

California Regional Water Quality Control Board  
North Coast Region

ORDER NO. R1-2007-0006

WASTE DISCHARGE REQUIREMENTS

FOR

IN-SITU TREATMENT OF CONTAMINATED SOIL

FOR

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 (ROWD) received by the Regional Water Board on August 23, 2006, for in-situ treatment of hexavalent chromium in soil and groundwater at the former Ecodyne Property at 930 Shiloh Road in Windsor California. The scope of work to perform the treatment was detailed in a Work Plan submitted to the Regional Water Board on November 21, 2006.
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 1 (latitude 38° 31' 25", longitude 122° 47' 30"). The Discharger used 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 Regional Water Board initially regulated the operation of the evaporation and settling pond at the facility in 1972 under Waste Discharge Requirement Order No. 72-47. Subsequently, discharges of wood treatment chemicals to surface waters and land were found. Since 1982 the site has been investigated and several remedial strategies have been proposed and implemented to clean-up soil and groundwater contamination. Over the last twenty years the Regional Water Board has issued several Waste Discharge Requirement Orders (WDRs), Clean-up and Abatement Orders (CAOs), Monitoring and Reporting Programs (M&Rs), and Administrative Civil Liability Complaints (ACLs) for this site. The Regional Water

Board adopted WDR Order No. 96-17 on March 18, 1996, which approved injection of the reductant calcium polysulfide into the soil and groundwater. The Discharger conducted this treatment on three occasions from 1997 to 2002. These treatments were successful in lowering concentrations of chromium in groundwater; however, elevated concentrations persisted in the shallow groundwater.

4. In August 2004, the Regional Water Board issued WDR Order No. R1-2004-0059 for *in-situ* treatment of the highly impacted soils in the source area where the wood treatment tanks were located. These soils were treated by mixing calcium polysulfide with the soil using an excavator. Specifically, the site was subdivided into discrete 25 by 25-foot cells at depths ranging from three (3) feet to nine (9) feet below ground surface (bgs). Soil was treated by mixing calcium polysulfide within each cell. Soil confirmation sampling conducted in April 2006 indicated that the 2004 soil treatment was effective in the shallow soil; however, elevated concentrations of hexavalent chromium remained at depths below 5 feet below ground surface (bgs).
5. The Discharger proposes to inject calcium polysulfide using a direct push drilling rig which will drive rods to 20 feet below the ground surface. Based on bench scale laboratory testing, 100 gallons of calcium polysulfide will be injected between 10 and 20 feet below ground surface in each boring in the cleanup area. Following injection approximately 300 gallons of water will be injected into the interval to aid in dispersion of the reductant. Following completion of the injection each boring will be grouted with a cement slurry to grade. The proposed injection area is shown on Attachment 2.
6. 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.
7. Locally, groundwater will be affected by excess calcium polysulfide. This residual reductant will locally raise the calcium and sulfide content of the groundwater and may temporarily impart a taste and odor of calcium polysulfide. Previous treatment events have shown that metals such as arsenic and copper are not mobilized at this site.
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 bgs. 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 and northwest.

9. The Regional Water Quality Control Basin Plan for the North Coast Region 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 injection of calcium polysulfide supersedes the proposal submitted by the Discharger for their Waste Discharge Requirements (WDR) Order No. R1-2004-0059 adopted August 25, 2004.
13. An Initial Study/Checklist and Negative Declaration was prepared and adopted by the Regional Water Board on February 7, 2007, to satisfy the requirements of the California Environmental Quality Act. The Regional Water Board has considered the Initial Study/Checklist and Negative Declaration, and has determined that compliance with this Order will have no significant environmental impact.
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. R1-2004-0059 adopted August 25, 2004, 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 any waste not disclosed by the Discharger and of any waste disclosed by the Discharger but not reasonably anticipated to occur 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 wastes to land not owned or under control of the Discharger is prohibited.
4. The discharge of any waste not specifically regulated by this Order is prohibited.
5. Creation of a pollution, contamination, or nuisance, as defined by Water Code section 13050, subdivision (m), is prohibited. (Health & Saf. Code, § 5411.)
6. 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 Discharger shall design, operate and manage the chemical treatment described in Finding 5 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, except that short-term change in taste and odor as described in Finding 7 may be allowed so long as it 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 R1-2007-0006 and 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 shall 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. Significant Changes in Discharge

The Discharger shall notify the Regional Water Board before making any change or proposed change in the character, location, or volume of the discharge.

Discharger shall file a report of Waste Discharge and a new order is required for any significant changes.

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 February 7, 2007.

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Catherine E. Kuhlman  
Executive Officer