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California Regional Water Quality Control Board
North Coast Region

ORDER NO. R1-2004-0059
NO. 1B820500SON

WASTE DISCHARGE REQUIREMENTS

FOR

IN-SITU TREATMENT OF CONTAMINATED SOIL

ECODYNE CORPORATION
930 Shiloh Road
Windsor, CA

Sonoma County

The California Regional Water Quality Control Board, North Coast Region, (hereinafter the Regional Water Board) finds that:

1. The Ecodyne Corporation (hereinafter the discharger) submitted a Report of Waste Discharge received June 21, 2004. In 2003 a *Final Remedial Action Work Plan* proposed in-situ treatment of contaminated soil in the source area. A work plan detailing the remedial design was submitted on May 24, 2004.

2. The discharger operated a wood treatment facility from July 1965 to January 1984, at 930 Shiloh Road in Windsor, California. The former wood treatment facility is located within the SW 1/4 of Section 19, T8N, R9W, MDB&M of the Healdsburg quadrangle map as shown on Attachment "A" (latitude 38^{o} 31' 25", longitude 122^{o} 47' 30"). The discharger utilized chromic acid, sodium dichromate, and occasionally copper sulfate in the wood treatment process. The acid chromated copper was diluted with water and applied to lumber in a pressure vessel. The surplus chemical solution was pumped to an evaporation and settling pond which discharged to a drainage ditch. The drainage ditch discharged to Pruitt Creek and eventually the Russian River.

3. The facility has been regulated by the North Coast Regional Water Quality Control Board since 1972 when Waste Discharge Requirement Order No. 72-47 for the operation of the evaporation and settling pond was adopted. Ddischarges of wood treatment chemicals to surface waters and land were subsequently found. Since 1982 the site has been investigated and several remedial strategies have been proposed and implemented to clean-up soil and groundwater contamination at this site. Over the last twenty years several Waste Discharge Requirement Orders (WDRs), Cleanup and Abatement Orders (CAOs), Monitoring and Reporting Programs (M&Rs) and Administrative Civil Liability

Complaints (ACLs) have been issued for this site. The most recent Waste Discharge Requirements Order No. 96-17 was adopted on March 18, 1996. Order 96-17 approved injection of treated water containing a solution of the reductant calcium polysulfide into the soil and groundwater at the site. From 1997 to 2002 injection of calcium polysulfide was conducted during three events. These treatments were successful in lowering concentrations of chromium in groundwater, however, elevated concentrations persisted in the shallow groundwater.

4. In order to reach water quality objectives the discharger has proposed *in-situ* treatment of the highly impacted soils in the source area where the wood treatment tanks were located. These soils will be treated by mixing calcium polysulfide with the soil using an excavator. Specifically the site will be subdivided into discreet 25 by 25-foot cells. The depth of contamination in each cell was determined from previous site characterization data and ranges from three (3) feet to nine (9) feet below ground surface (bgs). Soil to be treated will be moved and mixed with calcium polysulfide within each cell. Material will not be removed from any cells.

5. Calcium polysulfide is a reductant that will react with the hexavalent chromium reducing the hexavalent chromium to trivalent chromium. Trivalent chromium is essentially insoluble and non-toxic at the projected concentrations. Bench scale testing showed that arsenic and copper that is naturally present in soil can be locally mobilized by the reducing conditions created by this process. However, outside of the treatment area these conditions do not persist and the metals would cease to be mobilized.

6. Based on bench scale laboratory testing, 15 gallons of calcium polysulfide per cubic yard of soil will be used during the *in-situ* treatment. The calcium polysulfide will be diluted with water (1 to 9 dilution rate) to aid in mixing the solution with the soil. As the soil mixing process occurs within each cell, the contractor will apply the reductant uniformly based on the soil volume being treated. Approximately half of the soil within each cell will be treated at a time beginning with the deepest half and completing with the shallowest portion. No material will be moved from one cell to another.

7. Groundwater will be locally impacted by excess calcium polysulfide. This residual reductant will raise the calcium and sulfide content of the groundwater and may temporarily impart a taste and odor of calcium polysulfide in the injection area. There is also a potential for arsenic and copper to be locally mobilized. However, bench scale studies indicate the concentrations of these metals will not be significant. These constituents will be included in the revised groundwater monitoring program for this site (Enclosed M&R R1-2004-0059).

8. Typical of the Santa Rosa Plain, the site is underlain by low permeability silts and clays interbedded with water bearing sands and gravels. First encountered groundwater in this area is very shallow ranging from 8 to 10 feet below ground surface (bgs). At this site three impacted water bearing zones, the shallow (10 to 30 feet bgs) the intermediate (30 to 60) and the deep (below 80 feet bgs) have been identified. Groundwater flow

directions in these zones have been generally to the north to northwest.

9. The Regional Water Board Water Quality Control Plan for the North Coast Region Plan includes water quality objectives and receiving water limitations.

10. The beneficial uses of the Russian River include:

- municipal and domestic supply
- agricultural supply
- industrial supply
- groundwater recharge
- navigation
- hydropower generation
- water contact recreation
- non-contact water recreation
- ocean commercial and sport fishing
- warm freshwater habitat
- cold freshwater habitat
- wildlife habitat
- fish migration
- fish spawning
- estuarine habitat
- aquaculture

11. Beneficial uses of groundwater include:

- domestic water supply
- agricultural water supply
- industrial supply

12. The discharger's proposal for in-situ soil treatment with calcium polysulfide supersedes the proposal submitted by the discharger for their Waste Discharge Requirements (WDR) Order No. 96-17 adopted March 28, 1996. Order No. 96-17 is rescinded with the issuance of this Order. No. R1-2004-0059.

13. The permitted discharge is a minor cleanup action costing less than $1 million taken to prevent, minimize, stabilize, mitigate, or eliminate the release of hazardous waste or substance and is therefore exempt from the California Environmental Quality Act (Public Resources Code Section 21000 et seq.) pursuant to Title 14, California Code of Regulations, Section 15330.

14. The Regional Board has notified the discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations.

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

16. The permitted discharge is consistent with the anti degradation provisions of State Water Resources Control Board Resolution No. 68-16. The impact on existing water quality will be insignificant.

THEREFORE, IT IS HEREBY ORDERED that Waste Discharge Requirements Order No. 96-17 adopted March 28, 1996, is rescinded and the discharger, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

A. DISCHARGE PROHIBITIONS

1. The discharge of wastes to land not owned or under control of the discharger is prohibited.

2. The discharge of any waste including storm water runoff contaminated with wood treatment chemicals, treated or untreated groundwater, chemicals used in the treatment plant and process waters to surface waters is prohibited.

3. The discharge of any waste not specifically regulated by this Order is prohibited.

4. Creation of a pollution, contamination, or nuisance, as defined by Section 13050 of the California Water Code (CWC), is prohibited. [Health and Safety Code, Section 5411].

5. The discharge of wood treatment chemicals or treatment additives to surface waters or to groundwater in areas other than where chromium contaminated groundwater is located is prohibited.

B. DISCHARGE SPECIFICATIONS

1. The chemical treatment described in Finding 6, shall be designed, operated and managed to prevent discharges to surface water.

2. The discharge shall not impart taste, odor, or color to, or otherwise degrade the beneficial uses of groundwater, provided that short-term change in taste and odor as described in Finding 7 does not degrade beneficial uses at completion of cleanup.

C. PROVISIONS

1. A copy of this Order shall be maintained at the discharge facility and be available at all times to operating personnel.

2. Severability

Provisions of these waste discharge requirements are severable. If any provision of these requirements is found invalid, the remainder of these requirements shall not be affected.

3. Operation and Maintenance

The discharger must maintain in good working order and operate as efficiently as possible any facility or control system installed by the discharger to achieve compliance with the waste discharge requirements.

4. Change in Discharge

The discharger must promptly report to the Regional Board any material change in the character, location, or volume of the discharge.

5. Change in Ownership

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 must notify the succeeding owner or operator of the following items by letter, a copy of which must be forwarded to this office:

a. existence of this Order, and
b. the status of the dischargers' annual fee account

6. Vested Rights

This Order does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, nor protect the discharger from his liability under federal, State, or local laws, nor create a vested right for the discharger to continue the waste discharge.

7. Monitoring

The discharger must comply with the Contingency Planning and Notification Requirements Order No. 74-151 and Monitoring and Reporting Program R1-2004-0059 any modifications to this document as specified by the Executive Officer. Such documents are attached to this Order and incorporated herein. Chemical, bacteriological, and bioassay analyses must be conducted at a laboratory certified for such analyses by the State Department of Health Services.

8. Inspections

The discharger shall permit authorized staff of the Regional Board:

a. entry upon premises where injection is being conducted or in which any required records are kept;
b. access to copy any records required to be kept under terms and conditions of this Order;
c. inspection of monitoring equipment or records; and
d. sampling of any discharge.

9. Noncompliance

In the event the discharger is unable to comply with any of the conditions of this Order due to:

a. breakdown of equipment;
b. accidents caused by human error or negligence; or
c. other causes such as acts of nature;

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

10. Revision of Requirements

This Regional Board requires the discharger to file a report of waste discharge at least 120 days before making any material change or proposed change in the character, location, or volume of the discharge.

Certification

I, Catherine E. Kuhlman, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, North Coast Region, on August 25, 2004.

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Catherine E. Kuhlman
Executive Officer

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