California Regional Water Quality Control Board
North Coast Region

ORDER NO. R1-2008-0009

WASTE DISCHARGE REQUIREMENTS

FOR

IN-SITU GROUNDWATER TREATMENT

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

Mendocino County

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

1. The Willits Environmental Remediation Trust (WERT) (hereinafter the discharger) submitted a report of waste discharge (ROWD) on November 29, 2007 and January 16, 2008, proposing to conduct in-situ treatment of groundwater predominantly contaminated with volatile organic compounds (VOCs). The former Remco Hydraulics Facility is located at 934 South Main Street in Willits, California (APN 006-170-X32, APN 006-170-01, APN 006-170-02, APN 006-170-03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, and 30) (hereinafter the Site), and was a former machine shop and chrome plating facility (Figure 1). The facility began operations as a machine shop in 1945, and the first chrome-plating tank was constructed in 1963. The facility ceased operations in 1995. Soil and groundwater at the site are contaminated with chromium, VOCs, and other wastes.

2. On December 29, 1995, the City of Willits served both a Notice of Violation and a Notice of Endangerment to Remco Hydraulics and the previous owners of the site. Subsequently, on December 10, 1996, the City of Willits filed its Second Amended Complaint against those same parties for, among other things, the abatement of imminent and substantial endangerment pursuant to the provisions of the federal Resource Conservation and Recovery Act (RCRA), injunctive relief and abatement pursuant to RCRA, nuisance per se pursuant to the City of Willits Municipal Code, abatement of a public nuisance pursuant to California Civil Code section 731 and recovery of nuisance abatement costs, and negligence. The outcome was a Final Consent Decree, Final Order and Final Judgment; Order Establishing the WERT; And Order Of Reference to Special Master (Consent Decree) as entered by the Federal District Court for the Northern District of California between the City of Willits, the owners, and previous owners of the site (Case No. C96-0283 FMS). The Consent Decree established the Willits Environmental Remediation Trust on

August 22, 1997 upon entry of the Consent Decree, to investigate and remediate the site. Through operation of the Consent Decree, the discharger acquired ownership of the site.

3. A pilot study was conducted in 2000 to convert hexavalent chromium to trivalent chromium, and an interim remedial action was conducted in 2003 using molasses. Trivalent chrome is essentially the non-toxic form of chromium. The results of the pilot study and interim remedial action showed decreases in hexavalent chromium concentrations, and the enhanced dechlorination of volatile organic compounds (VOCs). These activities were conducted in compliance with Waste Discharge Requirements Order No. R1-2000-54.

4. The Site, approximating 9.2 acres, is bordered on the east by South Main Street (Highway 101), on the south by railroad lines, with residential homes and Baechtel Grove School to the south of the railroad line, on the west by horse corrals, residential homes and commercial structures, and on the north by Franklin Street and residential homes.

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. [1]

6. The direction of shallow groundwater flow at the site is predominately to the east-northeast, while in the lower aquifers a more north-northeasterly trend exists. There are three groundwater bearing zones at the site where permeable lenses of sands and gravels have been identified. The A-zone exists from the water table to a depth of approximately 15 to 25 feet below ground surface (bgs), the B-zone from 20 to 40 feet bgs, and the C-zone which begins at 35 to 60 feet bgs. The A-zone is largely unconfined. However, the B- and C-zones are largely confined.[1]

7. Groundwater at the site is contaminated with several compounds: hexavalent chromium; volatile organic compounds; total petroleum hydrocarbons as diesel and motor oil; and semivolatile organic compounds.

8. The discharger proposes to perform an interim remedial action (IRA) designed to reduce VOCs in-situ using a carbohydrate solution of molasses and yeast. The discharger has identified four areas within the Site for 100 initial injections points of molasses and yeast (also referred to as “food grade carbohydrates”) into shallow groundwater. This process is commonly used to treat VOC contamination, and a pilot study conducted at the site demonstrated success. The volatile organic

[1] Final Remedial Investigation Report, prepared by The Source Group, dated April 2002.

DRAFT

compound treatment process is to provide a food source (molasses) for the existing microorganisms in the aquifer. The microorganisms consume the food substances and donate electrons in the course of their metabolism. Once the electron acceptors are depleted, the microorganisms use the chlorinated VOCs as electron acceptors and thereby breaking VOCs into benign end products. Sufficient food source is needed over a period of time to complete the dechlorination of VOCs to benign breakdown products like carbon dioxide and water. During the breakdown process, parent compounds breakdown to more toxic intermediary VOCs (i.e., vinyl chloride). However, this is temporary and the dechlorination of vinyl chloride should continue to occur. The breakdown process of VOCs is shown on Figure 2. The proposed initial treatment and injection areas are shown on Figure 3. Additional injections within the Site that differ from the initial injection areas are authorized under these Waste Discharge Requirements in accordance with the terms and conditions of this Order.

9. Future injections of molasses shall be conducted in accordance with Discharge Specifications B.3 below. B.3 requires that the discharger submit the following information prior to conducting further injection of molasses at the site: a) a workplan proposal to the Executive Officer for review and concurrence; b) a proposed groundwater monitoring program; c) a revised contingency plan; and d) a 30-day notification and comment period to the public and all involved agencies. If the Executive Officer finds no new significant impacts or issues, the Executive Officer may concur with the reinjection proposal. The discharger may then conduct additional injections in accordance with the terms of this Order.

10. Groundwater monitoring will be accomplished by sampling 24 groundwater-monitoring wells in the A-zone. No treatment is proposed for the B-zone and C-zone. The groundwater monitoring well locations are depicted on Figure 2.

11. The injection of molasses may temporarily mobilize iron, manganese, arsenic, and/or antimony. In addition, molasses injections will create a temporary increase in the concentration of vinyl chloride in the injection area prior to further breakdown to non-toxic elements. If these contaminants are present in groundwater and in close proximity to the site property boundary, discharger will implement a contingency plan to extract groundwater and prevent off-site migration.

12. The injection of molasses is consistent with the antidegradation provisions of State Water Resources Control Board Resolution No. 68-16. The in-situ groundwater treatment is designed to accelerate cleanup at the Site and ultimately restore the beneficial uses of groundwater.

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

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14. Surface water in the Little Lake Valley flows to the Eel River. 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

15. Beneficial uses of groundwater include: municipal, domestic, industrial process and service supply, and agricultural water supply as identified in the Water Quality Control Plan for the North Coast Region.

16. Drinking water for the Remco facility and nearby residents is provided by the City of Willits municipal water system. The City of Willits water supply is located south of town, and is tested regularly to assure compliance with State of California drinking water standards. Individual water supply wells exist in the City limits and are used predominantly for irrigation.

17. The Regional Water Board will file a Notice of Determination within five days from the issuance of this order. The Regional Water Board is the lead agency for this project under the California Environmental Quality Act (Pub. Resources Code, section 21000 et seq.) (CEQA) and has prepared an Initial Study/Checklist in accordance with title 14, California Code of Regulations, section 15063. On January 18, 2008, the Regional Water Board provided notice of intent to adopt a mitigated negative declaration (SCH No._____) for the project. (Cal. Code Regs., tit. 14, § 15072.) The mitigated negative declaration reflects the Regional Water Board's independent judgment and analysis. After considering the initial study/checklist and other documents and comments received during the public review process, the Regional Board hereby determines that the proposed project with mitigation measures, will not have a significant effect on the environment. The mitigated negative declaration is hereby adopted. The documents or other

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material, which constitute the record, are located at Regional Water Board offices located at 5550 Skylane Blvd, Santa Rosa, California.

18. 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.

19. The Regional Water Board, at a public meeting on March 6, 2008, 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 a condition of pollution, contamination, or nuisance, as defined by Water Code section 13050, is prohibited.

3. The discharge of treatment additives to land, surface waters or to groundwater in areas beyond the boundaries of the Site owned or controlled by the discharger is prohibited.

4. The migration of any metal mobilized by the interim remedial action or vinyl chloride or other byproducts produced as part of the treatment process is prohibited beyond the boundaries of the property owned or controlled by the discharger.

5. The discharge of waste to property not owned or controlled by the discharger is prohibited.

B. DISCHARGE SPECIFICATIONS

1. The injection of food grade carbohydrates 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 treatment area.

2. The injection of food grade carbohydrates shall not impart taste, odor, or color to or otherwise degrade the beneficial uses of areal groundwater beyond the boundaries of the property owned or controlled by the discharger.

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3. The methods for injection and reinjection of food grade carbohydrates in the proposed treatment areas shall be conducted as described in the ROWD dated November 29, 2007 and January 16, 2008. For additional molasses injections at the site, the following items shall be submitted: a) a workplan proposal to the Executive Officer for review and concurrence, b) a proposed groundwater monitoring program; c) a revised contingency plan, and d) a 30-day notification and comment period to the public and all involved agencies. If the Executive Officer finds no new significant impacts or issues, the Executive Officer may concur with the reinjection proposal. The discharger may then conduct additional injections in accordance with the terms of this Order.

C. PROVISIONS

1. The discharger shall comply with all mitigation measures identified in the Mitigated Negative Declaration titled Willits Environmental Remediation Trust, Former Remco Hydraulics Facility, In-Situ Groundwater Treatment. The discharger shall implement the project as described in this Order. Compliance with mitigation measures identified in the mitigated negative declaration are requirements under this Order. Violation of any requirements subject the discharger to enforcement action, including civil liability, under the Water Code.

2. The discharger shall comply with all the requirements, conditions and provisions set forth in Monitoring and Reporting Program No. R1-2008-0009. The Executive Officer of the Regional Water Board retains discretion to modify provisions of the Monitoring and Reporting Program.

3. The Waste Discharge Requirements in no way alleviates the discharger from its responsibilities to comply with the Consent Decree (Case No. C96-0283 FMS) or any other applicable laws and regulations.

4. A copy of this Order shall be kept at the discharge facility for reference by operating personnel at all times. Key operating personnel shall be familiar with its contents.

5. 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.

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6. 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.

7. Change in Discharge

The discharger shall promptly report to the Regional Water Board any material change in the character, location, or volume of the discharge. Any material change in the project must receive approval by the Regional Water Board.

8. 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 shall notify the succeeding owner or operator of the following items by letter, in advance of the transfer of ownership or control, and a copy of the notice shall be forwarded to the Regional Water Board:

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

9. 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.

10. Monitoring

The discharger must comply with the Contingency Planning and Notification Requirements Order No. 74-151 and the Monitoring and Reporting Program No. R1-2008-0009 and any modifications to these documents as specified by the Executive Officer. Such documents are attached to this Order and incorporated herein.

a. Order No. 74-151 requires immediate incident reporting of unintentional or accidental spills (including emergency response actions) and diligent action to abate the effects of the discharge. Written confirmation of the incident is required within two weeks of notification.

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b. General Monitoring and Reporting Provisions require sampling and analysis performance criteria in addition to compliance reporting criteria and time frames.

11. Inspections

In accordance with Water Code section 13267(c), the discharger shall allow 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.

12. 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 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.

13. 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.

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Certification

I, Robert R. Klamt, Interim 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 March 6, 2008.

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Robert R. Klamt
Interim Executive Officer

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