.
 - b. **Cis(1,2)-Dichloroethylene (cis-1, 2-DCE).** The effluent limit for cis-1,2-DCE is set at the Primary Drinking Water Standard of 0.006 mg/L.
 - c. **Freon-113.** The Primary Drinking Water Standard for Freon-113 is 1.2 mg/L. GAC has been shown to remove Freon-113 to less than 0.0005 mg/L, which is the effluent limitation established in this Order.
 - d. **Perchlorate** The current California Department of Health Services Action Level for perchlorate is 0.006 mg/L. The effluent limitation for perchlorate is established at 0.004 mg/L.
 - e. This Order and the Basin Plan prohibit the discharge of toxic constituents in toxic amounts. Based on information submitted as part of the application and monitoring reports, trichloroethene and perchlorate have a reasonable potential to cause or contribute to a violation of the Basin Plan narrative prohibition of the discharge of toxic substances in toxic concentrations. The Water Quality Standards: Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California; Rule (California Toxics Rule) is promulgated in the Federal Register, 40CFR Part 131, Part III. Effluent limitations for trichloroethene, cis-1,2-DCE and Freon 113 based on the California Toxics Rule and Best Available Technology (as described above), are included in this Order.
28. Section 13241 of the Water Code requires the Regional Board to consider various factors, including economic considerations, when adopting water quality objectives into its Basin Plan. Water Code Section 13263 requires the Regional Board to address the factors in Section 13241 in adopting waste discharge requirements. The State Board, however, has held that a Regional Board need not specifically address the Section 13241 factors when implementing existing water quality objectives in waste discharge requirements because the factors were already considered in adopting water quality objectives. These waste discharge

requirements implement adopted water quality objectives. Therefore, no additional analysis of Section 13241 factors is required.

Treated Groundwater Reuse Evaluation

29. Under another Board Order, Boeing, in coordination with Board staff, USEPA, California Department of Health Services (DHS), the Sacramento County Water Forum, Aerojet, and selected water purveyors evaluated alternatives of discharge of the treated groundwater other than surface water. In September 2003, Boeing submitted a final version of a report containing this evaluation. That report recommended alternatives for reuse of the groundwater including environmental uses and municipal supply. In August 2003 Boeing and Sacramento County reached an agreement whereby the County has agreed to develop the reuse of the treated groundwater being discharged under this Order. The reuse will include, but be not limited to, the replacement of existing and future lost water supplies and provide supplies for new development in the Rancho Cordova area.
30. The Basin Plan adopted by the Board includes a Wastewater Reuse Policy that encourages the reclamation and reuse of wastewater, including treated groundwater resulting from a cleanup action, where practicable. Those reuse options include municipal and industrial supply, crop irrigation, groundwater recharge, and wetland restoration. At this time demonstrated cost-effective options that provide for reuse of the treated groundwater have been identified in Boeing's Reuse Plan, as described in Finding No. 30. The County is currently developing a project for reuse of the treated groundwater that will proceed through the CEQA process. Completion of the County project will likely not occur until Spring 2009.
31. The project has a potential effect on the sustainable yield of the groundwater basin from which the IRCTS extraction field takes its water. The Regional Board has addressed this potential effect by evaluating alternatives to allowing the proposed discharge. No feasible alternative to the proposed project exists at this time. Neither reuse nor recharge of the treated groundwater is feasible at this time. Neither direct nor indirect reuse is feasible at this time and the Regional Board does not have the authority to direct the manner of compliance (e.g., to direct recharge or reuse of the treated groundwater). The alternative of not allowing the proposed discharge to surface waters exists but poses serious environmental consequences because it would impede the cleanup of the groundwater. Pursuant to California Water Code Sections 13267 and 13383, provisions the previous version of this Order required Boeing to submit technical reports evaluating whether there are impacts on the sustainable yield of the groundwater basin caused by the permitted activity and evaluating potential direct and indirect reuse options for the discharged water. On 13 September 2003, Boeing submitted a report that contained the analysis on the affect of the pumping on the aquifer yield. The report stated that there would be an additional drawdown in the eastern part of Sacramento County of up to 30 feet in some locations. Implementation of the reuse alternatives that were identified in the reuse plan described in Finding Nos. 30 and 31, above, will substantially mitigate the impact of the withdrawal of groundwater for remediation purposes. The required

evaluations allowed the Board to determine whether there are additional environmental impacts associated with the Dischargers' pumping. The Board will encourage reuse of treated groundwater consistent with the Wastewater Reuse Policy set forth in the Basin Plan.

Other

32. Effluent limitations, and toxic and pretreatment effluent standards established pursuant to Sections 301, 302, 304, and 307 of the Clean Water Act (CWA) and amendments thereto are applicable to the discharge.
33. The action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21100, et seq.), requiring preparation of an environmental impact report or negative declaration, in accordance with Section 13389 of the California Water Code.
34. 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.
35. The 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.
36. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.
37. This Order shall serve as an NPDES permit pursuant to Section 402 of the CWA, and amendments thereto, and shall take effect upon the date of hearing, provided EPA has no objections.

IT IS HEREBY ORDERED that Order No. R5-2004-0107 is rescinded and 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 thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following:

A. Discharge Prohibitions:

1. Discharge of treated wastewater at a location or in a manner different from that described in Finding Nos. 5, 9 and 10 is prohibited.

2. The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by the attached Standard Provisions and Reporting Requirements A.13.
3. The discharge shall not cause the degradation of any water supply.
4. Neither the discharge nor its treatment shall create a nuisance as defined in Section 13050 of the California Water Code.
5. Discharge of waste classified as 'hazardous' under Section 2521, Chapter 15 of Title 23 or 'designated', as defined in Section 13173 of California Water Code is prohibited.

B. Effluent Limitations:

1. Effluent from the treatment facilities through Outfalls 001, 002, and 003 shall not exceed the following limits:

<u>Constituents</u>	<u>Units</u>	<u>Daily Maximum</u>	<u>Monthly Average</u>
Volatile Organics ^{1,2}	µg/L	0.5 ¹	
Perchlorate	µg/L	6	4
Chlorine Residual	mg/L	0.02	0.01

¹ All volatile organic constituents listed in EPA Methods 8010 and 8020. The concentration of each constituent shall not exceed 0.5 µg/L.

² For two weeks after placement of new ion exchange resin, the effluent limit for each trihalomethane is 10.0 µg/L.

3. The discharge shall not have a pH less than 6.5 nor greater than 8.5.
4. The 30-day average daily discharge flow shall not exceed 0.65 mgd for the Alpha GET and 0.43 mgd for the Administration Area GET.
5. Survival of aquatic organism in 96-hour bioassays of undiluted waste shall be no less than:

Minimum for any one bioassay - - - - - 70%

Median for any three or more consecutive bioassays - - - - 90%

C. Activated Carbon, Resin and Sludge Disposal:

1. Collected screenings, sludges, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer, and consistent with *Consolidated Regulations*

for Treatment, Processing or Disposal of Solid Waste, as set forth in Title 27, CCR, Division 2, Subdivision 1, Section 20004, et seq.

2. Any proposed change in activated carbon, resin or sludge use or disposal practice from a previously approved practice shall be reported to the Executive Officer and EPA Regional Administrator at least **90 days** in advance of the change.
3. Transportation and disposal of GAC and resin shall be only by a permitted hauler and disposed at a permitted regeneration/disposal facility.

D. Receiving Water Limitations:

Receiving Water Limitations are site-specific interpretations of water quality objectives from applicable water quality control plans. As such they are a required part of this permit.

The discharge shall not cause the following in the receiving water:

1. Concentrations of dissolved oxygen to fall below 7.0 mg/L.
2. Oils, greases, waxes, or other materials to form a visible film or coating on the water surface or on the stream bottom.
3. Oils, greases, waxes, floating material (liquids, solids, foams, and scums) or suspended material to create a nuisance or adversely affect beneficial uses.
4. Chlorine detected in the receiving water.
5. Aesthetically undesirable discoloration.
6. Fungi, slimes, or other objectionable growths.
7. Turbidity to increase as follows:
 - a. More than 1 Nephelometric Turbidity Units (NTUs) where natural turbidity is between 0 and 5 NTUs.
 - b. More than 20 percent where natural turbidity is between 5 and 50 NTUs.
 - c. More than 10 NTUs where natural turbidity is between 50 and 100 NTUs.
 - d. More than 10 percent where natural turbidity is greater than 100 NTUs.
8. The normal ambient pH to fall below 6.5, exceed 8.5, or to change by more than 0.5 pH units.

9. Deposition of material that causes nuisance or adversely affects beneficial uses.
10. The normal ambient temperature to be increased more than 5°F.
11. Taste or odor-producing substances to impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin or to cause nuisance or adversely affect beneficial uses.
12. Radionuclides to be present in concentrations that exceed maximum contaminant levels specified in the California Code of Regulations, Title 22; that harm human, plant, animal or aquatic life; or that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.
13. Aquatic communities and populations, including vertebrate, invertebrate, and plant species, to be degraded.
14. Toxic pollutants to be present in the water column, sediments, or biota in concentrations that adversely affect beneficial uses; that produce detrimental response in human, plant, animal, or aquatic life; or that bioaccumulate in aquatic resources at levels which are harmful to human health.
15. Violation of any applicable water quality standard for receiving waters adopted by the Board or the State Water Resources Control Board pursuant to the CWA and regulations adopted thereunder.

E. Provisions:

1. One month prior to commencement of operation, the Discharger shall submit an Operation, Maintenance, and Monitoring Plan for the Ground Water Extraction and Treatment Systems for approval . The Discharger shall operate the treatment systems according to the approved plan, and any approved revisions.
2. The Discharger shall conduct the chronic toxicity testing specified in the Monitoring and Reporting Program. If the testing indicates that the discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above the water quality objective for toxicity, the Discharge shall submit a work plan to conduct a Toxicity Reduction Evaluation (TRE) and upon approval conduct the TRE, and this Order will be reopened and a chronic toxicity limitation included and/or a limitation for the specific toxicant identified in the TRE included. Additionally, if a chronic toxicity water quality objective is adopted by the State Water Resources Control Board, this Order may be reopened and a limitation based on that objective included.

3. The Discharger shall use the best practicable cost-effective control technique currently available to limit mineralization to no more than a reasonable increment.
4. The Discharger shall comply with all the items of the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)", dated February 2004, which are part of this Order. This attachment and its individual paragraphs are referred to as "Standard Provision(s)."
5. The Discharger shall comply with the attached Monitoring and Reporting Program No. R5-2005-0018, which is part of this Order, and any revisions thereto, as ordered by the Executive Officer.
6. Under Monitoring and Reporting Program No. R5-2005-0018 the Discharger shall report trace concentrations of constituents found during the analysis of samples. Trace values are estimates of concentrations detected between the detection level and the practical quantitation level. Trace values are not always reliable as there is a potential for interferences below the practical quantitation level. As effluent limitations specified in this permit are at or above the practical quantitation level, reporting trace values shall not be a violation of an effluent limitation. Trace values are to be used to help operate the treatment facility and to provide information to minimize violations of effluent limits.
7. This Order expires on **1 January 2010** and the Discharger must file a Report of Waste Discharge in accordance with Title 23, CCR, not later than 180 days in advance of such date in application for renewal of waste discharge requirements if it wishes to continue the discharge.
8. Prior to making any change in the discharge point, place of use, or purpose of use of the wastewater, the Discharger shall obtain approval of or clearance from the State Water Resources Control Board (Division of Water Rights).
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 existence of this Order by letter, a copy of which shall be immediately forwarded to this office.

To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, the name, address, and telephone number of the persons responsible for contact with the Board, and a statement. The statement shall comply with the signatory paragraph of Standard Provision D.6 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.

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THE BOEING COMPANY
SOUTHERN GROUNDWATER STUDY AREA EXTRACTION AND TREATMENT SYSTEM
INACTIVE RANCHO CORDOVA TEST SITE
SACRAMENTO COUNTY

-15-

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 Board, Central Valley Region, on 27 January 2005.

Original Signed by:
THOMAS R. PINKOS, Executive Officer

Revised 8/30/04:AMM

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM

NPDES NO. CA0085049

ORDER NO. R5-2004-0018

FOR
THE BOEING COMPANY
SOUTHERN GROUNDWATER STUDY AREA EXTRACTION AND TREATMENT SYSTEM
INACTIVE RANCHO CORDOVA TEST SITE
SACRAMENTO COUNTY

Specific sample station locations have been established under direction of the Board's staff, and a description of the stations is attached to this Order.

GROUNDWATER TREATMENT SYSTEMS MONITORING

Samples shall be collected from the inlet and outlet at each of the Admin GET (Outfall 001) and Alpha GET (Outfall 002) systems and analyzed. If the discharge is intermittent rather than continuous, then the samples shall be collected on the first day of the intermittent discharge. The time of collection of samples shall be recorded. The treatment system monitoring shall include at least the following:

Constituents	Units	Type of Sample	Inlet or Outlet	Sampling Frequency
Dissolved Oxygen	mg/L	Grab	Outlet	Monthly
Flow ¹	mgd	Grab	Outlet	Monthly
Total Dissolved Solids	mg/L	Grab	Outlet	Quarterly
Acute Toxicity ^{2,3}		Grab	Outlet	Quarterly
Volatile Organics ⁴	µg/L	Grab	Inlet and Outlet	Monthly
pH ¹	Number	Grab	Outlet	Monthly
Turbidity	NTU	Grab	Outlet	Monthly
Temperature ¹	°F (°C)	Grab	Outlet	Monthly
Electrical Conductivity@25°C	µmhos/cm	Grab	Outlet	Monthly
Perchlorate ⁵	µg/L	Grab	Inlet and Outlet	Monthly
Hardness as (as CaCO ₃)	mg/L	Grab	Outlet	Quarterly

Footnotes on next page.

- ¹ Field Measurements.
- ² The analyses shall be performed in accordance with EPA/600/4-90/027, *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*.
- ³ Sampling of Effluent only.
- ⁴ Test method to be by EPA Methods 601 and 602, or 8010 and 8020, or 8260, or 500 series with a practical quantitation level no greater than 0.5 µg/L. All concentrations between the detection level and practical quantitation level shall be reported as trace.
- ⁵ A practical quantitation level no greater than 4 µg/L. All concentrations between the detection level and quantitation level shall be reported as trace.

RECEIVING WATER MONITORING

All receiving water samples shall be grab samples. Receiving water monitoring shall include at least the following:

<u>Station</u>	<u>Description</u>
R-1	At least 100 feet upstream on Morrison Creek from the discharge from the Admin GET (Outfall 001)
R-2	At least 50-feet downstream on Morrison Creek from the discharge from the Admin GET (Outfall 001)
R-3	At least 50-feet downstream on Morrison Creek from the discharge from the Alpha GET (Outfall 002)

Constituents	Units	Station	Sampling Frequency
Dissolved Oxygen	mg/L	R-1, R-2, R-3	Monthly
Electrical Conductivity@25°C	µmhos/cm	R-1, R-2, R-3	Quarterly
Total Dissolved Solids	mg/L	R-1, R-2, R-3	Quarterly
Volatile Organics ¹	µg/L	R-1, R-2, R-3	Monthly
pH ²	Number	R-1, R-2, R-3	Monthly
Turbidity	NTU	R-1, R-2, R-3	Monthly
Temperature ²	°F (°C)	R-1, R-2, R-3	Monthly
Perchlorate ³	µg/L	R-1, R-2, R-3	Monthly
Hardness as (as CaCO ₃)	mg/L	R-1, R-2, R-3	Quarterly

- ¹ Test method to be by EPA Methods 601 and 602, or 8010 and 8020, or 8260, or 500 series with a practical quantitation level no greater than 0.5 µg/L. All concentrations between the detection level and practical quantitation level shall be reported as trace.
- ² Field measurements.
- ³ A practical quantitation level no greater than 4 µg/L. All concentrations between the detection level and quantitation level shall be reported as trace.

In conducting the receiving water sampling, a log shall be kept of the receiving water conditions in the Morrison Creek. Attention shall be given to the presence or absence of:

- a. Floating or suspended matter
- b. Discoloration
- c. Bottom deposits
- d. Aquatic life
- e. Visible films, sheens or coatings
- f. Fungi, slimes, or objectionable growths
- g. Potential nuisance conditions

Notes on receiving water conditions shall be summarized in the monitoring report.

THREE SPECIES CHRONIC TOXICITY MONITORING

Chronic toxicity monitoring shall be conducted to determine whether the effluent is contributing to toxicity in Morrison Creek. The testing shall be conducted as specified in EPA 600/4-89-001. Chronic toxicity samples shall be collected at the discharge of the Ground Water Treatment Plant prior to entering the drainage ditch. Samples collected from the outlet of the treatment unit shall be representative of the volume and quality of the discharge. The time of collection for samples shall be recorded. Chronic toxicity monitoring shall include the following:

- Species: *Pimephales promelas, Ceriodaphnia dubia, Selenastrum capriocornutum*
- Frequency: Once per quarter for first year, annually thereafter
- Dilution Series: 100 percent effluent

REPORTING

Monitoring results shall be submitted to the Regional Board by the **25th day following the end of each calendar quarter** following sample collection. Annual monitoring results shall be submitted by the **last day of the January each year**. If results exceed effluent and/or receiving water limitations, then the Discharger must notify the Regional Board with 24-hours of receiving the information of the exceedance.

In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly whether the discharge complies with waste discharge requirements.

If the Discharger monitors any pollutant at the locations designated herein more frequently than is required by this Order, the results of such monitoring shall be included in the calculation and reporting

of the values required in the discharge monitoring report form. Such increased frequency shall be indicated on the discharge monitoring report form.

By **30 January of each year**, the Discharger shall submit a written report to the Executive Officer containing the following:

- a. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.
- b. A statement certifying when the flow meter (if feasible) and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration (Standard Provision C.6).

The Discharger may also be requested to submit an annual report to the Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made in writing. The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.

All reports submitted in response to this Order shall comply with the signatory requirements of Standard Provision D.6.

The Discharger shall implement the above monitoring program on the first day of the month following effective date of this Order.

Ordered by: _____
THOMAS R. PINKOS, Executive Officer

27 January 2005
(Date)

AMM (12/10/04)

INFORMATION SHEET

ORDER NO. R5-2004-0018
THE BOEING COMPANY
SOUTHERN GROUNDWATER STUDY AREA EXTRACTION AND TREATMENT SYSTEM
INACTIVE RANCHO CORDOVA TEST SITE
SACRAMENTO COUNTY

Background

The Boeing Company, as directed by the 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. The Southern Groundwater Study Area (SGSA) comprises approximately the southern half of the IRCTS.

The primary VOCs in the groundwater are trichloroethylene (TCE) and cis-1,2-Dichloroethylene (cis-1,2-DCE) at concentrations up to 380 micrograms per liter ($\mu\text{g/L}$) and 25 $\mu\text{g/L}$, respectively. Perchlorate has also been found at concentrations up to 1200 $\mu\text{g/L}$ in the plume emanating from the Alpha Complex. Concentrations of TCE up to 710 $\mu\text{g/L}$ and have been found in perched groundwater beneath the site. The Boeing Company has completed a Remedial Investigation/Feasibility Study for the vadose zone at the Administrative Area and for the soils and groundwater in the SGSA. Interim remedial measures, consisting of soil vapor extraction systems, to reduce the concentration of VOCs in the vadose zone have removed about 6,200 pounds of VOCs, a reduction of an estimated 90% of the original mass in the vadose zone at the Administrative Area and over 3500 pounds at the Alpha Complex. The SVE systems continue to operate to reduce the mass in the vadose zone and minimize the impact to groundwater quality from the VOCs.

Interim Removal Action

The Boeing Company has determined the extent of groundwater contamination extending from the Administration Area and Alpha Complex south and southwest onto private lands. Previously, while that investigation was proceeding, The Boeing Company was directed to initiate an interim removal action to reduce the concentrations of VOCs in groundwater that are migrating from the Administration Area. In October 2001, The Boeing Company developed a Removal Action Workplan, pursuant to a Department of Toxic Substances Control Imminent and Substantial Endangerment Order, proposing groundwater extraction and treatment at the southern edge of the Administration Area. Pursuant to that workplan, the Boeing Company constructed and operated an interim groundwater extraction and treatment system. It was anticipated that the interim removal action would later be expanded to include the entire plume of contaminated groundwater extending south and across Douglas Road from the Administration Area and Alpha Complex.

The extraction for the interim system came from a single extraction well with an initial flowrate of 5 gallons per minute (gpm). The extracted groundwater was treated using granular activated carbon and discharged under Waste Discharge Requirements, Order No. R5-2002-0008. The discharge from the

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treatment system was to a dry well that is filled with washed cobbles or drain rock as required by the County of Sacramento Department of Health, Environmental Health Department, Rules and Regulations regarding construction of individual sewage disposal systems. The dry well allowed the water to drain back to groundwater. The treatment system removed the VOCs to below 0.5 µg/L (the detection limit) prior to recharge of the treated water. Primary Drinking Water Standards are 5 µg/L for TCE and 6 µg/L for cis-1,2-DCE. The Action Level for the State of California for TCE is 0.8 µg/L. In addition, by default the GAC units also reduce concentrations of dissolved solids in the extracted groundwater. Thus, the water being recharged back to the aquifer upgradient of the extraction field is of better quality than the existing water quality.

Initial Revisions to the Interim System

The Boeing Company constructed three extraction wells south of the Administration Area and one recharge well on the Administration Area property and requested that Order No. R5-2002-0008 be revised to allow the discharge from aquifer testing the new wells to the new recharge well. In addition, the interim groundwater extraction from EX-18 was discontinued due to extremely low flow and biofouling. The Board adopted Order No. R5-2004-0107 to allow for the requested modifications. Due to the delays in grading and construction of development at the Sunrise-Douglas development south of the IRCTS, the aquifer tests have not been conducted. The tests will be conducted later, after adoption of these newly revised waste discharge requirements.

Current Revisions to the Interim System

The Boeing Company and The Aerojet-General Corporation completed an *Interim Remedial Action Plan for Containment of Volatile Organic Compounds and Perchlorate in Groundwater at the Southern Groundwater Study Area* and a draft *Soil and Groundwater Feasibility Study for the Inactive Rancho Cordova Test Site*. Those documents describe the interim and proposed final actions to control the plume of perchlorate and VOCs in groundwater in the SGSA. Groundwater treatment systems will be constructed for the Administration Area plume and for the Alpha Complex plume.

The Administration Area system will receive 150-250 gallons per minute from three existing groundwater extraction wells (EX-20, 21 and 22) located south of Douglas Road. The treatment system consists of an influent holding tank, GAC vessels operated in series, and an infiltration/discharge system. The water will be discharged to the new recharge well (IW-01) and the dry well. However, if the capacity of those two wells cannot accommodate the flow, then the excess water will be discharged to Morrison Creek.

The first water to pass through the new system will be from the aquifer testing of the extraction wells. The aquifer tests will consist of 8-hour step-drawdown and 5-day constant-rate tests for each of the three wells. The drawdown test will be run at approximately 40-100 gpm, with the constant-rate tests running between 50 and 75 gpm. The treated groundwater will run through the treatment system to remove the VOCs and discharged back to the groundwater via the recharge well (IW-01). After completion of the aquifer tests, the system will be operated in a longer-term mode with an estimated

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total flow of 250-300 gpm from the three extraction wells. Additional wells and an expansion of the treatment system will occur at a later date after analysis of the existing system. The Order would then be proposed for revision to allow for the new wells and increased flow.

The groundwater pollutant plume associated with the Alpha Complex will be initially controlled with a single groundwater extraction well, EX-25, along Douglas Road at the entrance to the Beta Complex. Approximately 450 gpm of extracted groundwater will be treated using ion-adsorption resin to remove perchlorate to less than 4 µg/L (Action Level of 6 µg/L), and VOCs using GAC, as described above for the interim system. The water will be discharged to Morrison Creek.

Basin Plan, Beneficial Uses, and Regulatory Considerations

Surface water drainage from the treatment facility is to Morrison Creek, tributary to the American River. 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.

Reasonable Potential and Anti-degradation Analyses

A reasonable potential analyses for priority pollutants, utilizing guidance covered by the Policy for the Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP), adopted in March 2000 by the State Board, was conducted based upon data submitted by Boeing regarding effluent concentrations of volatile organic compounds and other pollutants.

The numeric water quality criteria for priority pollutants were promulgated by U.S. EPA with the adoption of the *National Toxics Rule* (NTR) on 5 February 1993 and the *California Toxics Rule* (CTR) on 18 May 2000. The reasonable potential analysis for trichloroethene and perchlorate revealed that these constituents may exceed numeric water quality criteria, and require limits. Limits were not included for those detected constituents where there is no reasonable potential to exceed a standard.

Additionally, federal regulations require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have a reasonable potential to cause, or contribute to an in-stream excursion above numerical or narrative water quality standard. The Discharger is required to provide information as to whether the levels of priority pollutants, including CTR and NTR constituents, and constituents for which drinking water maximum contaminant levels prescribed in the California Code of Regulations, in the discharge cause or contribute to an in stream excursion above a water quality objective. If the discharge has the reasonable potential to cause or contribute to an in-stream excursion

above a water quality objective, the Discharger is required to submit information to calculate effluent limitations for those constituents.

Effluent Limits

The following water quality limits have been selected to implement all applicable water quality objectives for the protection of Board-designated beneficial uses of surface water in Morrison Creek and the Sacramento River downstream of the discharge point, and assume that there is no dilution in Morrison Creek.

Perchlorate Limitation

The current Action Level (January 2002) set by the Department of Health Services (DHS) -Office of Drinking Water as its recommended value not to be exceeded in a drinking water supply is 6 µg/L. Ion-exchange treatment processes have been shown to be capable of reducing the perchlorate concentration to less than the practical quantitation level of 4 µg/L. The effluent limitation is established at 4 µg/l based on the ability to reduce the concentration to at or below the Action Level.

Volatile Organic Compounds

TCE has a Primary Drinking Water Standard of 5 µg/L and a Public Health Goal (PHG) of 0.8 µg/L. The effluent limitation is set at 0.5 µg/L as conventional TCE removal systems using GAC have been shown to be capable to cost-effectively remove TCE to 0.5 µg/L. This is below the CTR value of 2.7 µg/L.

The VOC cis-1,2-DCE has a Primary Drinking Water Standard and a CTR value of 6 µg/L. GAC has been shown to cost-effectively remove cis-1,2-DCE to below 0.5 µg/L which is established as the effluent limitation.

The following table provide the rationale for the effluent limits.

Table 1: Monthly Average Limit

Constituent	Monthly Average Limit	Units	Reference
Trichloroethene	0.5	µg/L	Best Practicable Treatment
cis-1,2-DCE	0.5	µg/L	Best Practicable Treatment
Perchlorate	4	µg/L	Best Practicable Treatment

Discharge limits are primarily based on the *Fourth Edition of the Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board - Central Valley Region, Sacramento River and San Joaquin River Basins*, and Best Available Technology for removal of VOCs and perchlorate.

Receiving Water Limitations

Receiving Water Limitations D.1 through D.13 are found in the Basin Plan and deal with general receiving water parameters. Given that the treated groundwater is not a discharge of elevated temperature wastewaters, limitations for temperature found in the *Water Quality Control Plan for Control of Temperatures in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California* are not included.

Chronic toxicity and acute toxicity testing of the effluent is required.

Antidegradation

The antidegradation directives of Section 13000 of the California Water Code 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 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 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 Board to evaluate that fully characterizes:

- 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 Board must comply with CWC section 13263 in setting appropriate conditions. The 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 Board need not authorize the full utilization of the waste assimilation capacity of the groundwater (CWC 13263(b)) and must consider other waste discharges and factors that affect that capacity.

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As stated above, groundwater will be extracted, treated to remove VOCs and recharged back to the aquifer. The water returned to the aquifer 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 20380 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

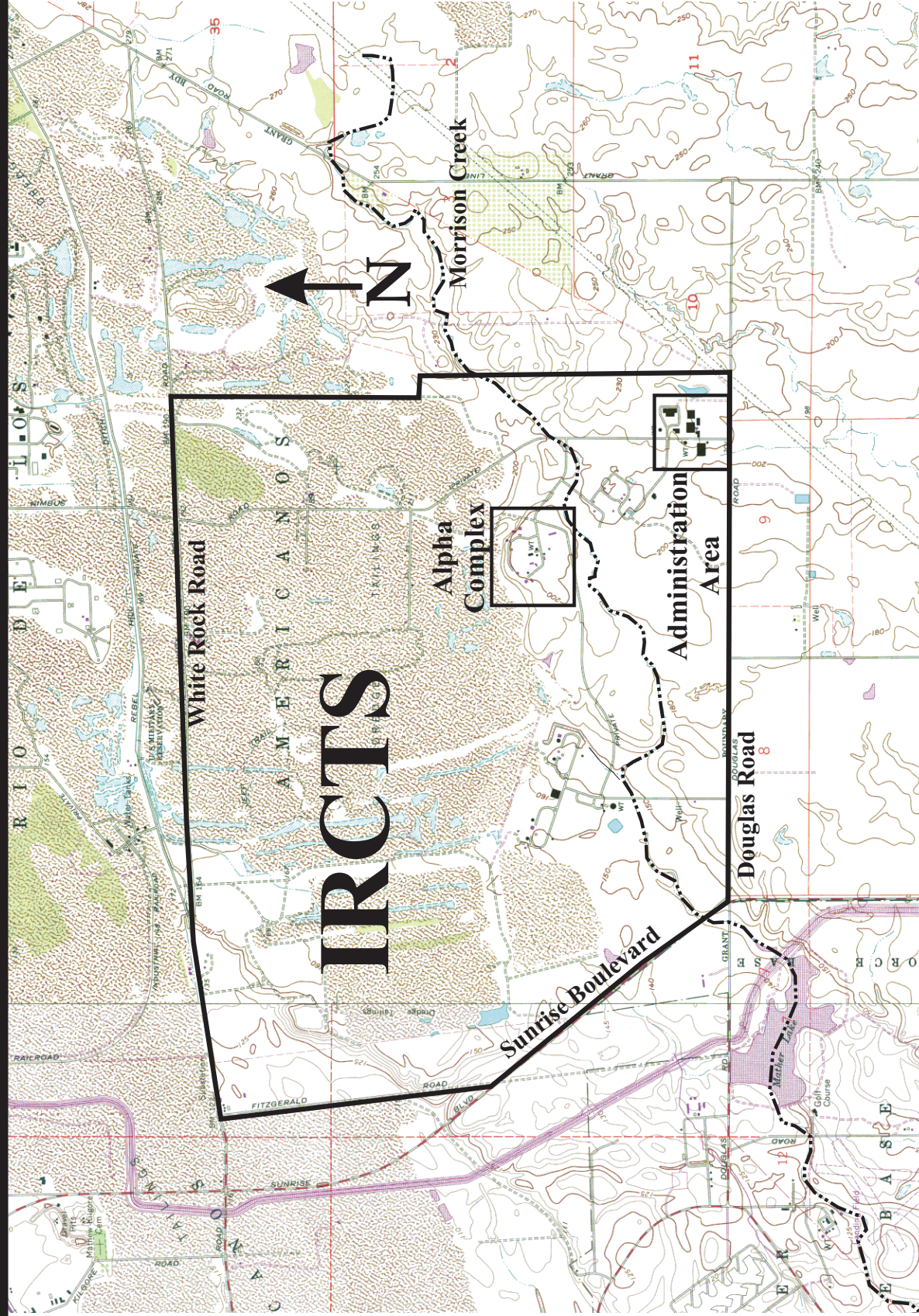
The proposed Order establishes a discharge flow limits of 648,000 gpd for the Alpha treatment system and 360,000 gpd for the Administration Area. The proposed Order's discharge specifications for VOCs and perchlorate are listed above, and will also maintain all beneficial uses of the groundwater.

Monitoring Requirements

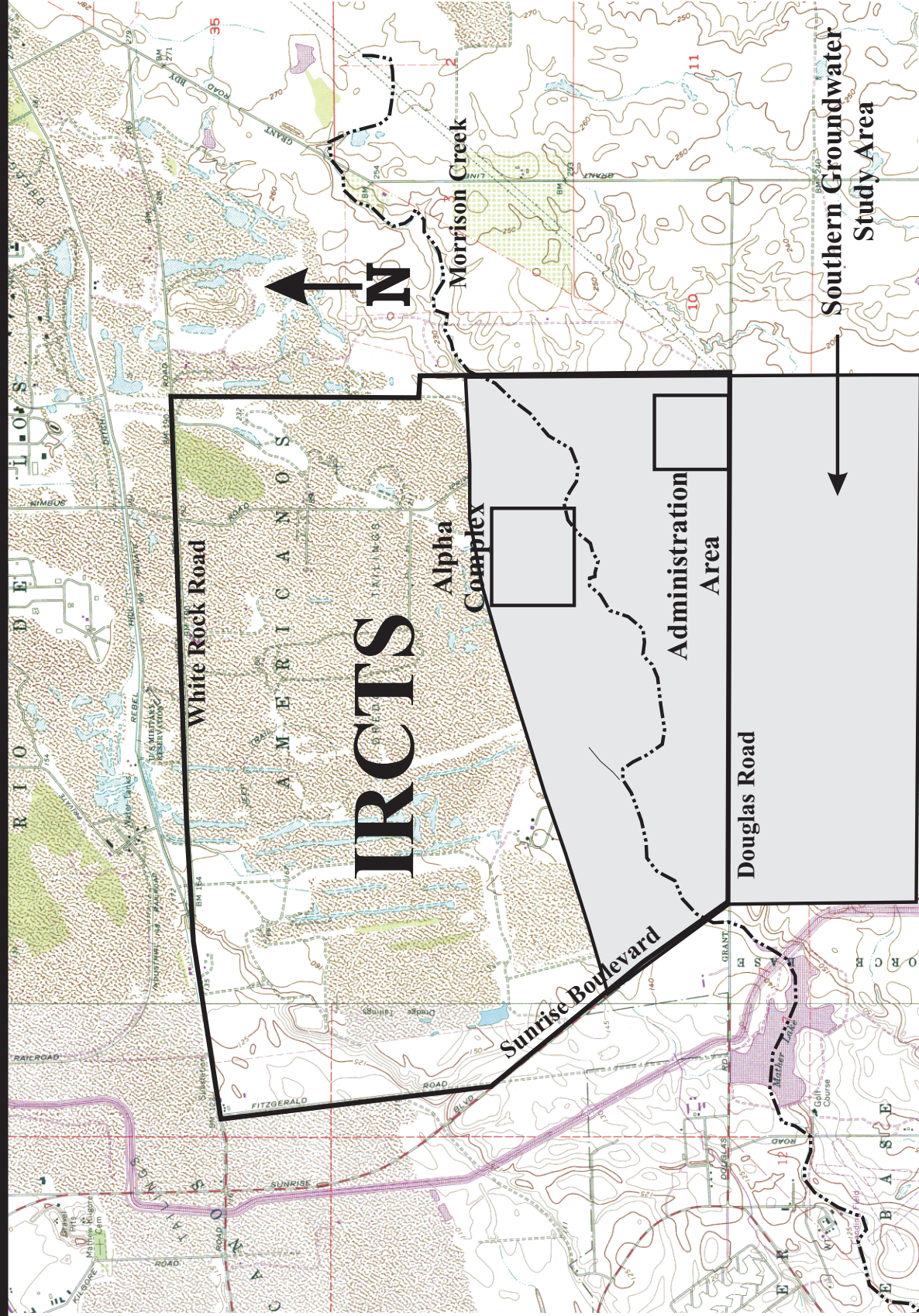
Section 13267 of the CWC authorizes the Board to require monitoring and technical reports as necessary to investigate the impact of a waste discharge on waters of the state. In recent years there has been increased emphasis on obtaining all necessary information, assuring the information is timely as well as representative and accurate, and thereby improving accountability of any discharger for meeting the conditions of discharge. Section 13268 of the CWC authorizes assessment 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, perchlorate, temperature, turbidity, suspended solids, dissolved solids, dissolved oxygen and pH.

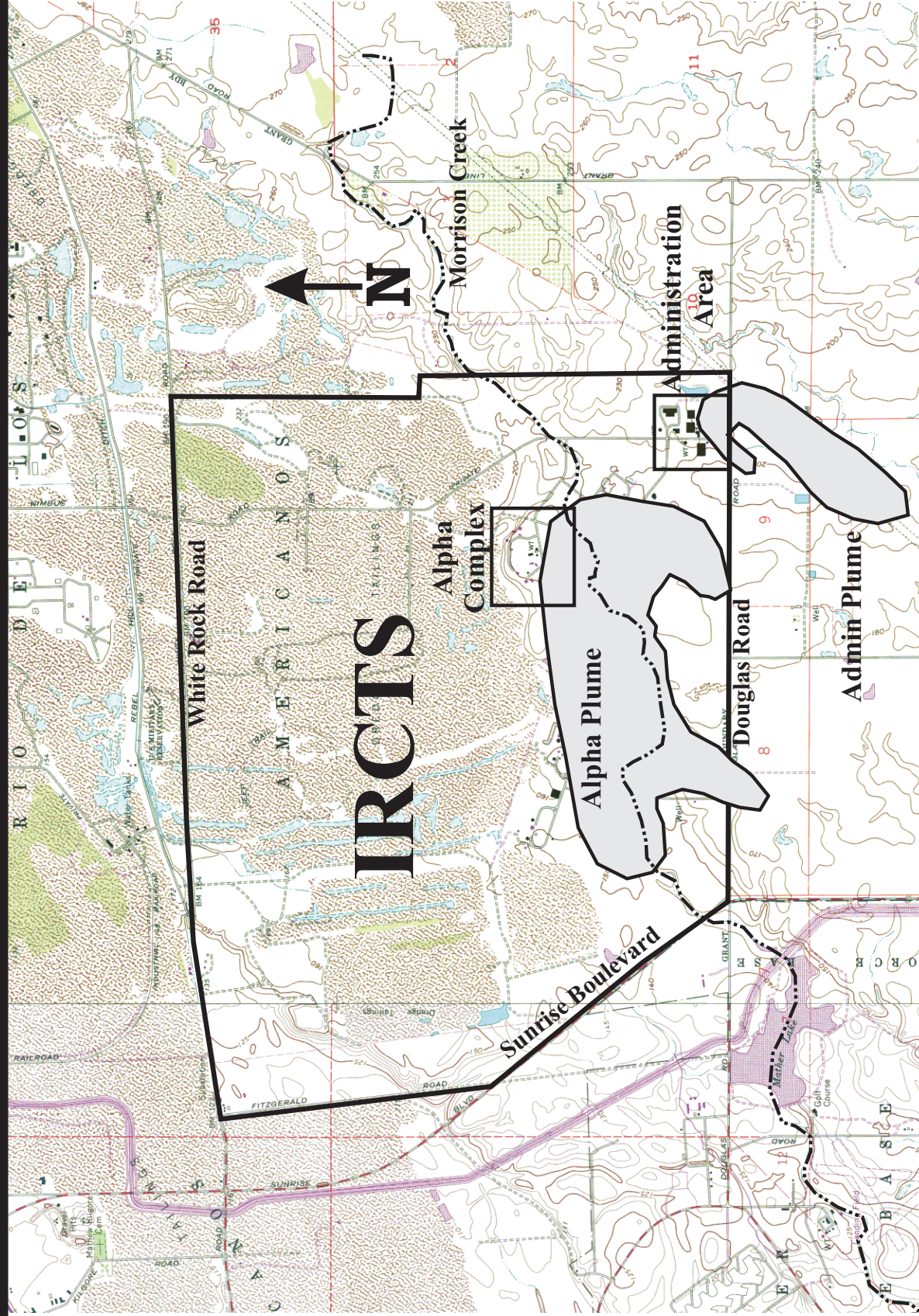
The Discharger need not conduct groundwater monitoring under this Order. Groundwater monitoring is already being performed pursuant to the Imminent and Substantial Endangerment Order. Effects of the discharge on groundwater need not be monitored under this Order as the water being returned to the aquifer from whence it came after removal of VOCs, resulting in a betterment of water quality.



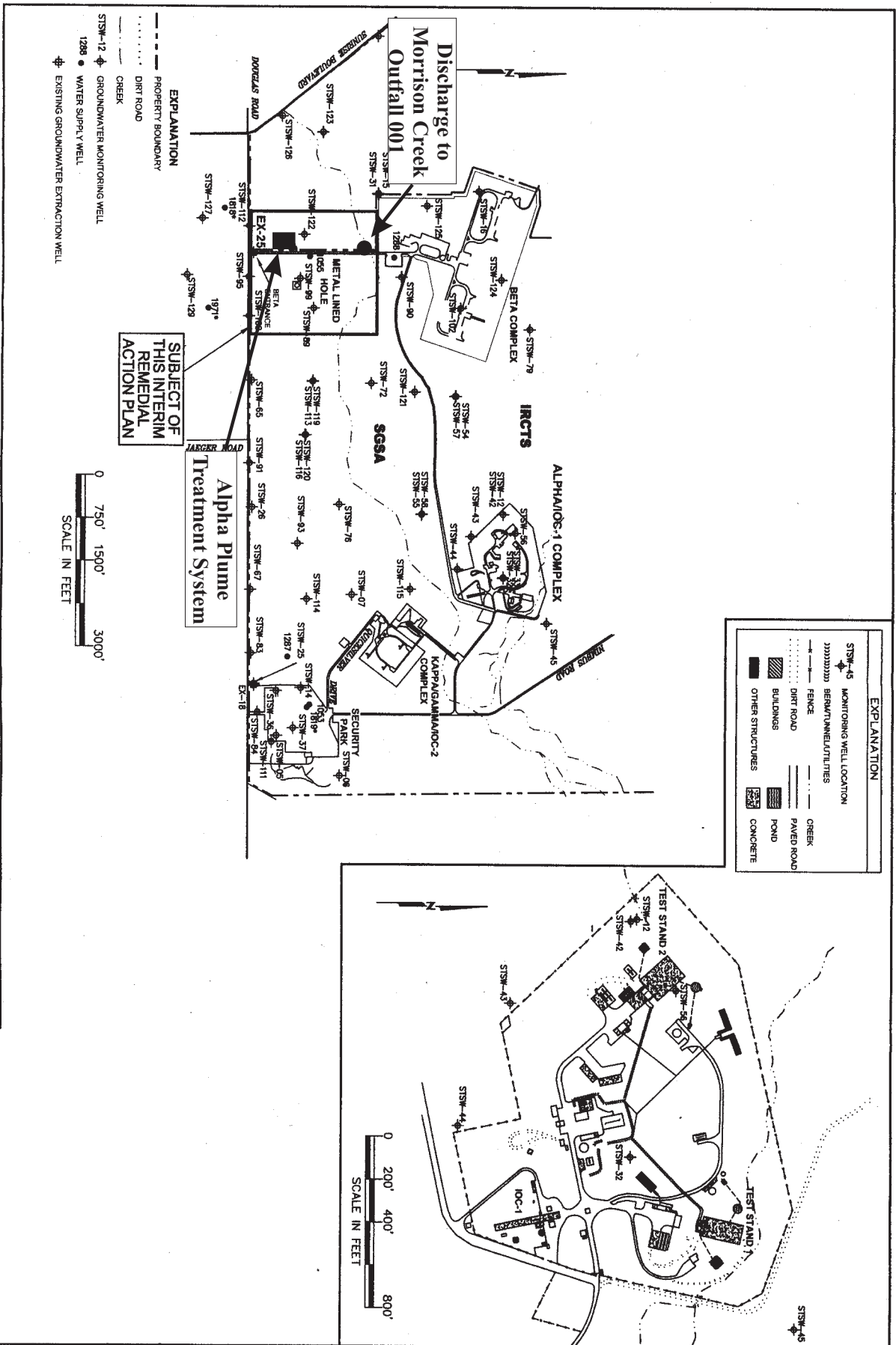
Attqchment A
The Boeing Company
Southern Groundwater Study Area Extraction and Treatment System
Inactive Rancho Cordova Test Site
Sacramento County



Attachment B
The Boeing Company
Southern Groundwater Study Area Extraction and Treatment System
Inactive Rancho Cordova Test Site
Sacramento County



Attachment C
 The Boeing Company
 Southern Groundwater Study Area Extraction and Treatment System
 Inactive Rancho Cordova Test Site
 Sacramento County



SUBJECT OF THIS INTERIM REMEDIAL ACTION PLAN

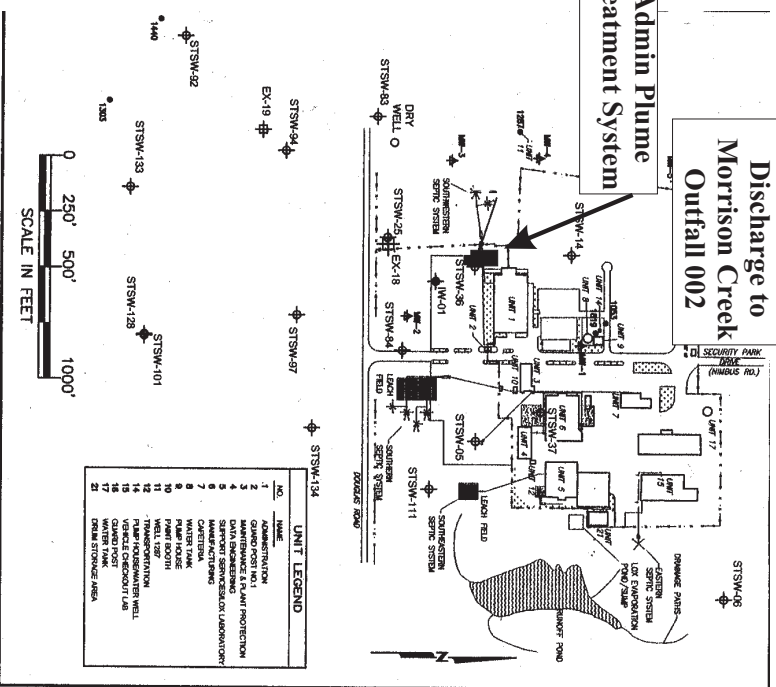
Alpha Plume Treatment System

Discharge to Morrison Creek Outfall 001

Attachment D
The Boeing Company
Southern Groundwater Study Area Extraction and Treatment System
Inactive Rancho Cordova Test Site
Sacramento County

Discharge to
Morrison Creek
Outfall 002

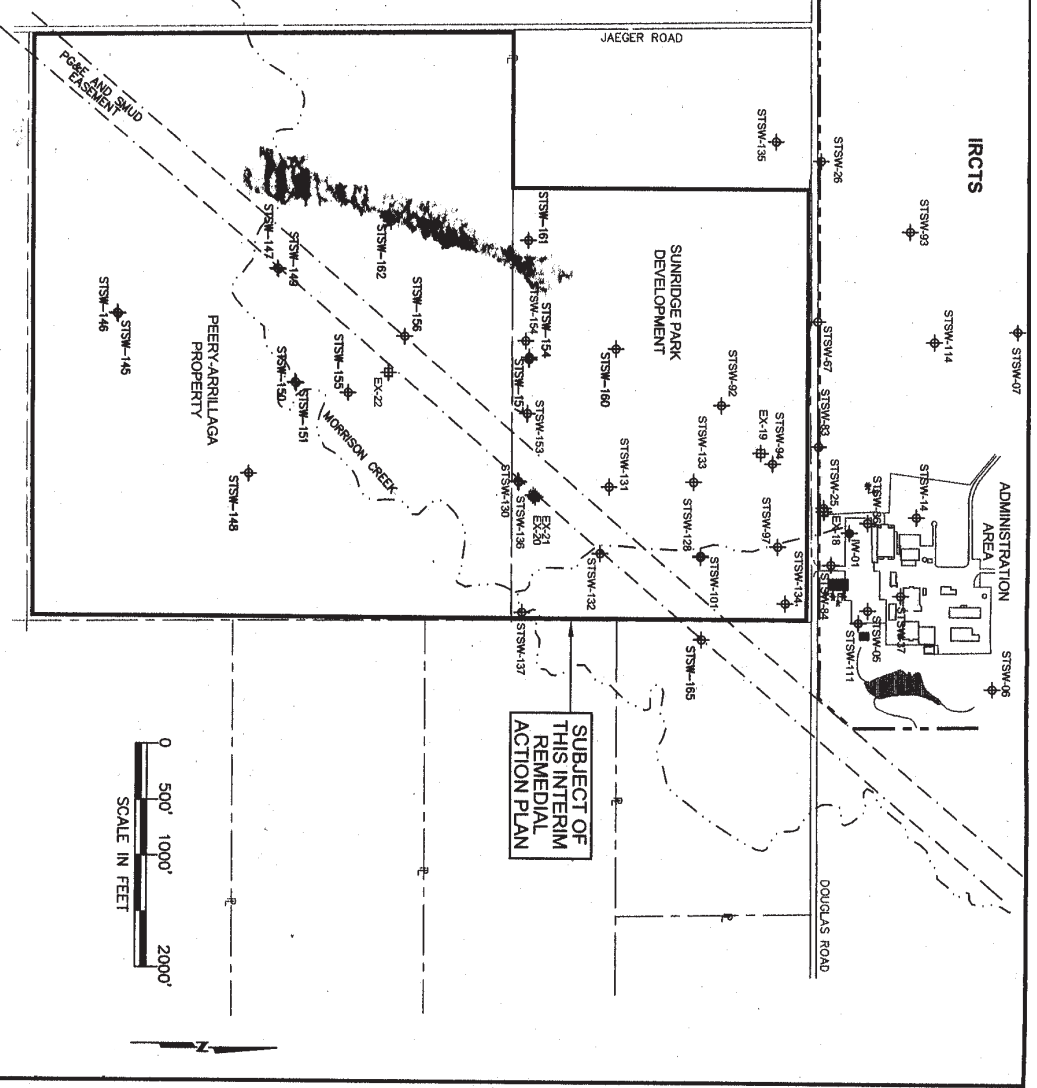
Admin Plume
Treatment System



NO.	NAME
1	ADMINISTRATION
2	GRAND POND NO. 1
3	DATA BUILDING
4	DATA BUILDING
5	SHARPER SERVICE/STORAGE LABORATORY
6	LABORATORY
7	WAITING TANK
8	WAITING TANK
9	WAITING TANK
10	WAITING TANK
11	WELL 1207
12	PLUMBER/MECHANIC WELLS
13	PLUMBER/MECHANIC WELLS
14	PLUMBER/MECHANIC WELLS
15	PLUMBER/MECHANIC WELLS
16	PLUMBER/MECHANIC WELLS
17	PLUMBER/MECHANIC WELLS
18	PLUMBER/MECHANIC WELLS
19	PLUMBER/MECHANIC WELLS
20	PLUMBER/MECHANIC WELLS
21	PLUMBER/MECHANIC WELLS
22	PLUMBER/MECHANIC WELLS

EXPLANATION

- IRCTS BOUNDARY
- GROUNDWATER MONITORING WELL (STSM = SACRAMENTO TEST SITE WELL)
- GROUNDWATER EXTRACTION WELL
- INJECTION WELL
- PERCHED GROUNDWATER MONITORING WELL
- DOMESTIC WATER SUPPLY WELL
- DRYWELL
- CONCRETE
- DIRT ROAD
- MANHOLE
- PLANTERS
- FOND



SUBJECT OF
THIS INTERIM
REMEDIAL
ACTION PLAN



Attachment E
The Boeing Company
Southern Groundwater Study Area Extraction and Treatment System
Inactive Rancho Cordova Test Site
Sacramento County