Ca .nia Regional Water Quality Control I d
North Coast Region

ORDER NO. R1-2000-54
I.D. No. 1B830110MEN

WASTE DISCHARGE REQUIREMENTS

FOR

IN-SITU PILOT STUDY FOR THE CHEMICAL REDUCTION OF CHROMIUM

WILLITS ENVIRONMENTAL REMEDIATION TRUST
Former Remco Hydraulics Facility
934 South Main Street
Willits, California

Mendocino County

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

1. The Willits Environmental Remediation Trust (hereinafter the discharger) submitted a report of waste discharge on January 31, 2000 proposing to conduct a small scale pilot study on an in-situ technique for the remediation of chromium, volatile organic componds, and petroleum hydrocarbons in groundwater. The discharger proposes to study the in-situ chemical reduction of chromium and associated remediation of volatile organic compounds and petroleum hydrocarbons in groundwater for broader application to cleanup design at the former Remco Hydraulics facility. A revised report of waste discharge was received on May 24, 2000.

2. The Remco Hydraulics facility (hereinafter the site) is located at 934 South Main Street in Willits, California, and is the location of a former machine shop and chrome plating facility (Figure 1). The facility began operations as a machine shop in the late 1940s, and in 1960 constructed the first chrome-plating tank. The facility ceased operations in 1996. Soil and groundwater at the site are contaminated with chromium, solvents, and other wastes.

3. On December 10, 1996, the City of Willits filed a notice of violation in Federal Court against Remco Hydraulics and the previous owners for abatement of imminent and substantial endangerment pursuant to provisions of the Resource Conservation and Recovery Act (RCRA). The outcome was a negotiated settlement (Consent Decree) between the City of Willits, the owner and previous owners of the site. A final Consent Decree, Final Order, and Final Judgment (Case No. C96-0283 FMS), which established the Willits Environmental Remediation Trust was ordered by the federal district court on August 22, 1997. The Consent Decree has been subsequently amended. Through the Consent Decree, the discharger acquired the site.

4. The seven acre site is bordered on the east by South Main Street (Highway 101), on the south by railroad lines, residential houses and Baechtel Grove School, on the west by horse corals, residential homes and commercial structures, and on the north by residential homes, a motel and market.

5. The site is located on the western margin of the north-northwest trending Little Lake Valley. The Little Lake Valley consists of a thick sequence of fine-textured lake sediments (silts and clays) interlaced with sand and gravel. The site is situated on a sequence of stratified unconsolidated sediments consisting primarily of sands, silts and clays of alluvial origin.

6. The direction of groundwater flow at the site varies. The direction of flow of groundwater in the upper-most or shallow aquifer appears to be east to northeast, while in the lower aquifers, a more northerly trend exists.

7. Groundwater at the site is contaminated with several chemicals: hexavalent chromium; volatile organic compounds; total petroleum hydrocarbons as gasoline, diesel and motor oil; and methyl-tertiary butyl ether (MtBE). Hexavalent chromium has been detected in onsite groundwater at concentrations up to 336,000 parts per billion (ppb), exceeding the water quality objective of 0.2 ppb and impairing the beneficial uses of groundwater.

8. The project being considered consists of two parts which are designed to study in-situ reduction of chromium in groundwater. Both parts of the study are located inside an existing building at the site as shown in Figure 2. One part of the study is located at and around the former horizontal chrome plating tanks. The size of the rectangular study area near these plating tanks is approximately 90 feet by 45 feet. Thirteen points within this area will be drilled, and calcium polysulfide solution will be injected directly to groundwater at the thirteen points. Following the injection of calcium polysulfide, water will be injected to disperse the calcium polysulfide. Four temporary groundwater monitoring wells will be drilled in this study area and sampled on a routine basis to evaluate the effectiveness of the calcium polysulfide in chemically reducing chromium in groundwater.

9. The second part of the study is also located within the same building to the northeast of the former horizontal chrome plating area (Figure 2). The size of this nearly square study area is 67.5 feet by 60 feet. Twelve points within the area will be drilled, and molasses will be injected directly to groundwater at the twelve points. Following the injection of molasses, water will be injected to disperse the molasses. Four temporary groundwater monitoring wells will be drilled in the area and be sampled on a routine basis to evaluate the effectiveness of molasses in microbial reduction of chromium in groundwater. Three additional temporary wells are located near the pilot study areas and will be sampled on a routine basis.

10. In the first part of the study, the hypothesized treatment mechanism involves a reaction between the residual hexavalent chromium and the injected calcium polysulfide, resulting in a chemical reduction of hexavalent chromium to trivalent chromium. Trivalent chromium is considered a less toxic form of chromium, and tends to adsorb onto soil particles. Trivalent chromium is naturally occurring in soils in the area. The discharger has determined the in-situ reduction of hexavalent chromium contamination to its trivalent state will not result in a significant increase to background trivalent chromium concentrations in soil. The discharger has indicated that the residual reductant chemical will locally raise the calcium and sulfate content of groundwater in the pilot study area, and may temporarily impart a taste and odor of hydrogen sulfide in the area of the pilot study. The increase of calcium and sulfate will be restricted to onsite effects where no current

drinking water use exists. The temporary effects are expected to be measurable in the pilot study area for one year. The proposed chemical reductant injection pilot study is consistent with the antidegradation provisions of State Water Resources Control Board Resolution No. 68-16 in that the increase of calcium, sulfate, and possible taste and odor will be limited to local and temporary impacts.

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

12. The beneficial uses of the Eel River and its tributaries include:

    a. municipal and domestic supply
    b. agricultural supply
    c. industrial service supply
    d. groundwater recharge
    e. navigation
    f. hydropower generation
    g. water contact recreation
    h. noncontact water recreation
    i. commercial and sport fishing
    j. warm freshwater habitat
    k. cold freshwater habitat
    l. wildlife habitat
    m. preservation of areas of special biological significance
    n. preservation of rare and endangered species
    o. migration of aquatic organisms
    p. spawning, reproduction, and/or early development

13. Beneficial uses of areal groundwaters include: municipal, domestic, industrial and agricultural water supply as identified in the Water Quality Control Plan for the North Coast Region.

14. Cleanup and Abatement Order No. 99-55 was issued by the Executive Officer on August 13, 1999 to the Willits Environmental Remediation Trust, Pneumo Abex Corporation, and Whitman Corporation for the cleanup and abatement of soil and groundwater pollution at the site.

15. A negative declaration was prepared and approved by the Regional Water Board on July 27, 2000 to satisfy the requirements of the California Environmental Quality Act. The Regional Water Board has considered the negative declaration and has determined that compliance with this Order will have no significant environmental impact.

16. The Regional Water 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 written comments and recommendations.

17. The Regional Water Board, at a public meeting, heard and considered all comments pertaining to the discharge.

THEREFORE, IT IS HEREBY ORDERED that 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 specifically regulated by this Order is prohibited.

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

3. The discharge of treatment additives to land, surface waters or to groundwaters in areas other than that proposed for the pilot study is prohibited.

B. DISCHARGE SPECIFICATIONS

1. The injection of chemical reductant shall not impart taste, odor, or color to, or otherwise degrade the beneficial uses of areal groundwater, except for temporary taste and odor changes in the immediate vicinity of the study areas.

2. The injection of chemical reductant shall not impart taste, odor, or color to or otherwise degrade the beneficial uses of areal groundwater beyond the property boundaries of the Remco facility.

3. The injection of chemical reductant in the pilot test area shall be conducted as described in Section 4.3 of "Injection Methodology of the Work Plan for Pilot Testing of In-Situ Reduction of Chromium," dated May 22, 2000. In addition, the calcium polysulfide injection shall be a staged process, starting with one injection monitored for a minimum of 24 hours. The remainder of the injections shall not occur without written concurrence of the Executive Officer that no health risks were identified.

4. The pilot study shall not produce airborne hydrogen sulfide concentrations which exceed 0.03 parts per million by volume (ppmv) for protection of public health.

5. The pilot study shall not produce airborne hydrogen sulfide concentrations for onsite workers, which exceed the Action levels as described in the Health and Safety Plan dated May 22, 2000.

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 Water 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 the Regional Water Board:

   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 the Monitoring and Reporting Program No. R1-2000-54 and any modifications to these documents 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 analysis by the State Department of Health Services.

8. Inspections

   The discharger shall permit authorized staff of the Regional Water Board:

   a. entry upon premises in which an effluent source is located 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 waste treatment 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 Water 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.

11. Expiration

These waste discharge requirements expire 12 months after issuance and no further recision action is necessary.

Certification

I, Lee A. Michlin, 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 July 27, 2000.

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Lee A. Michlin
Executive Officer

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