

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

CLEANUP AND ABATEMENT ORDER NO. R9-2009-0073

AN ORDER DIRECTING AMETEK INC. TO
CLEANUP, AND ABATE THE EFFECTS OF WASTE AND
SUBMIT TECHNICAL REPORTS PERTAINING TO CORRECTIVE ACTIONS
AT THE SITE OF THE:

FORMER KETEMA FACILITY
790 GREENFIELD DRIVE, EL CAJON, CA
SAN DIEGO COUNTY

The California Regional Water Quality Control Board, San Diego Region (Regional Board) finds that:

- 1. Legal and Regulatory Authority:** This Order conforms to and implements policies and requirements of the Porter-Cologne Water Quality Control Act (Division 7, commencing with Water Code section 13000) including (1) sections 13267 and 13304; (2) applicable State and federal regulations; (3) all applicable provisions of Statewide Water Quality Control Plans adopted by the State Water Resources Control Board (State Board) and the *Water Quality Control Plan, San Diego Basin* (Basin Plan) adopted by the Regional Board including beneficial uses, water quality objectives, and implementation plans; (4) State Board policies and regulations, including State Board Resolution No. 68-16 (*Statement of Policy with Respect to Maintaining High Quality of Waters in California*), Resolution No. 88-63 (*Sources of Drinking Water*), and Resolution No. 92-49 (*Policies and Procedures for Investigation and Cleanup and Abatement of Discharges under California Water Code Section 13304*); California Code of Regulations (CCR) Title 23, Chapter 16, Article 11; CCR Title 23, section 3890 et. seq., and (5) relevant standards, criteria, and advisories adopted by other State and federal agencies.
- 2. Persons Responsible for the Discharge of Waste:** Ametek Inc. owned and operated an aerospace and electronic manufacturing business at 790 Greenfield Drive in El Cajon, California (the Property) from 1968 to about 1987. Straza Industries, the previous owner, installed a sump in 1963 for storage of on-site derived wastes. On information and belief, the sump was operated by Ametek Inc. from 1968 until approximately the mid-1980's. The sump was removed in 1988. The sump received liquid wastes including chlorinated solvents [1,1,1, Trichloroethane (1,1,1 TCA); Trichloroethene (TCE); 1,1 Dichloroethene (1,1 DCE); 1,1-Dichloroethane (DCA); Tetrachloroethylene (PCE)]; spent acids, and nonhalogenated petroleum hydrocarbon wastes (benzene, toluene,

ethylbenzene, and xylenes). Over time wastes discharges from the storage sump into soil and groundwater at the Property caused violations of applicable water quality standards. Continued discharges of wastes from soil to groundwater, and continued migration of chlorinated solvents in the groundwater have caused violations of applicable water quality standards approximately one mile downgradient of the Property. These chlorinated solvents and other contaminants are not naturally occurring and are wastes, as defined in California Water Code section 13050, subdivision (d).¹

3. **Unauthorized Discharge of Chlorinated Solvent Waste:** In 1987, an unauthorized discharge of petroleum hydrocarbon and chlorinated solvent wastes to soil and groundwater was discovered at the Property. Site² assessment revealed levels of chlorinated solvents in groundwater greater than applicable water quality objectives. Continued migration of chlorinated solvents in the groundwater since 1987 has caused violation of the applicable water quality objectives approximately one mile downgradient of the disposal sump location. The types and levels of waste constituents found in the soil and groundwater are associated with the waste discharges from the sump which occurred between the years 1963 and 1987. The discharge of waste from the sump has caused the presence of waste constituents in the groundwater in concentrations exceeding applicable water quality objectives and has therefore created a condition of pollution in waters of the State as defined in Water Code section 13050(l). The adverse changes in groundwater quality caused by the waste releases are a contributing cause of interference with the Municipal and Domestic Supply (MUN)³ designated beneficial use and are potentially injurious to the public health. This water quality condition caused by the discharge constitutes a nuisance condition because it potentially interferes with and complicates the use of groundwater for drinking water purposes and can be considered an obstruction to the free use of property as provided in Water Code section 13050(m).
4. **Water Quality Standards:** The Site is located within the El Cajon Hydrologic Subarea (HSA) (907.13) of the San Diego Hydrologic Unit (907.00). Groundwater in the El Cajon HSA is designated in the Basin Plan as having existing beneficial uses for municipal and domestic water supply (MUN),⁴

¹ "Waste" is very broadly defined in Water Code section 13050(d) and includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal.

² The Site is defined as anywhere the waste/waste plume has migrated.

³ See Water Quality Control Plan for the San Diego Basin (Basin Plan), Page 2-3. The Basin Plan defines MUN as "uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply."

⁴ Basin Plan, footnote 1, supra. Table 2-5 at 2-64.

agricultural supply water (AGR), and industrial service supply (IND), as well as a potential beneficial use for industrial service supply (PROC). The Basin Plan contains numeric water quality objectives⁵ for chemical constituents to protect groundwaters designated for MUN. The numeric objectives are derived from primary maximum contaminant levels (MCLs)⁶ established by the Department of Health Services (Department) in Title 22 of the California Code of Regulations.⁷ Groundwater concentrations of TCE, PCE, DCE, DCA, TCA, and 1,4-Dioxane are not in conformance with the water quality objectives needed to support Municipal and Domestic (MUN) uses of the groundwater, creating a condition of pollution and nuisance in water of the State.

5. **Basis for Cleanup and Abatement Order:** Water Code section 13304 contains the cleanup and abatement authority of the Regional Board. Water Code section 13304 requires a person to clean up waste or abate the effects of the waste discharge if so ordered by a regional board in the event there has been a discharge in violation of waste discharge requirements, or if a person has caused or permitted waste to be discharged or deposited where it is, or probably will be, discharged into the waters of the State and creates or threatens to create a condition of pollution or nuisance. Therefore, based on the previous findings the Regional Board is authorized to order Ametek Inc. to cleanup and abate the effects of the waste discharge(s).
6. **Environmental Risk Assessment:** Ametek Inc. completed a human health risk screening assessment using soil gas to assess the potential risks to employees posed by the discharge of wastes at the Property. The results suggest that potential risks to human health by exposures to volatile organic compounds (VOCs) in indoor air due to subsurface vapor intrusion may exceed the acceptable US EPA and DTSC risk levels at Buildings 2, 3, 7, 9 and 10. Indoor air risk will be evaluated and updated based on the annual sub-slab monitoring results and site-specific conditions.

⁵ "Water quality objectives" are defined in Water Code section 13050(h) as "the limits or levels water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area."

⁶ MCLs, maximum contaminant levels, are public health-protective drinking water standards to be met by public water systems. MCLs take into account not only chemicals' health risks but also factors such as their detectability and treatability, as well as the costs of treatment. Primary MCLs can be found in Title 22 California Code of Regulations (CCR) sections 64431 - 64444. Secondary MCLs address the taste, odor, or appearance of drinking water, and are found in 22 CCR section 64449.

⁷ Basin Plan, footnote 1, supra. Page 3-24 and Table 3-5 at 3-25. The Basin Plan provides that "Water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels specified in California Code of Regulations, Title 22, Table 64444-A of section 64444 (Organic Chemicals) which is incorporated by reference into this plan. This incorporation by reference is prospective including future changes to the incorporated provisions as the changes take effect. (See Table 3-5.)"

7. **Basis for Requiring Reports:** Water Code section 13267 provides that the Regional Board may require dischargers, past dischargers, or suspected dischargers to furnish those technical or monitoring reports as the Regional Board may specify, provided that the burden, including costs, of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. In requiring the reports, the Regional Board must provide the person with a written explanation with regard to the need for the reports, and identify the evidence that supports requiring that person to provide the reports.
8. **Need for Technical and Monitoring Reports:** Technical reports and Monitoring reports are needed to provide information to the Regional Board regarding (a) the nature and extent of the discharge, (b) the nature and extent of pollution conditions in State waters created by the discharge, (c) the threat to public health posed by the discharge, and (d) appropriate cleanup and abatement measures. The reports will enable the Regional Board to determine the vertical and lateral extent of the discharge, ascertain if the condition of pollution poses a threat to human health in the vicinity of the Site, and provide technical information to determine what cleanup and abatement measures are necessary to bring the Site into compliance with applicable water quality standards. Based on the nature and possible consequences of the discharges (as described in Findings No. 1 through 7, above) the Regional Board's request and Ametek's burden of providing the required reports bears a reasonable relationship to the need for the reports, the costs, and the benefits to be obtained from the reports.
9. **Cost Recovery:** Pursuant to California Water Code section 13304, and consistent with other statutory and regulatory requirements, including not but limited to Water Code section 13365, the Regional Board is entitled to, and will seek reimbursement for, all reasonable costs actually incurred by the Regional Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this Order.
10. **State Board Policies:** The State Board adopted Resolution No. 92-49, the *Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under California Water Code Section 13304*. This Resolution sets forth the policies and procedures to be used during an investigation or cleanup of a discharge of waste and requires that cleanup levels be consistent with State Board Resolution No. 68-16, the Statement of Policy with Respect to Maintaining High Quality of Waters in California. Resolution No. 92-49 and the Basin Plan establish the cleanup levels to be achieved. Resolution No. 92-49 requires the waste to be cleaned up to background, or if that is not reasonable, to an alternative level that is the most stringent level that is economically and technologically feasible in accordance with Title 23, CCR section 2550.4. Any alternative cleanup level greater than background must (1) be consistent with the maximum benefit for the people of the State; (2) not unreasonably affect present and anticipated beneficial use of waters of the State; and (3) not result in water

quality less than that prescribed in the Basin Plan and applicable Water Quality Control Plans and Policies of the State Board.

11. **California Environmental Quality Act (CEQA) Compliance:** The issuance of this Order is an enforcement action taken by a regulatory agency and is categorically exempt from the provisions of CEQA pursuant to section 15321(a) (2), Chapter 3, Title 14 of the California Code of Regulations. This Order requires submittal of detailed work plans that address cleanup activities. The proposed activities under the work plans are not yet known, but implementation of the work plans may result in significant physical impacts to the environment that must be evaluated under CEQA. The appropriate lead agency will address the CEQA requirements prior to implementing any work plan that may have a significant impact on the environment.
12. **Qualified Professionals:** Ametek's reliance on qualified professionals promotes proper planning, implementation, and long-term cost-effectiveness of investigation, and cleanup and abatement activities. Professionals should be qualified, licensed where applicable, and competent and proficient in the fields pertinent to the required activities. California Business and Professions Code sections 6735, 7835, and 7835.1 require that engineering and geologic evaluations and judgments be performed by or under the direction of licensed professionals.

DIRECTIVES

IT IS HEREBY ORDERED that, pursuant to sections 13267 and 13304 of the California Water Code, Ametek Inc. (hereinafter "Ametek") shall comply with the following Directives:

A. CLEANUP AND ABATE DISCHARGES

Ametek shall take all corrective actions⁸ necessary to:

1. Investigate, cleanup waste, and abate the effects of waste discharges of all chlorinated solvents, volatile organic chemicals, and metals (hereinafter waste constituents) at the Site.
2. Achieve compliance with site-specific cleanup levels in soil, groundwater, and indoor air as prescribed by the Regional Board.

⁸ Corrective Actions include the following phases of cleanup and abatement described in Directives B through F of this Cleanup and Abatement Order: (1) Site Investigation and Characterization phase; (2) Remedial Investigation and Feasibility Study phase; (3) Remedial Action Plan Implementation phase; and (4) Cleanup and Abatement Completion Verification phase.

B. SITE INVESTIGATION AND CHARACTERIZATION

1. **Conceptual Site Model** - Ametek shall further refine the existing conceptual site model (CSM)⁹ based on available site-specific data on the occurrence of waste constituents in soil and groundwater. The CSM shall identify the source(s) of volatile organic chemicals (VOCs), and other waste constituents, affected media (soil and water), the three dimensional spatial extent and temporal variability of the waste constituents, routes of waste constituent migration, and the location and exposure points of actual and potential receptors (humans, animals, and plants).

The CSM shall be refined and updated as site characterization data becomes available. The updated CSM shall include a discussion of the level of uncertainty of conclusions, outline data gaps in the previous CSM, and describe the additional work needed to complete the CSM. Updates to the CSM shall be included in all future technical and monitoring reports submitted.

2. **Site Investigation and Characterization Report** - Ametek shall prepare and submit a Site Investigation and Characterization Report in accordance with the schedule provided in Table 1. The Report shall contain the following information:
 - a. **Conceptual Site Model** - The report shall contain an updated CSM that incorporates the information collected during the site investigation and characterization study.
 - b. **Source Characterization** - The report shall describe the results of an investigation of all potential sources of waste discharges to the soil and groundwater from the Property based on historical records of operations, Site reconnaissance, and previous sampling studies. Potential sources that shall be investigated include, but are not limited to, tanks, drains, sumps, areas of stained ground, container storage areas, transformers, and other areas where waste constituents were handled, stored, or used. All sources of such waste discharges shall be located on a Site map at a scale of 1 inch = 200 feet or larger, with an appropriate contour interval to depict Site topography. Individual maps shall be developed for different classes of waste constituents (e.g., VOCs, PCBs, and

⁹ The Conceptual Site Model (CSM) is a narrative and graphical description of the characteristics of the site that may affect the distribution and migration of waste constituents. Development of a CSM is an important first step in planning and scoping any site assessment designed to determine the potential impacts of contamination on public health and the environment. In documenting current site conditions, CSMs are used as a planning tool during the environmental site investigation phase to allocate finite financial and personnel resources to address data gaps, identify sources of contamination, release mechanisms, exposure pathways, and human or ecological receptors.

heavy metals). A combined map shall also be included showing all classes of waste constituents on a single map.

- c. **Geologic Characterization** - The report shall contain an accurate characterization of the subsurface geology, the hydrogeologic characteristics, and all preferential pathways that may affect groundwater flow and contaminant migration. The geologic characterization must be adequate to explain groundwater flow characteristics of the Site, and how Site geology and groundwater flow affect contaminant migration.
- d. **Groundwater Flow Characterization** - The report shall describe the rate(s) and direction(s) of local groundwater flow, in both the horizontal and vertical dimension, for all water-bearing units potentially affected by the wastes discharged from the Site.
- e. **Extent of Waste Constituent Characterization** - The report shall characterize the lateral and vertical extent of each waste constituent in soil and groundwater to the background¹⁰ value for that waste constituent.
- f. **Groundwater Monitoring Wells** - The report shall describe the location of existing monitoring wells and the proposed location of additional monitoring wells needed to characterize the types of waste constituents present, the concentrations of waste constituents and their lateral and vertical extent in groundwater. Additional monitoring wells shall be proposed in locations adequate to determine the lateral and vertical extent of waste constituents to the background value in the subsurface. Proposed wells must also be sited in locations that will provide results that show whether the size and mass of the contaminant plume is expanding, stable, or shrinking.
- g. **Field Methodologies** - The report shall describe the field methodologies used for drilling, soil sampling, ground and surface water sampling, soil vapor sampling, well and piezometer construction, geophysical surveys, and other activities. Methods for purging and sampling monitoring wells must be capable of providing representative samples of groundwater for detecting the waste constituents of interest.
- h. **Chemical Analyses** - The report shall describe the laboratory analytical methods and protocols used for each environmental medium including but not limited to soil, soil vapor, and/or

¹⁰ "Background" means the concentrations or measures of constituents or indicator parameters in water or soil that have not been affected by waste constituents from the Site.

groundwater. The suite of chemicals analyzed must be adequate to identify the full range of Site-specific waste constituents. The chemical analytical methods must also comply with Directive H. 5 of this Order. Records of chemical use, storage, and disposal shall be evaluated to provide documentation that all of the waste constituents of concern have been identified.

- i. **Sample Locations and Number** - The locations, type, and number of samples shall be identified and shown on a Site map and cross sections. The number of samples and suite of chemical analyses must be sufficient to identify the nature of waste constituent sources, to define the distribution of waste constituents in the subsurface, and to provide data for environmental risk assessment, remedy selection, and remedial design. In addition samples shall be collected to evaluate physical properties of soils and aquifer materials. All monitoring data shall be presented in graphical and tabular forms, to include the sample result, sample medium, location, depth, sampling method, and analyses in accordance with industry standards and consistent with regulatory guidance.

C. INTERIM REMEDIAL ACTIONS

1. **Take Interim Remedial Actions** - Ametek shall take interim remedial actions as necessary to abate or correct the actual or potential effects of the unauthorized releases described in this cleanup and abatement order. Interim remedial actions can occur concurrently with any phase of the Site investigation or remedial action.
2. **Interim Remedial Actions** - Interim remedial actions include but are not limited to:
 - a. Excavation and disposal of contaminated soil;
 - b. Excavation and treatment of contaminated soil;
 - c. Pumping and treatment of groundwater to remove dissolved constituents or to control plume migration;
 - d. Vacuum extraction of waste constituents from soil and groundwater; and
 - e. Building modifications¹¹ to reduce or preclude vapor intrusion.

¹¹ Building modifications include, but are not limited to, modification of the building air exchange rate or applying floor sealants.

3. **Regional Board Notification** - Before taking interim remedial action, Ametek shall notify the Regional Board of the proposed action and comply with any requirement that the Regional Board sets.

D. REMEDIAL INVESTIGATION AND FEASIBILITY STUDY

1. **Remedial Investigation and Feasibility Study (RIFS) Work Plan** - Ametek shall, using information in the Site Investigation and Characterization Report, prepare a work plan for the development of a RIFS Report as described in Directive D.3. Ametek shall submit the RIFS work plan to the Regional Board **within 120 calendar days** following submission of the Site Investigation and Characterization Report, unless otherwise directed in writing by the Regional Board, and the Site Investigation and Characterization Report shall be deemed complete and accepted and the Regional Board shall be estopped from objecting or making changes to that report 60 days after that document is submitted to the Regional Board.

The work plan shall include the proposed actions and an Action Completion Schedule for the completion and submission of a final RIFS Report as described in Directive D.3. The Action completion schedule shall propose reasonable timeframes for the completion of action of the RIFS Report.

2. **RIFS Work Plan Implementation** - Ametek shall commence with implementation of the RIFS work plan no later than **60 calendar days** after the Regional Board, either by affirmative action approves the Work Plan as complete and accepted or when that Work Plan is deemed complete and accepted, as provided for in Section D.1. supra. Before beginning these activities Ametek shall:

- a. Notify the Regional Board of the intent to initiate the proposed actions included in the work plan submitted; and
- b. Comply with any conditions set by the Regional Board.

3. **Remedial Investigation and Feasibility Study Report**¹² - Ametek shall prepare and submit an adequate RIFS Report, in accordance with the schedule provided in Table 1 or the Action Completion Schedule in the RIFS Workplan, whichever is longer. The RIFS Report shall contain the following information:

¹² Although this is not a CERCLA Site, an example RIFS can be found in National Contingency Plan section 300.430(e)(9)(iii) http://edocket.access.gpo.gov/cfr_2003/julqtr/40cfr300.430.htm

- a. **Remedial Investigation**¹³ - An assessment of the actual and potential effects of the waste constituents discharged at the Site on ground and surface water quality and beneficial uses including, but not limited to, the following considerations:
- 1) The physical and chemical characteristics of the waste constituents discharged at the Site, including their toxicity, persistence, and potential for migration in water, soil, and air;
 - 2) The hydrogeologic characteristics of the Site and the surrounding area where the waste constituents have migrated or reasonably may migrate;
 - 3) The nature and extent of the discharges (waste types, concentrations and spatial distribution);
 - 4) The rate and direction of groundwater flow in both the horizontal and vertical dimension, for all water bearing units potentially or actually affected by the waste constituents;
 - 5) The potential for health risks caused by human exposure to the waste constituents;
 - 6) The potential for damage to aquatic life and wildlife caused by exposure to the waste constituents; and
 - 7) The persistence and permanence of the potential adverse effects.
- b. **Feasibility Study**¹⁴ - A feasibility study adequate to evaluate remedial action alternatives that protect human health and the environment. The feasibility study process consists of the development and screening of remedial action alternatives and a detailed analysis of a limited number of the most promising alternatives to establish the basis for selecting a remedy. The feasibility study shall include, at least, the following information:
- 1) Identification and development of potential remedial or treatment technology alternatives.
 - 2) A screening of the potential remedial or treatment technology alternatives to reduce the number of alternatives

¹³ USEPA – Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA;
<http://www.epa.gov/superfund/policy/remedy/pdfs/540g-89004-s.pdf>

¹⁴ USEPA Fact Sheet – The Feasibility Study: Detailed Analysis of Remedial Action Alternatives;
<http://www.epa.gov/superfund/policy/remedy/pdfs/93-55301fs4-s.pdf>

subject to a detailed analysis. The study shall include the detailed rationale for the screening process utilized.

- 3) Cleanup and abatement alternatives that entail discharge of residual wastes to waters of the State, discharges to regulated waste management units, or leaving wastes in place, create additional regulatory constraints and long-term liability and shall be considered in any evaluation of cost-effectiveness.
- 4) The remedial or treatment technology alternatives identified in b (2) above shall be further subject to a detailed analysis of alternatives. The detailed analysis of each alternative shall be evaluated against the following criteria:
 - I. Overall protection of human health and the environment;
 - II. Compliance with all applicable and relevant and appropriate requirements as determined by the Regional Board;
 - III. Long-term effectiveness and permanence;
 - IV. Reduction of toxicity, mobility, or volume of pollutants and contaminants through treatment;
 - V. Short-term effectiveness;
 - VI. Implementability;
 - VII. Cost;
 - VIII. State regulatory acceptance; and
 - IX. Community acceptance.

When balancing the effectiveness of each alternative using the above criteria, all alternatives must satisfy the threshold criteria (4) I and II. The next 5 criteria, (4) III through (4) VII, are primary balancing criteria, which are less important than the threshold criteria but of equal weight among each other. Criteria (4) VIII and (4) IX are modifying criteria and are given less weight than the threshold and primary criteria.

- 5) A range of appropriate groundwater cleanup levels between background water quality conditions and alternative cleanup levels derived pursuant to Resolution No. 92-49, section III.¹⁵ Alternate cleanup levels shall not unreasonably affect present and anticipated beneficial uses of waters and not result in water quality less than that prescribed in the Water

¹⁵ <http://www.ciwmb.ca.gov/regulations/Title27/ch3sb3.htm>

Quality Control Plans and Policies adopted by the State and Regional Boards.

- c. **Recommended Remedial Alternative** - A recommended alternative for the cleanup or remediation of the waste constituents.

E. **REMEDIAL ACTION PLAN IMPLEMENTATION**

1. **Remedial Action Plan (RAP)** - Ametek shall submit a RAP to the Regional Board **within 120 calendar days** following submission of a Remedial Investigation and Feasibility Study Report (RIFS), and that RIFS Report shall be deemed complete and accepted and the Regional Board shall be estopped from objecting or making changes to that report 60 days after that document is submitted to the Regional Board unless otherwise directed in writing by the Regional Board. The RAP shall contain the following information:
 - a. **Implementation Activities** - A detailed description of all activities that are needed or planned to effectively implement the recommended alternative for the cleanup or remediation of the waste constituents described in the RIFS and a schedule for implementation activities and completion of such activities within a reasonable amount of time.
 - b. **Action Completion Schedule** - A schedule of actions necessary to implement and complete the cleanup or remediation will be provided prior to implementation of the RAP.
 - c. **Monitoring Activities** - A monitoring program capable of demonstrating the effectiveness of the RAP. The monitoring program shall be effective in determining compliance with the cleanup levels and in determining the success of the remedial action measures.
2. **Remedial Action Plan (RAP) Implementation** - In the interest of minimizing environmental contamination and promoting prompt cleanup, Ametek may begin implementation of the RAP **61 calendar days** after submittal to the Regional Board, unless otherwise directed in writing by the Regional Board and the RAP shall either be affirmatively approved by the Regional Board or deemed complete and the Regional Board shall be estopped from objecting or making changes to the RAP within sixty (60) days after submission of the RAP to the Regional Board. Before beginning RAP implementation activities, Ametek shall:
 - a. Notify the Regional Board of its intention to begin cleanup; and
 - b. Comply with any conditions set by the Regional Board, including mitigation of adverse consequences from cleanup activities.

3. **Remedial Action Zone** - Ametek shall implement remedial action measures that ensure that the waste constituents achieve their respective cleanup levels at all monitoring points and throughout the zone to the extent affected by the Ametek waste constituents, including any portions thereof that extend beyond the Property boundary, by removing the waste constituents, by treating them in place, or by other appropriate measures that are able to achieve accepted clean up levels.
4. **Implementation Schedule** - Implementation of the RAP shall be completed on the schedule in the RAP.
5. **Monitoring and Evaluation** - Ametek shall monitor, evaluate, and report the results of implementation of the RAP according to the schedule of implementation activities in the RAP.
6. **Modify or Suspend Cleanup Activities** - Ametek shall suspend cleanup activities when directed to do so by the Regional Board.

F. **CLEANUP AND ABATEMENT COMPLETION VERIFICATION**

Cleanup and Abatement Completion Report - Ametek shall submit a final Cleanup and Abatement Completion Report. Verification of the attainment of cleanup levels shall be through monitoring of the soil vapor, soil, and groundwater for a period of at least one year. The monitoring period shall begin immediately after the completion of remedial action measures and be conducted at appropriate intervals capable of demonstrating achievement of cleanup levels. The report shall provide a demonstration, based on a sound technical analysis that cleanup levels for all waste constituents are attained at all monitoring points and throughout the zone affected by the waste constituents, including any portions thereof that extend beyond the Property boundary.

G. **PROHIBITIONS**

1. The discharge of residual wastes or hazardous substances in a manner which will degrade water quality or adversely affect beneficial uses of waters of the State is prohibited.
2. Further significant migration of wastes or hazardous substances through surface or subsurface transport to waters of the State is prohibited.
3. Activities associated with the surface or subsurface investigation and cleanup which will cause significant adverse migration of wastes or hazardous substances are prohibited.

H. PROVISIONS

1. **Duty to Comply** - Ametek shall properly manage, treat, and/or dispose of contaminated soils and groundwater in accordance with applicable federal, State, and local laws and regulations.
2. **Request to Provide Information** - Ametek may present characterization data, and preliminary interpretations and conclusions as they become available, rather than waiting until a final report is prepared. This type of on-going reporting can facilitate more effective and efficient regulatory oversight by the Regional Board and may result in an overall reduction of the time necessary for the production of adequate deliverables required by this Order.
3. **Duty to Operate and Maintain** - Ametek shall, at all times, properly operate and maintain all facilities and systems of treatment, control, storage, disposal and monitoring (and related appurtenances) which are installed or used by Ametek to achieve compliance with this Cleanup and Abatement Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities, which are installed by Ametek only when the operation is necessary to achieve compliance the conditions of this Cleanup and Abatement Order.
4. **Environmental Monitoring Program** - Ametek must comply with the Environmental Monitoring Program specified in Enclosure 1 of this Order.
5. **Laboratory Qualifications** - Unless otherwise permitted by the Regional Board, all analyses shall be conducted at a laboratory certified for such analyses by the State Department of Health Services. Specific methods of analysis must be identified. If Ametek proposes to use methods or test procedures other than those included in the most current version of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846" (U.S. Environmental Protection Agency) or 40 CFR 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants; Procedures for Detection and Quantification", the exact methodology must be submitted for review and must be approved by the Regional Board prior to use. Any report presenting new analytical data is required to include the complete Laboratory Analytical Report(s). The Laboratory Analytical Report(s) must be signed by the laboratory director and contain:
 - a. Complete sample analytical report;
 - b. Complete laboratory quality assurance/quality control (QA/QC) report;
 - c. Discussion of the sample and QA/QC data; and

- d. A transmittal letter that shall indicate whether or not all the analytical work was supervised by the director of the laboratory, and contain the following statement, "All analyses were conducted at a laboratory certified for such analyses by the California Department of Health Services in accordance with current USEPA procedures."
6. ***Duty to Use Registered Professionals*** - Ametek shall provide documentation that plans and reports required under this Order are prepared under the direction of appropriately qualified professionals. California Business and Professions Code sections 6735, 7835 and 7835.1 require that engineering and geologic evaluations and judgments be performed by or under the direction of registered professionals. A statement of qualifications and registration numbers of responsible lead professionals shall be included in initial site investigation work plans and reports submitted by Ametek. The responsible lead professional shall sign and affix their registration stamp to the report, plan or document. If the responsible lead professional changes, then the statement of qualifications shall be updated with the next submittal.
7. ***Corporate Signatory Requirements*** - All reports required under this Order shall be signed and certified by a responsible corporate officer(s) of Ametek described in paragraph 5.a. of this provision or by a duly authorized representative of that person as described in paragraph 5.b. of this provision.
 - a. ***Responsible Corporate Officer(s)*** - For the purposes of this provision, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy - or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.
 - b. ***Duly Authorized Representative*** - A person is a duly authorized representative only if:

- 1) The authorization is made in writing by a person described in paragraph (a) of this provision;
 - 2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
 - 3) The written authorization is submitted to the Regional Board.
- c. **Changes to Authorization** - If an authorization under paragraph (b) of this provision is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph (b) of this provision must be submitted to the Regional Board prior to or together with any reports or information to be signed by an authorized representative.
- d. **Reporting of Changed Owner or Operator** - Ametek must notify the Regional Board of any changes in Property occupancy or ownership associated with the property described in this Order.
8. **Penalty of Perjury Statement** - All reports must be signed by Ametek's responsible corporate officer or its duly authorized representative, and must include a following statement by the official, under penalty of perjury, that the report is true and correct to the best of the official's knowledge.

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

9. **Document Submittals** - Ametek shall submit both one paper and one electronic, searchable PDF copy of all documents required under this Order to:

Executive Officer
Attn: Supervisor Southern San Diego County Groundwater Unit
California Regional Water Quality Control Board
San Diego Region

9174 Sky Park Court, Suite 100
San Diego, CA 92123-4353

All correspondence and documents submitted to the Regional Board shall include the following Geotracker Site ID in the header or subject line:

SL209234198

10. **Electronic Reporting Requirements** - The Electronic Reporting Regulations (Chapter 30, Division 3 of Title 23 & and Division 3 of Title 27, CCR) require electronic submission of any report or data required by a regulatory agency from a cleanup site after July 1, 2005. All information submitted to the Regional Board in compliance with this Order is required to be submitted electronically via the Internet into the Geotracker database <http://geotracker.waterboards.ca.gov/> (Geotracker Site ID. **SL209234198**). The electronic data shall be uploaded on or prior to the regulatory due dates set forth in the Order or addenda thereto. To comply with these requirements, Ametek shall upload to the Geotracker database the following minimum information.
- a. **Laboratory Analytical Data** - Analytical data (including geochemical data) for all soil, vapor, and water samples in Electronic Data File (EDF) format. Water, soil, and vapor data include analytical results of samples collected from: monitoring wells, boreholes, gas and vapor wells or other collection devices, surface water, groundwater, piezometers, stockpiles, and drinking water wells.
 - b. **Locational Data** - The latitude and longitude of any permanent monitoring well for which data is reported in EDF format, accurate to within 1 meter and referenced to a minimum of two reference points from the California Spatial Reference System (CSRS-H), if available.
 - c. **Monitoring Well Elevation Data** - Elevation measurements to the top of groundwater well casings for all groundwater monitoring wells. Drinking water wells included in the report, do not need to have the elevation reported unless they are identified as permanent sampling points.¹⁶
 - d. **Depth-to-Water Data** - Monitoring wells need to have the depth-to-water information reported whenever water data is collected, even if water samples are not actually collected during the sampling event. Drinking water wells do not need to have the depth-to-water

¹⁶ A permanent sampling point is defined as a point that is sampled for more than a 30-day period.

reported unless the wells are surveyed as permanent sampling points and the measurements can be feasibly made in the well.

- e. **Site Map** - Site map or maps which displays discharge locations,¹⁷ streets bordering the Property, and sampling locations for all soil, water, and vapor samples. The Site map is a stand-alone document that may be submitted in various electronic formats.¹⁸ A Site map must also be uploaded to show the maximum extent of any groundwater pollution. An updated Site map may be submitted at any time.
- f. **Monitoring Well Screen Intervals** - The depth to the top of the screened interval and the length of the screened interval for any permanent monitoring well.
- g. **Boring Logs** - Boring logs (in searchable PDF format) prepared by an appropriately licensed professional.
- h. **Electronic Report Submittal Requirements** - A complete copy (in searchable PDF format) of all assessment, cleanup, and monitoring reports including the signed transmittal letters, professional certifications, and all data presented in the reports.

I. NOTIFICATIONS

1. **Cost Recovery** - Pursuant to Water Code section 13365(c), the Regional Board is entitled to, and will seek reimbursement for, all reasonable costs actually incurred by the Regional Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by the Order.
2. **Enforcement Notification** - Pursuant to Water Code section 13350, the Regional Board may administratively impose civil liability on any person who violates a cleanup and abatement order, in an amount of not less than five hundred dollars (\$500) or more than five thousand dollars (\$5,000), for each day in which the cleanup and abatement order is violated.
3. **Prior Orders Superseded** - Cleanup and Abatement Order No. R9-2002-0201, issued on September 19, 2002 and Investigative Order No. R9-2003-272 are superseded and replaced with this Cleanup and Abatement Order.

¹⁷ Former tank(s), product and vapor piping, dispenser locations, or sump locations, and unauthorized discharge or spill areas.

¹⁸ Formats include .gif, .jpeg, .jpg, .tiff, .tif, .pdf

4. **Enforcement Discretion** - The Regional Board reserves the right to take any enforcement action authorized by law for violations of the terms and conditions of this Order.

5. **Evidentiary Hearing before the Regional Board** - Any person affected by this action of the Regional Board may request an evidentiary hearing before the Regional Board. The Regional Board's Executive Officer may elect to hold an informal hearing or a "paper hearing" in lieu of scheduling a hearing before the Regional Board itself. If you decide to request an evidentiary hearing, send your request to the Regional Board Executive Officer, Attn: Supervisor Southern San Diego County Groundwater Unit, at the address in section H. 11 of this Order. Please consider the following carefully:
 - a. The Regional Board must receive your request within **30 calendar days** of the date of this Order.
 - b. Your request must include all comments, technical analysis, documents, reports, and other evidence that you wish to submit for the evidentiary hearing. However, please note that the administrative record will include all materials the Regional Board has previously received regarding this Site. You are not required to submit documents that are already in the record.
 - c. The Executive Officer or Regional Board may deny your request for a hearing after reviewing the evidence.
 - d. If you do not request an evidentiary hearing, the State Board may prevent you from submitting new evidence in support of a State Board petition.
 - e. Your request for an evidentiary hearing, if you submit one, does not stay the effective date of the Order, whether or not a hearing is scheduled.
 - f. A request for a hearing does not extend the 30-day period to file a petition with the State Board (see below). However, you we suggest that you ask the State Board to hold the petition in abeyance while your request for a hearing is pending. (Refer to CCR Title 23 section 2050.5(d)) Additional information regarding the State Board petition process is provided below.

6. **Requesting Administrative Review by the State Board** - Any person affected by this action of the Regional Board may petition the State Board to review the action in accordance with section 13320 of the Water Code and CCR Title 23 section 2050. The petition must be received by the State Board (Office of Chief Counsel, P.O. Box 100, Sacramento, California 95812) within **30 calendar days** of the date of this Order.

Copies of the law and regulations applicable to filing petitions will be provided upon request.


MICHAEL P. McCANN
Assistant Executive Officer

8/19/09
Date

Enclosure 1: Environmental Monitoring Program

Table 1
Summary of Required Reports
and Due Dates

| Directive | Activity | Due Date |
|------------------|---|---|
| B.2 | Site Investigation and Characterization Report | 15 February 2010 |
| D.1 | Remedial Investigation and Feasibility Study (RIFS) Work Plan | 120 days after above (B.2) ¹ |
| D.3 | Remedial Investigation and Feasibility Study (RIFS) Report | 120 days after above (D.1) ¹ |
| E.1 | Remedial Action Plan (RAP) | 120 days after above (D.3) ¹ |

¹ The Work Plan and Report shall be deemed complete and accepted and the Regional Board shall be estopped from objecting to or making changes to the Work Plan or Reports sixty (60) days after those documents are submitted to the Regional Board.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

CLEANUP AND ABATEMENT ORDER NO. R9-2009-0073

ENVIRONMENTAL MONITORING PROGRAM

FORMER KETEMA FACILITY
790 GREENFIELD DRIVE, EL CAJON, CA
SAN DIEGO COUNTY

1. **Authority** - Ametek is directed to submit the technical reports required in this Environmental Monitoring Program (EMP) pursuant to California Water Code sections 13267 and 13304.
2. **Purpose** - The purpose of the EMP is to produce environmental monitoring data capable of demonstrating compliance with Order No. R9-2009-0073 and answering the following questions.
 - a. Are interim remedial actions warranted?
 - b. What is the lateral and vertical extent of each waste constituent in soil, groundwater, and soil vapor?
 - c. Is the size of the plume of each waste constituent decreasing in size, and or mass?
 - d. Has the source of each waste constituent been effectively cleaned up?
 - e. Is the selected remedial action alternative effectively removing waste constituents from soil, groundwater, and soil vapor, and is the alternative capable of achieving the cleanup levels in the RIFS Report?
 - f. Have the beneficial uses of the groundwater been restored, and are human health and the environment protected?
3. **Vapor Monitoring** - Ametek shall sample sub-slab monitoring points in Buildings 2, 3, 7, 9, and 10 at the Property for collection of semiannual sub-slab soil gas/vapor samples and indoor air sampling to validate the estimated indoor air levels. At a minimum two sampling rounds per year of sub-slab and indoor air sampling should be conducted, consistent with the Department of Toxic Substances Control's (DTSC) Vapor Intrusion Guidance. Vapor monitoring data shall be included in the appropriate Groundwater Monitoring Report.
4. **Groundwater Monitoring** - Ametek shall measure groundwater elevations quarterly in all monitor wells. Groundwater samples shall be collected from all current groundwater monitor wells and analyzed in accordance with the revised Groundwater Monitoring Plan dated 28 April 2004 using U.S. Environmental

Protection Agency methods 8260B for volatile organic compounds (VOCs). Ametek shall sample any new groundwater monitor or extraction wells quarterly and analyze groundwater samples for VOC related constituents. Ametek may provide a written proposal to change the sampling requirements in this Order. Any proposed changes are subject to Regional Board approval.

5. **Groundwater Monitoring Reports** - Ametek shall submit groundwater monitoring reports to the Regional Board as provided below. Subsequent reports shall be submitted no later than 30 days following the end of the monitoring period according to the following schedule:

| Monitoring Period | Due Date for Report |
|---------------------------------------|------------------------------|
| First Quarter (Jan-Mar) | Due no later than April 30 |
| Second Quarter (Apr-Jun) & Semiannual | Due no later than July 30 |
| Third Quarter (Jul-Sep) | Due no later than October 30 |
| Fourth Quarter (Oct-Dec) & Semiannual | Due no later than January 30 |

Groundwater monitoring reports must include:

- a. **Transmittal Letter with Penalty of Perjury Statement** - The transmittal letter must discuss any violations during the reporting period and actions taken or planned to correct the problem. The letter must be signed by Ametek's principal executive officer or its duly authorized representative, and must include a statement by the official, under penalty of perjury, that the report is true and correct to the best of the official's knowledge.
- b. **Groundwater Elevations** - Groundwater elevation data must be presented in tabular format with: depth to groundwater (in feet below ground surface), top of casing elevations, depths to the top of well screens, length of well screens and total depth for each well included in the monitoring program. For all wells containing floating "free product" (a.k.a. light non-aqueous phase liquid or LNAPL) include the measured thickness of LNAPL in a tabular format. A groundwater elevation map must be prepared for each monitored water-bearing zone with the groundwater flow direction and calculated hydraulic gradients(s) clearly indicated in the figures(s). A complete tabulation of historical groundwater elevations must be included in the fourth quarterly report each year.
- c. **Reporting Groundwater Results** - All monitoring reports shall:
 - I. Present all groundwater sampling data in tabular format. Isoconcentration map(s) and cross sections must be prepared for

- constituents of concern (COCs) for each monitored water-bearing zone, as appropriate. Time versus concentration plots and distance versus concentration plots that also show groundwater elevations must be prepared for COCs for appropriate wells.
- II. Include a plot plan which clearly illustrates the locations of all monitor wells (on Property and off Property), other waste storage or disposal areas (at the Property), and buildings located on the Property and immediately adjacent to the Property.
 - III. Include a Site plot plan with the most recent concentrations of the primary groundwater constituents of concern including but not limited to: 1,1,1, Trichloroethane (1,1,1 TCA); Trichloroethene (TCE); 1,1 Dichloroethene (1,1 DCE); 1,1-Dichloroethane (DCA); Tetrachloroethylene (PCE); 1,4-Dioxane.
 - IV. Provide technical interpretations of the groundwater data, and describe any significant increases in pollutant concentrations since the last report, any measures proposed to address the increases, any changes to the site conceptual model, and any conclusions and recommendations for future action.
 - V. Describe analytical methods used, detection limits obtained for each reported constituent, and a summary of QA/QC data.
 - VI. Indicate sample collection protocol(s), describe how investigation derived wastes are managed at the Site, and include documentation of proper disposal of contaminated well purge water and/or soil cuttings removed from the Site.
 - VII. Include historical groundwater sampling results listed in tabular form in the fourth quarterly report each year.
 - VIII. Include Lab Data sheets and QA/QC results.
- d. **Electronic Reporting Requirements** - The Electronic Reporting Regulations (Chapter 30, Division 3 of Title 23 & and Division 3 of Title 27, CCR) require electronic submission of any report or data required by a regulatory agency from a cleanup site after July 1, 2005. All information submitted to the Regional Board in compliance with this Order is required to be submitted electronically via the Internet into the Geotracker database <http://geotracker.waterboards.ca.gov/> (Geotracker Site ID. **SL209234198**). The electronic data shall be uploaded on or prior to the regulatory due dates set forth in the Order or addenda thereto. To comply with these requirements, Ametek shall upload to the Geotracker database the following minimum information.

- I. Laboratory Analytical Data - Analytical data (including geochemical data) for all soil, vapor, and water samples in Electronic Data File (EDF) format. Water, soil, and vapor data include analytical results of samples collected from: monitoring wells, boreholes, gas and vapor wells or other collection devices, surface water, groundwater, piezometers, stockpiles, and drinking water wells.
- II. Locational Data - The latitude and longitude of any permanent monitoring well for which data is reported in EDF format, accurate to within 1 meter and referenced to a minimum of two reference points from the California Spatial Reference System (CSRS-H), if available.
- III. Monitoring Well Elevation Data - Elevation measurements to the top of groundwater well casings for all groundwater monitoring wells. Drinking water wells included in the report, do not need to have the elevation reported unless they are identified as permanent sampling points.¹
- IV. Depth-to-Water Data - Monitoring wells need to have the depth-to-water information reported whenever water data is collected, even if water samples are not actually collected during the sampling event. Drinking water wells do not need to have the depth-to-water reported unless the wells are surveyed as permanent sampling points and the measurements can be feasibly made in the well.
- V. Site Map - Site map or maps which displays discharge locations,² streets bordering the Property, and sampling locations for all soil, water, and vapor samples. The Site map is a stand-alone document that may be submitted in various electronic formats.³ A Site map must also be uploaded to show the maximum extent of any groundwater pollution. An updated Site map may be submitted at any time.
- VI. Monitoring Well Screen Intervals - The depth to the top of the screened interval and the length of the screened interval for any permanent monitoring well.
- VII. Boring Logs - Boring logs (in searchable PDF format) prepared by an appropriately licensed professional.

¹ A permanent sampling point is defined as a point that is sampled for more than a 30-day period.

² Former tank(s), product and vapor piping, dispenser locations, or sump locations, and unauthorized discharge or spill areas.

³ Formats include .gif, .jpeg, .jpg, .tiff, .tif, .pdf

VIII. Electronic Report Submittal Requirements - A complete copy (in searchable PDF format) of all assessment, cleanup, and monitoring reports including the signed transmittal letters, professional certifications, and all data presented in the reports.

The GeoTracker website address is <http://geotracker.waterboards.ca.gov>. Deadlines for electronic submittals coincide with deadlines for paper copy submittals. The Geotracker Global ID for this Site is: **SL209234198**.

- e. **Remediation** - If applicable, the report must include soil vapor or groundwater extraction results in tabular form, for each extraction well and for the Site as a whole. The report must also include contaminant removal results from all extraction wells and from other cleanup and abatement systems (e.g. skimmers), expressed in units of chemical mass per day and mass for the quarter. Historical total annual mass removal results must be tabulated in the fourth quarterly report each year.
 - f. **Status Report** - The quarterly report must describe relevant work completed during the reporting period (e.g. Site investigation, interim remedial measures) and work planned for the following quarter.
6. **Violation Reports** - If Ametek violates any requirement of this Order, then Ametek must notify the Regional Board office by telephone as soon as practicable once Ametek has knowledge of the violation. Regional Board staff may, depending on violation severity, require Ametek to submit a separate technical report on the violation within five working days of telephone notification.
 7. **Other Reports** - Ametek must notify the Regional Board in writing prior to any Site activities, such as construction or removal of underground structures, which have the potential to cause further migration of contaminants or which would provide new opportunities for Site investigation.
 8. **Record Keeping** - Ametek or its agent must retain data generated for the above reports, including lab results and QA/QC data, for a minimum of six years after origination and must make them available to the Regional Board upon request.
 9. **Environmental Monitoring Program (EMP) Revisions** - Revisions to the EMP may be ordered by the Regional Board, or at the request of Ametek. Prior to making EMP revisions, the Regional Board will consider the burden, including costs, of the monitoring reports relative to the benefits to be obtained from these reports.



MICHAEL P. McCANN
Assistant Executive Officer

8/19/09
Date