

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2005-_____

NPDES NO. CA0082511

WASTE DISCHARGE REQUIREMENTS
FOR
AAF-McQUAY, INC., ET AL.
GROUNDWATER REMEDIATION SYSTEM
TULARE COUNTY

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

1. AAF-McQuay, Inc., a Delaware corporation, operates a groundwater cleanup system located two miles west of Visalia. AAF-McQuay, Inc., as system operator, is the primary discharger. G&H Enterprises, LLC., Danny S. Freitas and Jeannette Freitas; Fewer Ranch; the Estate of Bill B. Baniyas; Clifton G. Harris III and Charmaine L. Harris; Arthur Duarte and Katherine Duarte Family Trust; and Delbert and Geraldine Williamson and Mohr Family Revocable Living Trust, as property owners where groundwater is extracted or owners and lease holders who accept treated groundwater for irrigation, are secondary dischargers (collectively all are hereafter referred to as Discharger).
2. Waste Discharge Requirements Order No. 98-200, adopted by this Regional Board on 23 October 1998, regulates the discharge of treated groundwater to North Branch Mill Creek Ditch, a water of the United States, and to nearby farmland. The Discharger submitted a Report of Waste Discharge (ROWD) dated 4 April 2003 to renew its permit under the National Pollutant Discharge Elimination System (NPDES).
3. The Discharger's effluent consists of treated groundwater from two granular activated carbon (GAC) treatment systems. The discharge from both treatment systems to North Branch Mill Creek Ditch is via Discharges 001 and 003, as shown on Attachments A and B, a part of this Order. Treated effluent is also diverted and discharged from both of the treatment systems to ten agricultural fields. The discharge from the GAC treatment systems to the agricultural fields is designated Discharge 002.
4. Six wells are used for extraction of groundwater. Groundwater extracted from five of the wells is treated at GAC Unit No. 28B5/28G1 and discharged to Discharge 001. The Discharger's ROWD states that the average flow from this treatment unit is 0.95 million gallons per day (mgd).

Groundwater from the remaining well is treated at GAC Unit No. 28E3. The ROWD reports an average flow of 0.45 mgd discharged from GAC Unit No. 28E3 to Discharge 003. Each GAC treatment unit consists of two carbon vessels that are operated in series to safeguard against VOC discharges occurring from constituent breakthrough.

5. The discharge to North Branch Mill Creek Ditch from GAC Unit No. 28B5/28G1 occurs at Latitude 36° 20'00" North, Longitude 119° 22' 13" West (Discharge 001). The discharge to North Branch Mill Creek Ditch from GAC Unit No. 28E3 occurs at Latitude 36° 20' 04" North, Longitude 119° 22' 49" West (Discharge 003). The site lies within the Kaweah Delta Hydrologic Area (No. 558.10) in the South Valley Floor Hydrologic Unit.

North Branch Mill Creek Ditch discharges into Cross Creek, which normally flows to the Tule River during wet years.

6. The agricultural fields (Discharge 002) are used for growing fruit, walnuts, pecans, and field crops. The agricultural fields (APNs 81-03-69, 81-03-36, 81-03-19, 81-04-27, 81-04-05, 81-04-26, 81-03-57, 81-03-22, 81-03-33) are owned by G&H Enterprises, LLC., Danny S. Freitas and Jeannette Freitas; Fewer Ranch; the Estate of Bill B. Banias; Clifton G. Harris III and Charmaine L. Harris; Albert Duarte and Katherine Duarte Family Trust; and Delbert and Geraldine Williamson and Mohr Family Revocable Living Trust.
7. Groundwater investigations show groundwater beneath the "east" and "west" parcels (APNs 85-02-38 and 81-03-69, respectively) to be degraded with VOCs such as 1,1-dichloroethane (1,1-DCA); 1,1-dichloroethylene (1,1-DCE); tetrachloroethylene (PCE); 1,1,1-trichloroethane (1,1,1-TCA); and trichloroethylene (TCE).

Initial monitoring studies showed that TCE was detected at concentrations as high as 17,750 µg/L near several dry wells at the east parcel. Other constituents were detected below Maximum Contaminant Levels (MCLs), including chloroform; cis-1,2-dichloroethylene (cis-1,2-DCE); and 1,1,2-trichloroethane (1,1,2-TCA). The ROWD reported influent concentrations of total VOCs have reduced over time to 7.6-8.8 µg/L.

8. Monthly effluent monitoring data submitted by the Discharger for the period of 1999 to 2003 were examined and the detected values of constituents are summarized below:

TABLE 1 - TREATMENT UNIT 28B5/28G1 (DISCHARGE 001)

Average Flow: 0.47 mgd
 Maximum Daily Flow: 1.05 mgd

Design Flow: 1.4 mgd

Constituent	Units	Average ¹	High ¹	Low ¹
Chloromethane	µg/L	0.52	0.52	0.52
1,1-Dichloroethylene	µg/L	0.94	1.6	0.51
cis-1,2-Dichloroethylene	µg/L	0.88	1.6	0.52
Trichloroethylene	µg/L	0.79	0.79	0.79
1,1,1 Trichloroethane	µg/L	2.0	2.0	2.0

¹Based only on detected values.

TABLE 2 - TREATMENT UNIT 28E3 (DISCHARGE 003)

Average Flow: 0.32 mgd
 Maximum Daily Flow: 0.66 mgd

Design Flow: 1.4 mgd

Constituent	Units	Average ¹	High ¹	Low ¹
Chloroform	µg/L	0.74	0.75	0.74
1,1-Dichloroethylene	µg/L	1.4	2.7	0.66
cis-1,2-Dichloroethylene	µg/L	0.5	0.5	0.5
Tetrachloroethylene	µg/L	1.7	1.7	1.7
Trichloroethylene	µg/L	1.6	1.6	1.6

¹Based only on detected values.

9. Discharger treatment system influent monitoring data for January to September 2003 are summarized below:

<u>Constituent</u>	<u>Maximum Influent Concentration</u> <u>28B5/28G1</u> (µg/L)	<u>Maximum Influent Concentration – 28E3</u> (µg/L)
1,1-Dichloroethylene	2.4	2.4
Trichloroethylene	35	14

10. Remediation activities at the site are proceeding under California Environmental Protection Agency, Department of Toxic Substances Control's (DTSC) Imminent and Substantial Endangerment Determination and Order No. I&S 90/91-001. DTSC is the lead agency in the site remediation activity. On 11 December 1997, DTSC approved the Final Remedial Action Plan (RAP) for the site, which established groundwater target cleanup levels for the compounds of interest at their respective MCLs.
11. The Discharger conducts short-term pumping tests at the monitoring or extraction wells. Pumped water is diverted to any one of the treatment units for treatment prior to discharge. The Discharger occasionally discharges untreated wastewater in small volumes to the agricultural fields during well development, redevelopment, or tests of well pump repairs. The discharge of untreated wastewater is limited to 100,000 gallons per 5-day period and such events would not occur more than 10 days per year. The discharges are de minimus: the worst-case scenario, discharge to the smallest field, field No. 9 of two-acres, would result in a hydraulic loading of only 270 gal/ac/day.
12. The *Water Quality Control Plan for the Tulare Lake Basin, Second Edition* (hereafter Basin Plan), designates beneficial uses, establishes water quality objectives (WQOs), and contains implementation programs and policies to achieve WQOs for all waters of the Basin. These requirements implement the Basin Plan.
13. The United States Environmental Protection Agency (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 (State 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 (SIP)) adopted in March 2000, which contains guidance on implementation of the NTR and the CTR.
14. Some criteria in the CTR and NTR are hardness dependent. The minimum effluent hardness (CaCO₃) reported by the Discharger is 110 mg/L. Because no hardness data for receiving water is available, a hardness of 110 mg/L is assumed for the receiving water in all calculations

RECEIVING WATER BENEFICIAL USES

15. The Basin Plan at page II-2.00 states: "Existing and probable beneficial uses which currently apply to surface waters of the basins are presented in Figure II-1 and Table II-1. "North Branch Mill Creek Ditch and Cross Creek" are Valley Floor Waters. The Basin Plan designates the beneficial uses of Valley Floor Waters as:

- agricultural supply (AGR);
 - industrial service supply (IND);
 - industrial process supply (PRO);
 - water contact recreation (REC-1);
 - non-contact water recreation (REC-2);
 - warm freshwater habitat (including spawning) (WARM);
 - wildlife habitat (WILD);
 - support of rare, threatened, or endangered species (RARE); and
 - groundwater recharge (GWR).
16. Based on the available information and on the Discharger's application, North Branch Mill Creek Ditch, absent the discharge, is an ephemeral stream. The ephemeral nature of North Branch Mill Creek Ditch 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 aquatic habitat, constituents may not be discharged that may cause harm to aquatic life. At other times, natural flows within North Branch Mill Creek Ditch help support the aquatic life. Both conditions may exist within a short time span, where North Branch Mill Creek Ditch would be dry without the discharge and periods when sufficient background flows provide hydraulic continuity with the Tule River. The lack of dilution results in more stringent effluent limitations to protect contact recreational uses, drinking water standards, agricultural water quality goals and aquatic life.

EFFLUENT LIMITATIONS AND REASONABLE POTENTIAL ANALYSES

17. Effluent limitations, and toxic and pretreatment effluent standards established pursuant to Sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines), and 307 (Toxic and Pretreatment Effluent Standards) of the Clean Water Act (CWA) and amendments thereto are applicable to the discharge.
18. According to Section 1.2 of the SIP, the Discharger must report data for all the priority pollutants listed in the CTR. The data are used to determine the reasonable potential for these constituents to cause or contribute to an exceedance of applicable water quality criteria and to calculate effluent limitations. On 27 February 2001 the Discharger was issued a 13267 letter directing it to conduct a receiving water and effluent monitoring study in accordance with the SIP. The Discharger submitted the required monitoring data for the effluent, but did not submit any receiving water data. This Order contains provisions that:
- a. Require the Discharger to conduct a study to provide information as to whether the levels of NTR and CTR constituents, USEPA Priority Pollutants, in the discharge have the reasonable potential to cause or contribute to an in-stream excursion above a water quality standard, including Basin Plan numeric and narrative objectives and water quality standards, objectives, and criteria;

- b. If the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard, require the Discharger to submit sufficient information to calculate effluent limitations for those constituents; and
 - c. Allow the Regional Board to reopen this Order and include effluent limitations for those constituents.
19. 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 numerical water quality standard. Based on information included in analytical laboratory results submitted by the Discharger (see Attachment C), the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for copper. Therefore water quality-based effluent limitations for copper are included in this Order.
20. **Copper** –The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for copper. Freshwater aquatic habitat is a beneficial use of the receiving water. The criteria for copper are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The conversion factors for copper in freshwater are 0.960 for both acute and chronic criteria. Using the worst-case measured effluent hardness of 110 mg/L, the corresponding criteria are 15.3 µg/L and 10.1 µg/L for the acute and chronic criteria, respectively. The maximum observed effluent copper concentration was 11 µg/L. The Discharger did not report the receiving water copper concentration, as required. However, as North Branch Mill Creek Ditch is an effluent dominated ephemeral stream, no assimilative capacity is available. *Effluent concentrations have exceeded the chronic criteria with no available receiving water assimilative capacity; therefore CTR criteria for copper must be met at the point of discharge.* The Effluent Limitations for copper included in this Order are presented in total concentrations, and are based on CTR criteria for the protection of freshwater aquatic life. The effluent limitations for total copper for the protection of freshwater species was calculated using SIP procedures (see Information Sheet) as 7.6 µg/L as a monthly average and 15.3 µg/L as a daily maximum. Since the Discharger will not immediately be able to comply with these limits, in accordance with Section 2.1 of the SIP, a compliance schedule is included in the permit.
21. The SIP, Section 2.1, provides that: “Based on an existing discharger’s request and demonstration that it is infeasible for the discharger to achieve immediate compliance with a CTR criterion, or with an effluent limitation based on a CTR criterion, the Regional Board may establish a compliance schedule in an NPDES permit.” Section 2.1 further states that compliance schedules may be included in NPDES permits provided that the following justification has been submitted: “...*(a) documentation that diligent efforts have been made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste*

stream; (b) documentation of source control and/or pollution minimization efforts currently underway or completed; (c) a proposed schedule for additional or future source control measures, pollutant minimization actions, or waste treatment (i.e. facility upgrades); and (d) a demonstration that the proposed schedule is as short as practicable.” Provision F.6 of this Order requires the Discharger to provide this information by **31 August 2005** or water quality-based effluent limitations for copper will take effect. Otherwise, the water quality-based effluent limitations for copper will take effect in the shortest time practical as approved by the Executive Officer, but in no case later than **28 April 2010**.

22. **pH** – The Basin Plan includes numeric water quality objectives that the pH “...*not be depressed below 6.5, raised above 8.3, or changed at any time more than 0.3 units from normal ambient pH.*” Because there is no available assimilative capacity, this Order requires that effluent pH be within the limits of 6.5 to 8.3 units.
23. **Conductivity @ 25 °C (EC)** – The Basin Plan establishes maximum effluent limitations for EC in surface water discharges as follows: “The maximum electrical conductivity of a discharge shall not exceed the quality of the source water plus 500 micromhos per centimeter or 1,000 micromhos per centimeter, whichever is more stringent. When the water is from more than one source, the EC shall be a weighted average of all sources.” This Order establishes effluent limitations for EC based on the Basin Plan requirement. The limitations for EC established in this Order are maximum limitations. The GAC treatment process does not add salts. Therefore the effluent EC should be the same as the influent EC. This Order assigns EC limitations and monitoring to gather information, and may be re-opened to include more stringent EC limitations should future monitoring indicate the need.
24. **Boron** – The Basin Plan requires that the boron concentration in all surface water discharges be less than 1.0 mg/L. This Order establishes effluent limitations for boron based on the Basin Plan requirement. The limitations for boron established in this Order are maximum limitations. The GAC treatment process does not add boron. Therefore the effluent boron concentration should be the same as the influent boron concentration. This Order assigns boron limitations and monitoring to gather information, and may be re-opened to include more stringent boron limitations should future monitoring indicate the need.
25. **Chloride** – The Basin Plan requires that the chloride concentration in all surface water discharges be less than 175 mg/L. This Order establishes effluent limitations for chloride based on the Basin Plan requirement. The limitations for chloride established in this Order are maximum limitations. The GAC treatment process does not add chloride. Therefore the effluent chloride concentration should be the same as the influent chloride concentration. This Order assigns chloride limitations and monitoring to gather information, and may be re-opened to include more stringent chloride limitations should future monitoring indicate the need.

26. The SIP defines Minimum Level (ML) as the concentration at which the entire analytical system must give a recognizable signal and calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all method-specified sample weights, volumes, and processing steps have been followed. MLs are synonymous to practical quantitation limits (PQLs).
27. The SIP defines Method Detection Limit (MDL) as the concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in 40 CFR 136, Appendix B, revised as of 14 May 1999. MDLs are synonymous to detection limits.
28. The SIP requires the Discharger to report with each sample result the corresponding applicable ML and the laboratory's current MDL.

TECHNOLOGY-BASED EFFLUENT LIMITATIONS

29. Clean Water Act (CWA) section 301(b)(1) requires NPDES permits to include effluent limitations that achieve technology-based standards and any more stringent limitations necessary to meet water quality standards. Water quality standards include the Basin Plan's beneficial uses and narrative and numeric water quality objectives, State Board adopted standards and federal standards including the NTR and CTR. These standards include the Basin Plan toxicity objective and State Board Resolution 68-16. Under the CWA, the applicable technology based standard is "best available technology economically achievable/best conventional pollutant control technology" or BAT/BCT. Because there are no promulgated effluent limitations for VOCs in groundwater extracted for cleanup, technology-based limitations are established based upon consideration of the Regional Board staff's best professional judgment (BPJ). This Regional Board has a long history of regulating cleanup of VOCs in groundwater and has consistently imposed effluent limits at less than the minimum levels (MLs) for VOCs in groundwater. With respect to the specific discharges permitted herein, the following have been considered:
 - Appropriate technology for category or class of discharges
 - Unique factors relating to the applicant
 - Age of equipment
 - Processes employed
 - Engineering aspects of various control techniques
 - Non-water quality environmental impacts, including energy requirements
 - Cost of achieving proposed effluent reduction
 - Influent, effluent, and receiving water data

GAC systems are appropriate technology for complete VOC removal from extracted groundwater. GAC systems are currently in place elsewhere in the State and monitoring data

has shown that these systems are capable of consistent VOC removal to levels less than the MLs. The success of GAC systems operating under similar waste discharge requirements supports the conclusion that the limits reflect Best Practicable Treatment and Control (BPTC) /BAT. In many cases, systems that have not consistently removed VOCs to less than the MLs are not properly operated or maintained. The Discharger's GAC system has not consistently removed VOCs to less than the MLs; however, optimizing operation and maintenance procedures should bring the system into compliance with this Order's BAT limitations.

30. In addition, Clean Water Act Section 301 requires implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state law. Applicable state water quality standards include Resolution 68-16.
31. Resolution No. 68-16 requires implementation of BPTC to ensure that the highest water quality is maintained consistent with the maximum benefit to the people of the State. BPTC for groundwater cleanup of VOCs provides that the pollutants should be discharged at concentrations no higher than quantifiable levels for each pollutant. BPTC is equivalent to BAT and for VOCs subject to this Order requires meeting effluent limits set at less than MLs. Several dischargers in the Central Valley Region have implemented BPTC groundwater treatment systems and have been able to consistently treat VOCs in the wastewater to concentrations below the MLs.
32. According to the SIP, if no ML value is below the effluent limitation, the applicable ML value shall be the lowest ML value listed in Appendix 4 of the SIP. VOC concentrations below the MLs are generally considered unquantifiable. Therefore, application of technology based limitations for VOCs at ground water cleanup sites requires effluent to meet MLs. The MLs for VOC constituents of concern are listed below:

<u>Constituent</u>	<u>Units</u>	<u>ML</u>	<u>Most Stringent WQ Criteria</u>
Chloromethane	µg/L	0.5	No criteria
Chloroform	µg/L	0.5	1240
1,1-Dichloroethylene	µg/L	0.5	3.2
1,1-Dichloroethane	µg/L	0.5	No criteria
1,1,1-Trichloroethane	µg/L	0.5	No criteria
1,1,2-Trichloroethane	µg/L	0.5	42
Tetrachloroethylene	µg/L	0.5	840
Trichloroethylene	µg/L	0.5	81

33. Cis-1,2-dichloroethylene is not a priority pollutant, however it has been detected in groundwater and effluent at the cleanup site. California Department of Health Services lists the Detection Limits for purposes of Reporting (DLRs) for numerous organic chemicals, including cis-1,2-dichloroethylene. These DLRs are codified in Title 22, California Code of Regulations, §64445.1. The DLR for cis-1,2-dichloroethylene is 0.5 µg/L. Concentrations below this DLR are considered unquantifiable. BPTC is capable of removing cis-1,2-dichloroethylene to a concentration below the DLR of 0.5 µg/L. Thus, a technology-based limit of 0.5 µg/L is appropriate.
34. Section 1.2 of the SIP requires the Regional Board to use all available, valid, relevant, representative data and information to implement the requirements of the SIP. In addition to effluent and receiving water quality data, analysis of groundwater quality data is a valid and relevant means of determining the requirements of this Order.
35. As stated in Finding 7, numerous investigations have shown that groundwater beneath the east and west parcels is degraded with the following VOCs: 1,1-dichloroethane (1,1-DCA); 1,1-dichloroethylene (1,1-DCE); tetrachloroethylene (PCE); 1,1,1—trichloroethane (1,1,1-TCA); trichloroethylene (TCE); chloroform; cis-1,2-dichloroethylene (cis-1,2-DCE); and 1,1,2-trichloroethane (1,1,2-TCA).

Analysis of Discharger Self Monitoring Reports for the period of 1999-2003 (Tables 1 and 2) and CTR priority pollutant scans (Attachment C) indicates the following VOCs have been detected in effluent discharged from the facility at levels greater than BAT levels: chloroform, chloromethane, 1,1-DCE, cis-1,2-DCE, PCE, and TCE.

Because these VOCs have been detected in groundwater, influent, and treatment system effluent at concentrations exceeding BAT levels, technology based effluent limitations have been included in this permit.

36. Technology based effluent limitations for VOCs included in this Order are as follows:

<u>Constituent</u>	<u>Units</u>	<u>Limit¹</u>
Chloromethane	µg/L	<0.5
Chloroform	µg/L	<0.5
cis-1,2-Dichloroethylene	µg/L	<0.5
1,1-Dichloroethylene	µg/L	<0.5
1,1-Dichloroethane	µg/L	<0.5
1,1,1-Trichloroethane	µg/L	<0.5
1,1,2-Trichloroethane	µg/L	<0.5
Tetrachloroethylene	µg/L	<0.5
Trichloroethylene	µg/L	<0.5

¹ Technology Based Effluent Limit. These limits are applied as the daily maximum effluent limits for all VOC constituents and are more stringent than the most restrictive applicable water quality criterion or objective.

37. The proposed effluent limitations consider the BPJ factors in Finding No. 29, the historical performance of the on-site BAT/BPTC systems, receiving water conditions, USEPA method detection limits, and are less than or equal to California Primary Maximum Contaminant Levels, California Toxics Rule and National Toxics Rule criteria, and limits which implement applicable water quality objectives.
38. Application of BAT/BCT to achieve the effluent limits is consistent with the requirement of Resolution 68-16 that discharges meet BPTC. The permitted discharge is consistent with the anti-degradation provisions of 40 CFR 131.12 and Resolution No. 68-16. BPTC for cleanup of groundwater polluted by volatile organic constituents is removal of VOCs to a level at or below corresponding analytical quantitation limits. Some resulting degradation of the receiving water could occur if VOCs were present at concentrations below the quantitation limit, but such degradation would not be quantifiable. The Discharger has not submitted an analysis to the Regional Board demonstrating that degradation resulting from discharges of VOCs at concentrations in excess of quantifiable levels would be consistent with the maximum benefit of the people of the state and Resolution No. 68-18. During periods of limited or no dilution, some degradation of the receiving water may occur from these pollutants, however, the discharge will not cause an exceedance of water quality objectives or cause a significant impact on the beneficial uses of groundwater and surface water. The continued remediation of polluted groundwater, and the use of the treated groundwater for irrigation and discharge to North Branch Mill Creek Ditch, both benefit the people of the state.

GENERAL FINDINGS

39. CWC Section 13267 states, in part:

“(a) A regional board, in establishing...waste discharge requirements... may investigate the quality of any waters of the state within its region” and “(b) (1) In conducting an investigation specified in [Section 13267] subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters 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 report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.”

The attached Monitoring and Reporting Program is issued pursuant to the CWC Sections 13267 and 13383. The monitoring and reporting program required by this Order is necessary to assure compliance with these waste discharge requirements.

40. On 11 December 1997, the California Department of Toxic Substances Control certified a Negative Declaration for the extension and expansion of the groundwater remedial action involving groundwater extraction, treatment and discharge, pursuant to the provisions of the California Environmental Quality Act (CEQA) in accordance with Title 14, California Code of Regulations (CCR), Section 15301. The Regional Board reviewed the Negative Declaration and concurs there is not substantial evidence the project will have a significant impact on water quality.
41. The action to adopt waste discharge requirements (NPDES permit) for this facility is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21000 et seq.) in accordance with Section 13389 of the CWC.
42. The U.S. Environmental Protection Agency (USEPA) and this Regional Board have classified this discharge as a minor discharge.
43. The Discharger and interested agencies and persons were notified of the intent to prescribe waste discharge requirements for this discharge and provided an opportunity for a public hearing and an opportunity to submit written views and recommendations.
44. All of the above and supplemental data and information in the attached Information Sheet, which is incorporated by reference herein, were considered in establishing conditions of discharge. The Information Sheet, Monitoring and Reporting Program No. R5-2004-____, and Attachments A through D are a part of this Order.
45. In a public meeting, all comments pertaining to the discharge were heard and considered.
46. 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 USEPA has no objections. If USEPA objects to the NPDES aspects of this Order, discharge to North Branch Mill Creek shall be prohibited until the objection is resolved. In the interim, the objection shall not void other aspects of this Order.

IT IS HEREBY ORDERED that, Order No. 98-200 is rescinded and pursuant to CWC Sections 13623, 13267, 13337, and 13383, AAF-McQuay, Inc., et al., their agents, successors and assigns, in order to meet the provisions contained in Division 7 of the CWC and regulations adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following:

[Note: Other prohibitions, conditions, definitions, and some methods of determining compliance are contained in the attached "Standard Provisions and Reporting Requirements for Waste Discharge Requirements (National Pollutant Discharge Elimination System)" dated March 1991.]

A. Discharge Prohibitions:

1. Discharge of material other than treated groundwater from the investigation and cleanup of groundwater pollution, or discharge of treated groundwater from the investigation of groundwater where other pollutants exist in the groundwater, or in a manner different from that described in Findings of this Order is prohibited.
2. The by-pass or overflow of untreated or partially treated groundwater, including polluted purge water, is prohibited.
3. Discharge of waste classified as 'hazardous' as defined in Section 2521(a) of Title 23, CCR, Section 2510, et seq., or 'designated', as defined in Section 13173 of the California Water Code, is prohibited.

B. Effluent Limitations:

1. The maximum daily flow from each treatment system shall not exceed 0.72 mgd, October through May.
2. The maximum daily flow from each treatment system shall not exceed 1.4 mgd, June through September.
3. The discharge of any untreated water from well development, redevelopment, or tests of well pump repairs to the agricultural fields shall 1) be only for a maximum of 10 days per calendar year, 2) be limited to 100,000 gallons per five-days, and 3) shall not exceed a duration of five-days per event.
4. The discharge shall not have a pH less than 6.5 standard units nor greater than 8.3 standard units.
5. Effluent discharged from Discharges 001, 002, and 003 shall not exceed the following, Table B.5 limitations:

TABLE B.5-EFFLUENT LIMITATIONS

Constituents	Units	Daily Maximum	Monthly Average
Copper ^{1,2}	µg/L	15.3	7.6
	lbs/day	0.1	0.05
Conductivity	µmhos/cm	500/1000 ³	-----
Boron	mg/L	-----	1.0
Chloride	mg/L	-----	175
Chloromethane	µg/L	<0.5	-----
Chloroform	µg/L	<0.5	-----
1,1-Dichloroethane (1,1-DCA)	µg/L	<0.5	-----
1,1-Dichloroethylene (1,1-DCE)	µg/L	<0.5	-----
cis-1,2-Dichloroethylene (cis-1,2-DCE)	µg/L	<0.5	-----
Tetrachloroethylene (PCE)	µg/L	<0.5	-----
1,1,1-Trichloroethane (1,1,1-TCA)	µg/L	<0.5	-----
1,1,2-Trichloroethane (1,1,2-TCA)	µg/L	<0.5	-----
Trichloroethylene	µg/L	<0.5	-----

¹ These limitations do not apply to Discharge 002, and shall take effect on 31 August 2005 unless the Discharger complies with Provision F.6 Task (a), and the Executive Officer establishes an alternate deadline for compliance as set forth therein.

² Mass based limitation based on the summation of long term average flow rates from Discharges 001 and 003. The average discharge flow rates from Discharges 001 and 003 to the North Branch Mill of Creek Ditch are shown in Tables 1 and 2 of Finding 8. The total average flow rate from Discharges 001 and 003 is calculated as follows: 0.47 mgd (Discharge 001) + 0.32 mgd (Discharge 003) = 0.79 mgd. See the attached Information Sheet for additional details.

³ Maximum effluent EC concentration must be less than 1000 µmhos/cm or 500 µmhos/cm greater than source water EC, whichever is lower.

6. Until the compliance date determined in accordance with Provision F.6, the following interim effluent copper limitations are effective for Discharges 001 and 003:

<u>Constituent</u>	<u>Units</u>	<u>Daily Maximum</u>
Copper ¹	µg/L	81.4
	lbs/day	0.5

¹ These limitations do not apply to Discharge 002. Mass based limitation based on the summation of long term average flow rates from Discharge Points 001 and 003. The average discharge flow rate from Points 001 and 003 to the North Branch Mill of Creek Ditch is 0.79 mgd. See the attached Information Sheet for additional details.

7. Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:
- (a) Minimum for any one bioassay ----- 70%
 - (b) Median for any three or more consecutive bioassays -----90%

C. Filter Waste and Solids Disposal

1. Spent carbon, and other residual solids removed from liquid wastes or used to treat liquid wastes, shall be recycled or disposed of in a manner that is consistent with Division 3, Title 27; Chapter 15, Division 3, Title 23; and Division 4.5, Title 22 of the CCR and approved by the Executive Officer.
2. Any proposed change in filter waste use or solids disposal practice from a previously approved practice shall be reported to the Executive Officer and USEPA Regional Administrator at least **90 days** in advance of the change.

D. Receiving Water Limitations

Receiving Water Limitations are based upon water quality objectives contained in the Basin Plan for Valley Floor Waters. As such, they are a required part of this permit. The discharge, alone or in combination with other sources, shall not cause the following in North Branch Mill Creek Ditch:

1. Un-ionized ammonia to be present in amounts that adversely affect beneficial uses or that exceed 0.025 mg/L (as N).
2. Biostimulatory substances to be present in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.

3. The fecal coliform concentration based on a minimum of not less than five samples for any 30-day period to exceed a geometric mean of 200 MPN/100 mL, or cause more than 10 percent of total samples taken during any 30-day period to exceed 400 MPN/100 mL.
4. Chemical constituents in concentrations that adversely affect beneficial uses.
5. Discoloration that causes nuisance or adversely affects beneficial uses.
6. Concentrations of dissolved oxygen to fall below 5.0 mg/L.
7. Floating material, including but not limited to solids, liquids, foams, and scum, in concentrations that create a nuisance or adversely affect beneficial uses.
8. Oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.
9. The pH of water to fall below 6.5, exceed 8.3, or change at any time more than 0.3 units from normal ambient pH.
10. Pesticides to be present in concentrations that adversely affect beneficial uses. There shall be no increase in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses.
11. Radionuclides to be present in concentrations that are deleterious to human, plant, animal, or aquatic life nor which result in accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.
12. Settleable material in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.
13. Suspended sediment load and the suspended sediment discharge rate to be altered in such a manner as to cause nuisance or adversely affect beneficial uses.
14. Suspended material in concentrations that cause nuisance or adversely affects beneficial uses.
15. The ambient temperature to increase more than 5°F.
16. Changes in turbidity that cause nuisance or adversely affect beneficial uses. The 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 NTU.
17. Toxic substances to be present in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.
 18. Taste or odor-producing substances in concentrations that cause nuisance, adversely affect beneficial uses, or impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin or to domestic or municipal water supplies.
 19. Violation of any applicable water quality standard for receiving waters adopted by the Regional Board or the State Water Resources Control Board pursuant to the Clean Water Act and regulations adopted thereunder.

E. Groundwater Limitations

The discharge, in combination with other sources, shall not cause underlying groundwater to contain waste constituents in concentrations that adversely affect beneficial uses or that are greater than background water quality.

F. Provisions

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

When requested by USEPA, the Discharger shall complete and submit Discharge Monitoring Reports to USEPA. The submittal date shall be no later than the submittal date specified in the Monitoring and Reporting Program for Discharger Self Monitoring Reports.
2. The Discharger shall comply with all the items of the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)", dated March 1991, which are part of this Order.
3. The Discharger must utilize USEPA approved test methods and detection limits to achieve detection levels below applicable water quality criteria. At a minimum, the Discharger shall comply with Monitoring Requirements for these constituents as outlined in Section 2.3 and 2.4 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, adopted 2 March 2000 by the State

Water Resources Control Board. All peaks identified by the USEPA test methods shall be reported.

4. By **30 August 2005**, the Discharger shall submit an operation and maintenance plan (O&M Plan) for review and approval by the Executive Officer. The O&M Plan shall instruct operating personnel on how to manage the day-to-day discharge operation to comply with the terms and conditions of this order. The O&M Plan shall also detail how frequently each GAC unit is serviced and also describe how valves and plumbing are clearly labeled to ensure proper operation of the GWCS by operating personnel. The O&M Plan shall also include details for the following aspects of the proposed sampling process for monitoring influent, effluent, mid-treatment, and groundwater:
 - a. Method Summary (must be USEPA approved method and capable of quantifying analytes to levels at or below those specified in Effluent Limitations and Receiving Water Limitations, above);
 - b. Proposed list of analytes;
 - c. Sample preservation, containers, handling, and storage;
 - d. Interferences and potential problems;
 - e. Sampling and analysis equipment/apparatus;
 - f. Reagents;
 - g. Preparation and sample collection procedures;
 - h. Quality assurance and quality control;
 - i. Well Purging
 - j. Filtering; and
 - k. Health and Safety.

A copy of the O&M Plan shall be kept at the GWCS office for reference by operating personnel. Key operating personnel shall be familiar with its contents.

5. Section 1.2 of the SIP requires that the Regional Board obtain effluent and receiving water data for CTR constituents. On 27 February 2001, the Regional Board sent a letter to the Discharger under section 13267 of the California Water Code, requiring effluent and receiving water monitoring for CTR constituents, hardness, and pH (Priority Pollutant Analysis). The Discharger provided the required effluent monitoring data, but has not provided receiving water monitoring data. Also, the existing data have MLs for many of the VOCs that are higher than the previous orders limitations, and the limitations contained in this Order.

The above information is necessary to determine whether other constituents in the discharge have the reasonable potential to cause or contribute to an exceedance of water quality criteria for North Branch Mill Creek Ditch. By **30 June 2007**, the Discharger shall submit the results of a Priority Pollutant analysis, to include effluent and receiving water hardness and pH, as described in the attached Monitoring and Reporting Plan.

Reporting shall conform with SIP Reporting Requirements, Section 2.4 et seq. In particular, the reported MLs shall be at least as low as the lowest ML for each priority pollutant specified in Appendix 4 of the SIP

If after review of the study results it is determined that the discharge has reasonable potential to cause or contribute to an exceedance of a water quality objective this Order will be reopened and effluent limitations added for the subject constituents.

6. Finding No. 20 indicates that copper has a reasonable potential to cause or contribute to an in stream excursion above water quality objectives. The Discharger shall comply with the following:

<u>Task</u>	<u>Description</u>	<u>Due Date</u>
a.	Submit a technical report containing a compliance schedule justification sufficient to satisfy SIP Section 2.1, paragraph 3. The report shall include: (1) documentation that diligent efforts have been made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream; (2) documentation of source control measures and/or pollution minimization measures efforts currently underway or completed; (3) a proposal, including an implementation schedule, for additional or future source control measures, pollutant minimization actions, or waste treatment (i.e. facility upgrades or operational modifications); and (4) a demonstration that the proposed schedule is short as possible.	31 August 2005
b.	If approved, begin implementation of the items identified in Task a, above. If rejected, comply with Effluent Limitations B.5.	Within 30 days of approval or rejection of the technical report by the Executive Officer.
c.	Submit Quarterly Progress Reports	1st day of the second month following the close of each calendar quarter.
d.	Comply fully with Effluent Limitations B.5.	By the deadline approved by the

**Executive Officer
but no later than 28
April 2010.**

7. Application of reclaimed wastewater to the reclamation areas shall be at reasonable rates considering the crop, soil, climate, and irrigation management system.
8. If a constituent not listed herein has toxicity criteria and is detected in two or more consecutive sampling events, this Order may be amended to establish effluent and receiving water limits for regulation of the detected constituent(s).
9. 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 Discharger shall initiate a Toxicity Identification Evaluation (TIE) to identify the causes of toxicity. Upon completion of the TIE, the Discharger shall submit a work plan to conduct a Toxicity Reduction Evaluation (TRE) and, after Regional Board evaluation, conduct the TRE. 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.
10. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code, Sections 6735, 7835, and 7835.1. To demonstrate compliance with Title 16, CCR, Sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.
11. 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, address

and telephone number of the persons responsible for contact with the Regional 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.

12. The Board may modify or reopen this Order prior to its expiration date in any of the following circumstances:
 - a. If present or future investigations demonstrate that the discharge governed by this Order has a reasonable potential to cause or contribute to adverse impacts on water quality and/or beneficial uses of the receiving waters;
 - b. New or revised water quality objectives (WQOs) come into effect for the receiving water. In such cases, effluent limitations in this permit will be modified as necessary to reflect updated WQOs. Adoption of effluent limitations contained in this Order is not intended to restrict in any way future modifications based on legally adopted WQOs or as otherwise permitted under federal regulations governing NPDES permit modifications;
 - c. If translator or other water quality studies provide a basis for determining that a permit condition(s) should be modified. The Discharger may request permit modification on this basis. The Discharger shall include in any such request an antidegradation and antibacksliding analysis.
13. 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).
14. Exceedances of monthly average and daily maximum effluent limitations based on results of a single sampling event may be considered violations of the requirements of this Order. The Discharger may sample more frequently than required by the attached Monitoring and Reporting Program to provide a more representative database and possibly lower reported average constituent values to demonstrate compliance with effluent limitations.
15. This Order assigns maximum effluent limitations for EC, boron, and chloride that are based on Basin Plan requirements. The limitations have not been assigned to allow the discharge of salts, but to place ceiling limitations on the constituents while effluent data is being collected. Boron, chloride or other salts shall not be added to the discharge.

16. This Order may be reopened and modified to make it consistent with any Basin Plan amendments that are adopted regarding the Regional Board's policy on Effluent Dominated Water Bodies.
17. The Discharger shall employ best practicable treatment and control (BPTC) of the discharge, including proper operation and maintenance, to comply with this Order.
18. This Order does not pre-empt or supersede the authority of local agencies to prohibit, restrict, or control the discharge of groundwater cleanup wastewater subject to their control. Discharges allowed by this order to local irrigation storm water collection and conveyance facilities must obtain approval from the agency responsible for operation and maintenance of the facilities.
19. The NPDES requirements of this Order expire on **28 April 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 to apply for renewal of waste discharge requirements if it wishes to continue the discharge to North Branch Mill Creek Ditch.

I, THOMAS R. PINKOS, Acting 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 **DATE**.

THOMAS R. PINKOS, Executive Officer