INITIAL STUDY/CHECKLIST
AND MITIGATED NEGATIVE DECLARATION

Prepared for and by

North Coast Regional
Water Quality Control Board

Willits Environmental Remediation Trust
Former Remco Hydraulics Facility
934 South Main Street
Willits, California
Mendocino County

In-Situ Groundwater Treatment

December 2, 2008

North Coast Regional Water Quality Control Board
5550 Skylane Boulevard, Suite A
Santa Rosa, California 95403

INITIAL STUDY/CHECKLIST AND MITIGATED NEGATIVE DECLARATION

This Initial Study/Checklist and Mitigated Negative Declaration has been prepared in accordance with section 21080(c) of the Public Resources Code and California Code of Regulations, title 14, sections 15070 and 15071. The Mitigated Negative Declaration is proposed for adoption at a meeting of the California Regional Water Quality Control Board, North Coast Region, on January 29, 2009.

Project Title:	In-Situ Volatile Organic Compound Groundwater Treatment
Project Location/Address:	Former Remco Hydraulics Site, 934 South Main Street, Willits, California, Mendocino County (See Figure 1)
Lead Agency:	California Regional Water Quality Control Board, North Coast Region, 5550 Skylane Boulevard, Suite A, Santa Rosa, CA 95403
Decision Making Body:	California Regional Water Quality Control Board, North Coast Region
Project Applicant:	Willits Environmental Remediation Trust, 6016 Princeton Reach Way, Granite Bay, California 95746.

Project Description: The Willits Environmental Remediation Trust (WERT) is proposing to conduct interim remediation activities, specifically to treat groundwater in-place (in-situ) that is contaminated primarily with volatile organic compounds (VOCs) using a carbohydrate solution of organic molasses or emulsified oil with a vitamin supplement and pH buffer (hereinafter referred to as reducing agents). More details are provided in documents titled: Addendum No. 2 to the Interim Remedial Action Work Plan for In-Situ Treatment of VOCs in Shallow Groundwater dated August 25, 2008; which was submitted for the Regional Water Board's consideration of Waste Discharge Requirements under applicant's Report of Waste Discharge (ROWD). There are five initial areas where reducing agents will be injected (Figure 2). Based on the effectiveness, reducing agent injections may expand to other areas within the Site. The Site includes Assessor Parcel Nos. 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.

Prior to the selection of in-situ treatment as the interim remedial action, the project proponent conducted an evaluation of three alternatives: 1) the no action alternative, 2) standard groundwater pump and treat with a discharge of treated effluent to the sanitary sewer, and 3) in-situ treatment to enhance the dechlorination of VOCs. In addition, an analysis of applicable regulatory standards, and details of the treatment process was conducted (injection rates, pressures, depths of each injection point, chemical mixtures, soil stratigraphy, monitoring, and provisions for a contingency plan).

Environmental Finding: The staff of the Regional Water Board has determined, on the basis of the attached Initial Study/Checklist and the documents and sources referenced therein, that the project described above will not have a significant adverse impact on the environment with implementation of the mitigation measures identified in the Initial Study/Checklist and Negative Declaration. In addition, the project is designed to accelerate cleanup at the Site and eventually restore groundwater quality.

Initial Study/Checklist: The Initial Study/Checklist is attached**.** For more information call Janice Goebel at (707) 576-2676.

Mitigation Measures: The mitigation measures are included in the attached Initial Study/Checklist and will become enforceable conditions of approved Waste Discharge Requirements for the project. The mitigation measures include the following:

Mitigation Measure 3.1: The discharger shall keep the building doors closed during the injection process to prevent any molasses odors from leaving the building.

Mitigation Measure 3.2: The discharger shall comply with Monitoring and Reporting Program Order No. R1-2009-0001 that contains requirements for groundwater monitoring, and a contingency plan for on-site groundwater containment (hydraulic control) if byproducts such as metals and/or and vinyl chloride threatens to migrate off of the Site.

Mitigation Measure 11.1: The discharger shall comply with the City of Willits Noise Ordinance.

Introduction

This Mitigated Negative Declaration and Initial Study/Checklist have been prepared so that the Regional Water Board can consider adoption of Waste Discharge Requirements for the proposed groundwater treatment at the Site as needed to cleanup groundwater. The Regional Water Board proposes to consider adoption of Waste Discharge Requirements Order No. R1-2009-0001 at a Regional Water Board meeting to be held on January 29, 2009. Order No. R1-2009-0001 will allow the WERT to implement the interim remedial action at the Site for purposes of groundwater cleanup. The interim remedial action and in general the injection of reducing agents is designed to accelerate the dechlorination of VOCs in groundwater.

This report is the Mitigated Negative Declaration and Initial Study/Checklist required by the State CEQA Guidelines. It was prepared by Regional Water Board staff. This study uses project information provided by the professional consultants for the Willits Environmental Remediation Trust (WERT), and staff experience with two other projects previously performed at the former Remco Site that injected molasses to reduce hexavalent chromium and dechlorinate VOCs under Waste Discharge Requirements issued by the Regional Water Board.

Existing Facility

The Site was a former machine shop and chrome plating facility. The former Remco Site is approximately 9.2 acres in size. The property has been vacant since 1995. A series of buildings exist at the Site which were constructed over a period between 1945 and 1986. The buildings comprise about 154,000 square feet of the property.

The machine shop operation required the use of metal cleaning solvents and other petroleum based products such as cutting oils. Spills, leaks, waste disposal activities and other discharges over the operational period of the facility resulted in VOC and petroleum hydrocarbon contamination of soil and groundwater.

Chrome plating operations required the use of high strength hexavalent chromium solutions, and solvents for degreasing purposes. Faulty design of tanks and chemical handling systems, coupled with spills, leaks, and unpermitted waste disposal activities over the operational period of the facility have resulted in hexavalent chromium and solvent contamination of soil and groundwater.

The Remco facility has a long history of improper handling and discharges of chemical solutions and waste materials. Regional Water Board files contain documentation of numerous instances when hazardous materials were improperly discharged to the soil surface (and thence to groundwater) as well as to surface waters. Regional Water Board enforcement actions at Remco date back to 1982 when hearings were conducted to refer violations of waste discharge requirements to the Office of the Attorney General. Since then, Cleanup and Abatement Orders have been issued, leading up to the current Cleanup and Abatement Order No. 99-55. The project applicant seeks to comply with this enforcement order, in part, with the proposed project.

Soil and groundwater is contaminated with hexavalent chromium, volatile organic compounds, total petroleum hydrocarbons as diesel and motor oil; and semivolatile organic compounds. A previous Interim Remedial Action was conducted in 2003 to reduce hexavalent chromium to trivalent chromium. As of this date, hexavalent chromium has been reduced from concentrations above 300,000 ug/l to less than 50 ug/l. The property is fenced and the majority of the Site is paved. Stormwater runoff from the Site drains to the north side of the property and is collected in a storm drain system. The storm drain system flows to the east of the Site underneath Highway 101 and discharges to Baechtel Creek. Baechtel Creek is a tributary to the Eel River.

There are three areas where groundwater is extracted and treated prior to discharge to the sanitary sewer. The areas include: the east side of the property at monitoring well GMX-7A, along the storm drain system to the north of the building, and to the north of the former paint shop. Groundwater is extracted to control the migration of contaminants off-site, and to lower the groundwater table along the storm drain system.

Need for the Project

The proposed project would enable the project applicant to proceed with interim actions to commence cleanup of groundwater contaminated with VOCs prior to the selection and implementation of a final remedy for the Site. Since chlorinated VOCs are still present in groundwater at high concentrations the proposed project will reduce the extent and concentration of contamination at the Site.

The proposed project will accelerate the dechlorination of VOCs at the Site to enhance the cleanup, and lead to a final cleanup remedy to eventually restore the beneficial uses of groundwater. Without effective cleanup measures, there is the potential for exposure (vapor intrusion) to future individuals using the property, and the potential for contamination to remain in groundwater for many decades.

Specific objectives of the project are to: 1) enhance remediation of VOCs in groundwater, 2) protect human health and the environment, and 3) reduce the time for Site cleanup.

Setting

The Remco Site is an elongated, fenced parcel of approximately 9.2 acres, located immediately adjacent to and west of U.S. Highway 101 (Main Street) in the southern portion of the City of Willits, California. The Site is bounded on the south by California Western Railroad tracks and a small seasonal drainage ditch running further south of and parallel to the tracks. To the south of the drainage ditch is Walnut Street, residential property, and the Baechtel Grove Middle School. Located west of the facility are a horse pasture and corrals, commercial properties and residential properties. All the homes formerly located to the north of the Site, but on the south side of Franklin Street have been purchased and are considered part of the Site. Franklin Street and residences on the north side of Franklin Street still exist. To the east of the Site, across Highway 101, is a Safeway shopping center and Baechtel Creek. Baechtel Creek generally flows from the south to the north in the vicinity of the facility. Baechtel Creek is a tributary to Outlet Creek and the Eel River.

Currently, a concrete-floored metal building of approximately 154,000 square feet occupies more than half of the Remco Site. This building consists of several additions constructed over a period between 1945 to 1986. On the western portion of the Site, a smaller building existed that was formerly utilized for storage of raw and spent hazardous materials utilized in the manufacturing processes at the facility. This metal building is no longer present at the Site.

The Site has an asphalt-paved, fairly flat surface that slopes generally northeastward. The horizontal distance from the southwest corner to the northeast corner is about 1,150 feet. The southwest corner of the property is ten feet higher in elevation than the northeast corner of the property. Currently, surface water drains to six catch basins on the northern side of the building and one catch basin on the south side of the building.

Stormwater is conveyed through an underground storm drain system which runs along the northern facility boundary. The storm drain system extends eastward beneath Highway 101 and the Safeway parking lot, and eventually empties into Baechtel Creek. The storm drain and drop inlets are lined to prevent the infiltration of contaminated groundwater into the system and thence to Baechtel Creek.

According to the Final Remedial Investigation Report (prepared by MWH dated April 2002), the subsurface stratigraphy at the Site consists of alluvial deposits of gravel, sand, silt and clay. Available data suggest that the coarser-grained material was deposited in stream channels while the finer-grained material was probably deposited in relatively slow moving water in the area between the stream channels or as lake deposits. Three water-bearing zones have previously been identified at the Site, and are referred to, from shallowest to deepest, as the A-, B-, and C-zones. Although the water bearing zones are generally fine-grained deposits, they tend to contain more coarse-grained deposits than surrounding strata. The identified coarse-grained deposits do not generally form a continuous layer laterally over the entire area investigated; however, in some cases the lenses are observed/interpreted to locally interconnect and exhibit varying degrees of hydraulic communication with each other.

Groundwater is encountered at relatively shallow depths typically ranging from three to eight feet below the ground surface at the Site. In the winter and spring months, groundwater has risen to the ground surface. Monitoring wells completed into the saturated zone have exhibited flowing artesian conditions. As described above, three water-bearing zones (A-, B-, and C-zones) have been identified at the Site. The A-zone is approximately 15-25 feet below ground surface (bgs), the B-zone from about 25-40 feet bgs, and the C-zone from about 50-75 feet bgs. In the A-zone, the hydraulic groundwater gradient is to the northeast at approximately 0.009 to 0.020 feet/foot. In the B-zone, the hydraulic groundwater gradient is to the northeast at approximately 0.016 to 0.019 feet/foot. Within the C-zone, the hydraulic groundwater gradient is to the northeast, but more to the east than the A- and B-zones, at approximately 0.034 to 0.038 feet/foot.

Project Description

The proposed project consists of an interim remedial action designed to dechlorinate VOCs in-situ (in-place), using reducing agents. The project applicant is proposing to inject a carbohydrate solution of organic molasses or emulsified oil with a vitamin supplement and pH buffer (herein referred to as reducing agents) into shallow groundwater (A-zone) initially at five identified locations on the site, and based on its effectiveness, may expand to other areas within the Site in the A-zone. The Site includes Assessor Parcel Nos. 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. This Mitigated Negative Declaration and Environmental Checklist and the proposed Waste Discharge Requirements evaluate the reducing agent injections to enhance cleanup of shallow groundwater at the Site.

The five initial locations includes injection points in the A-zone to 20 feet below ground surface. The initial five treatment areas are depicted on Figure 2. The injection points will be spaced 10 to 15 feet apart to provide some overlap of the reducing agents. Reducing agents will be injected at one foot intervals throughout the A-zone to 20 feet. At half of the points organic molasses will be injected and the other half will be the emulsified vegetable oil. The emulsified vegetable oil is specifically designed and formulated for the dechlorination of VOCs and may enhance the remedial effectiveness by extending the duration of in-situ reducing conditions.

The proposed Waste Discharge Requirements allow additional reducing agent injections at the Site. For additional injections, 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 perform additional injections to complete remediation of the VOC contaminated groundwater in the A-zone.

Injecting reducing agents is commonly used to treat VOC contamination. The VOC treatment process is to provide a food source 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. Sufficient food source is needed over a period of time to complete the dechlorination of chlorinated VOCs to benign breakdown products like carbon dioxide and water. More than one injection may be necessary to provide a sufficient food source to complete the dechlorination process. The dechlorination of VOCs is irreversible as the process removes a chlorine atom from the hydrocarbon molecule, ultimately resulting in benign products such as 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 continues to occur. Two pilot studies previously conducted at the site demonstrated successful dechlorination of VOCs using molasses and yeast in one area, and a soy oil in another. Data collected from the existing monitoring well network proves that the overall contamination at the Site was reduced as a result of these prior in-situ injections.

The injection of reducing agents may also temporarily mobilize iron, manganese, arsenic, and/or antimony. The mobilization of any metals is also temporary and will return to preexisting injection conditions. The migration of any metal mobilized or vinyl chloride produced as part of the treatment process is prohibited beyond the boundaries of the property owned or controlled by the discharger.

The groundwater monitoring program is in place to monitor groundwater conditions at the injection areas, just downgradient of these areas, and near the property boundary. If these contaminants are present in groundwater and in close proximity to the site

property boundary, the discharger will immediately implement a contingency plan to extract groundwater and prevent off-site migration of pollutants

The contingency plan consists of sampling groundwater monitoring wells located within the injection areas, downgradient of the injection areas, and in contingency wells located near the property boundary. If mobilized metals and vinyl chloride threatens to migrate off of the Site, groundwater monitoring wells located along the property boundary will be connected to the existing groundwater treatment system. If additional injections are proposed that are located in other areas of the Site where the existing monitoring program and contingency plan may not cover, the discharger is required to submit a revised monitoring program and contingency plan. The revised monitoring program and contingency plan will identify the groundwater monitoring wells that will be sampled, the contingency wells to control off-site migration, and could include the proposal for drilling of additional monitoring wells/extraction wells, if needed. The monitoring wells/extraction wells can be drilled and connected to the existing treatment system within a short period of time. The contingency plan to prevent off-site migration is included in the Waste Discharge Requirements.

Groundwater monitoring proposed will be accomplished by sampling 28 groundwater-monitoring wells in the A-zone. The groundwater monitoring well locations are depicted on Figure 2. Groundwater monitoring over time will be used to evaluate existing groundwater conditions. A comprehensive Monitoring and Reporting Program (No. R1-2009-0001) will be considered for adoption as part of the Waste Discharge Requirements at the January 29, 2009 Regional Water Board meeting.

The travel distance of the reducing agents at each injection point varies from 5 to 15 feet. The proposed injection areas are located within the boundaries of the property (approximately 120 and 350 feet upgradient of the property boundary) allowing a large buffer zone between the injection areas and the Site property boundary. The groundwater velocity at the site is relatively slow (estimated to range from 15 – 149 feet/year), and monitoring would be initially conducted within one month of the injections followed by quarterly sampling for VOCs, dissolved metals, and 1,4-Dioxane.

Vinyl Chloride from treatment of VOCs were observed in the 2000/2001 Pilot Study as well as the 2003 Interim Remedial Action to Reduce Hexavalent Chromium. The Interim Remedial Action to Reduce Hexavalent Chromium mobilized arsenic in one groundwater monitoring well located on the east side of the property. Groundwater extraction wells were installed to control the migration of arsenic off-site. The extraction system was effective in preventing the migration of arsenic off-site. Since that time, arsenic concentrations in this one well are at background concentrations of <5 ug/l (parts per billion). Because of the potential to mobilize metals, and because vinyl chloride will be generated as part of the dechlorination process, a contingency plan is required.

The efficacy of the proposed project was demonstrated in a pilot study conducted in 2000/2001 (*Final Post-Injection Report on Pilot Study of In-Situ Chromium Reduction, Former Remco Hydraulics, Inc., Facility, Willits*, *California*), and an Interim Remedial

Action (IRA) to Reduce Hexavalent Chromium in 2003. The pilot study and IRA demonstrated the effectiveness of reducing hexavalent chromium using molasses and found that the molasses also enhanced the dechlorination of VOCs. In addition, another pilot study on the west side of the plant involved injection of molasses to groundwater in one area, and soy oil in another area to evaluate the effectiveness of dechlorinating VOCs. The results of the study showed reductions in parent compounds of VOCs, and increases in daughter products. Most importantly, the dechlorination is continuing beyond the daughter products to ethenes and ethanes. The dechlorination process is shown on Figure 3. No significant adverse environmental effects were found to result from that effort based on air and water monitoring and related reporting requirements.

Finally, previous groundwater treatment studies have demonstrated that hydraulic control of groundwater migration off-site has been achieved. A capture zone analysis for the existing extraction wells has been conducted to further evaluate the proposed groundwater contingency plan action.

Permits Required

The following is a summary of the permits/requirements that may be needed for the project:

The project applicant must comply with regulatory and permitting requirements including California State Water Resources Control Board Resolutions 92-49 and 68-16; Title 27, Division 2, California Code of Regulations; and any local, state and federal permitting requirements.

A Waste Discharge Requirements Order will be required to proceed with the project. The draft Waste Discharge Requirements Order No. R1-2009-0001 will be considered for adoption at a Regional Water Board meeting to be held on January 29, 2009. In addition, a Monitoring and Reporting Program, included as part of the Waste Discharge Requirements, will also be required to proceed with the project. The Waste Discharge Requirements allow for future reducing agent injections at the Site as long as a technically sound workplan is received, reviewed, sent out for public comments, and approved by the Executive Officer. The injections are required to be controlled on the Site in accordance with the Waste Discharge Requirements.

A permit (State Portable Equipment Permit) for the drilling rig may be needed if: 1) the drilling rig has a portable diesel engine over 50 h.p., and 2) the diesel engine is not the same engine that drives the truck.

A permit from the Mendocino County Environmental Health Department is required when drilling a groundwater monitoring well or boring.

Initial Study/Checklist

The attached checklist is taken from Appendix G of the State CEQA Guidelines. For each item, one of four responses is given:

No Impact: The project will not have the impact described.

Less Than Significant Impact: The project will have the impact described, but the impact will not be significant. Mitigation is not required, although the project applicant may choose to include mitigation measures to reduce the impacts.

Potentially Significant Unless Mitigated: The project will have the impact described, and the impact will be significant. One or more mitigation measures have been identified that will reduce the impact to a less than significant level.

Potentially Significant Impact: The project may have the impact described, and the impact is significant. The impact cannot be reduced to a less than significant level by incorporating mitigation measures. An environmental impact report must be prepared for this project.

Each question on the checklist was answered by evaluating the project as proposed in the Report of Waste Discharge, that is, without considering the effect of any added mitigation measures. As proposed in the Report of Waste Discharge, and as reflected in the proposed Waste Discharge Requirements, the project includes various constraints and conditions which reduce all potentially significant impacts to a level that is less than significant. The checklist includes a discussion of the impacts and mitigation measures that have been identified. Sources used in this Initial Study/Checklist are numbered and listed beginning on Page 39 of the Initial Study/Checklist. The WERT has agreed to accept all mitigation measures listed on this checklist as conditions of approval of the proposed and has agreed to obtain all necessary permits.