

SCS ENGINEERS

February 18, 2016
File No. 25211343.92

Mr. Jeff Ackerman
Wisconsin Department of Natural Resources
3911 Fish Hatchery Road
Madison, WI 53711



Subject: Change Order #2 for Soil Chemical Oxidation and Groundwater Monitoring
Platteville Cleaners, 250 West Main Street, Platteville, Wisconsin
BRRTS #02-22-550753

Dear Mr. Ackerman:

As requested, we are providing the following Dry Cleaner Environmental Response Fund (DERF) Change Order for remediation services. The purpose of the work is to reduce concentrations of tetrachloroethene (PCE) in soil at the source area, to evaluate the effectiveness of the soil remediation, and to evaluate natural attenuation as a remedy for chlorinated volatile organic compounds (CVOCs) in groundwater.

Soil chemical oxidation and groundwater natural attenuation were selected as the best remedial options for cleanup, as summarized in the November 7, 2014, NR 722 Remedial Options Analysis. The determination was based on overall cost, soil and groundwater remediation effectiveness, technical feasibility, restoration timeframe, and some site-specific concerns. The Wisconsin Department of Natural Resources (WDNR) approved the proposed remedial option in an email dated February 26, 2015. The following provides a proposed scope of work, project assumptions, and estimated project costs for the selected remedial option.

PROPOSED SCOPE OF SERVICES

Soil Chemical Oxidation

Scope of Work

The soil chemical oxidation work (soil injections) will be performed by Regenesi under supervision of SCS Engineers (SCS), as summarized in the February 17, 2016 Proposal for Site Remedy (**Attachment A**). The goal of the work is to chemically treat the primary source area under the dry cleaner building, using a target PCE soil cleanup objective of 10 parts per million (ppm). Based on site investigation findings, we assume that the site is accessible for the proposed soil injection work and that soil characteristics are favorable for injection. Additional assumptions are provided in **Attachment A** and noted below.

The scope of work includes two in-situ chemical oxidation (ISCO) injection events using PersulfOx spaced about 4 weeks apart. We assume there are no access restrictions and that target injection depths can be reached using standard direct-push drilling methods.



The longevity of the chemical oxidation from PersulfOx is expected to be 4 weeks once injected. The first application will be considered a pilot test to see if the low permeability of the clay soils will limit the injection of remedial fluids. The second application will be applied only if the pilot test is successful. We assume up to 3 days of fieldwork for each event.

A total of approximately 2,590 pounds of PersulfOx will be applied to the treatment area over the course of the two injection events. We assume the City of Platteville will allow access to a nearby fire hydrant to supply water for the injections. During each event, PersulfOx will be injected into the impacted soils through nine direct-push points between 0 and 20 feet below ground surface (bgs). Injection points will be spaced 6 feet on center for each of the two application events as shown on **Figure 7 of Attachment A**. The nine injection points for the second application event will be offset from the first set of injection points to optimize distribution within the clay soils. Regenesis estimates that the remediation of the soils will be complete within 6 weeks after the second PersulfOx injection event. Regenesis estimates that this approach is capable of reducing the soil concentration of PCE by approximately 75 percent or more.

SCS will perform post-injection soil confirmation sampling to evaluate the treatment after the second injection. Four direct-push borings will be advanced within the treatment area, to a depth of approximately 20 feet. Four samples from each boring will be collected for WDNR-certified laboratory analysis of volatile organic compounds (VOCs).

A report summarizing the injection and subsequent soil sampling results will be submitted to the WDNR. The report will include the following:

- Summary of injection methods, application depths, material quantities, injection pressures, and other injection observations.
- Summary of post-injection soil sample results, including tabulated laboratory results with applicable soil standards, and analytical reports.
- Maps showing injection locations and post-injection soil sample locations.
- Recommendations for additional work, if appropriate.

Permits and Exemptions

We are requesting a temporary, 5-year exemption from the WDNR for injection of a remedial material under NR 140.28 and assume that an exemption to NR 812.05 is not required, because the proposed injection is approved by the WDNR. We assume the injection work will take place in 2016, but request the 5-year NR 140.28 exemption in case additional injection work is required at a later date. We also assume that a Wisconsin Pollutant Discharge Elimination System (WPDES) Permit is not required for the work.

Waste Handling

Waste characterization sampling will be performed to determine if drill cuttings will need to be managed as a hazardous waste. For scoping purposes, we assume the drill cuttings are characteristically hazardous and will be managed accordingly.

Groundwater Natural Attenuation Monitoring

Scope of Work

The above-noted chemical injection will be followed by 2 years of quarterly groundwater natural attenuation monitoring. We assume all monitoring wells will be accessible for sampling. The monitoring includes the following for each of the 10 site monitoring wells:

- Quarterly water level measurements
- Quarterly VOC sampling
- Annual natural attenuation sampling for iron, ethane, ethane, methane, and sulfate
- Annual field measurement for dissolved oxygen, REDOX potential, and pH

Groundwater sample analysis will be conducted by a WDNR-certified laboratory. Groundwater monitoring results will be submitted to the WDNR in semiannual groundwater monitoring reports. Each report will include WDNR Form 4400-194, an updated groundwater analytical summary table, groundwater flow maps, and laboratory analytical reports.

Waste Handling

Monitoring well purge water will be containerized for disposal. We assume the Platteville wastewater treatment plant will accept the purge water for disposal.

ESTIMATED PROJECT COSTS

A cost estimate and DERF Budget Spreadsheet are included in **Attachment B**. We estimate an eligible project cost of \$117,330. Case closure, well abandonment, and DERF claim costs are not included. Costs for travel time, mileage, and per diem costs, which are not eligible for reimbursement from the DERF program, are shown on the SCS cost estimate, but are not eligible for DERF reimbursement so are not included on the DERF Budget Sheet.

We request a variance to NR 169.23 bidding requirements in order to adjust SCS staff rates to 2016 rates as shown in **Attachment C**. Work is currently being performed at 2013 rates. We propose to use the 2016 rate schedule for the anticipated project schedule noted on the next page (i.e., from March 2016 through June 2018).

APPROXIMATE PROJECT SCHEDULE

The following schedule is approximate and shows estimated project milestones.

Task	Estimated Completion Date
WDNR Approval of Change Order No. 2	March 2016
First Soil Injection	June 2016
Second Soil Injection	July 2016
First Quarterly Groundwater Sampling Event	August 2016
Post-Injection Soil Sampling and Summary Report	September 2016
First Semiannual Report	December 2017
Final Quarterly Groundwater Sampling Event	March 2018
Final Semimanual Report	June 2018

CERTIFICATIONS

SCS agrees to the following per NR 169.23(3) (b):

- To be fully informed about the project's scope and required services, and have the experience and ability to analyze alternatives and design the most suitable response action consistent with technical and economic feasibility, environmental statutes and rules, restoration timeframes, and the latest technical advances.
- To provide necessary staff and facilities for all phases of planning, investigation, design, construction, and operation.
- To retain and confer with specialists on unusual matters and provide qualified technical reviewers to advise the owner on technical and regulatory matters and work toward planned remediation goals.
- To perform all services in an ethical, professional, and timely manner.

Please contact Robert Langdon at (608) 216-7329 if you have any questions concerning this proposal or any other aspect of this project.

Sincerely,



Robert Langdon
Senior Project Manager
SCS ENGINEERS



Thomas J. Karwoski, PG
Senior Hydrogeologist
SCS ENGINEERS

REL/lmh/TK_SLC

cc: Tim Koeller, Platteville Cleaners

Mr. Jeff Ackerman
February 18, 2016
Page 5

Attachments: Attachment A - February 17, 2016 Regensis Proposal for Site Remedy
Attachment B - SCS Engineers Cost Estimate and DERF Budget Spreadsheet
Attachment C - SCS 2016 Fee Schedule

I:\3439A\Correspondence-Agency\160218_Ackerman_Remediation_CO2_itr.doc

ATTACHMENT A

February 17, 2016 Regensis Proposal for Site Remedy

Proposal for Site Remedy

To: Robert Langdon – SCS Engineers

February 17, 2016

From: Doug Davis, Ryan Moore and Steve Barnes - REGENESIS

RE: Platteville Cleaners – Proposal for ISCO Application, Platteville, WI

Proposal Number: RaM49571rev.2

Thank you for the opportunity to work with SCS Engineers at the above-referenced project. We have provided the attached design and cost estimate for REGENESIS Remediation Services (RRS) application of our sodium persulfate-based in situ chemical oxidation (ISCO) technology, PersulfOx, to treat perchloroethylene (PCE) in vadose zone soils.

Please find the following attachments:

- 1) Application map depicting treatment area
- 2) Remedial design summary table
- 3) PersulfOx ISCO technology description

Project Goals and Remedial Scope

We understand the goal for this project is to reduce PCE concentrations in the source area utilizing an ISCO approach. We have designed for an application of our all-in-one activated sodium persulfate technology (PersulfOx®) within an approximate 330 square ft area which correlates to the 10 mg/kg PCE shallow soil (0 to 6 ft bgs) isocontour and the 1 mg/kg deep soil (6 to 20 ft) isocontour line. We propose two (2) applications of PersulfOx. The first application would be used to test the efficacy/feasibility of the approach given the fine grained nature of the soils which could potentially hinder injection of remedial fluids. We anticipate two (2) applications are necessary within the target area to achieve sufficient pore space occupancy in order to significantly reduce PCE concentrations. Nine (9) injection points are estimated for each application for a total of 18 injection points.

RRS Scope of Services

As mentioned, RRS will implement the turn-key application of the proposed ISCO treatment. The implementation of this scope of work includes:

- RRS will provide and ship the specified quantities of remedial agents to the site prior to personnel mobilization.
- CLIENT will receive product delivery at the site prior to mobilization and arrange for secure storage near the work area during product application.
- RRS will provide the injection trailer with a project manager, direct push rig and operator, and perform product application, which will include the following:
 - Mix and prepare remedial reagents for application

**Proposal for Site
Remedy**

- Injection trailer apparatus (equipped with pumps, mixing tanks, injection heads with flow & pressure gauges, safety bypass valves, first aid station, etc.)
- PPE and safety equipment for RRS personnel
- Collect empty containers, used PPE and RRS generated refuse daily. This nonhazardous material will be placed in the property’s onsite refuse container for disposal.
- Utilize up to 1,500 gallons of water per day for the application.
- Perform real-time reagent distribution diagnostics to allow for field modifications, as needed.
- After completion of the full scale application, prepare and submit a Post-Application Summary Report including application depths, material quantities applied, injection pressures, surfacing of material and other noteworthy field observations.

Project Cost and Schedule

The cost to implement this scope of work is **\$34,764.00*** and includes product, sales tax and delivery to the site. The cost to implement is based on two (2) application events. A single product shipment for each application (two total) is assumed. A breakout of costs for each application event is provided as follows:

PersulfOx Event #1 (1,322.4 lbs – rounded to the nearest full bag)	
PersulfOx Cost	\$ 3,438
RRS Application	\$12,742
Tax and Freight	\$ 1,202
Event #1 Cost	\$17,382
PersulfOx Event #2 (1,322.4 lbs – rounded to the nearest full bag)	
PersulfOx Cost	\$ 3,438
RRS Application	\$12,742
Tax and Freight	\$ 1,202
Event #2 Cost	\$17,382
Total Project Cost	\$34,764.00*

**It is estimated that 2 days in the field will be required for each application. A daily rate adjustment of \$4,700 will be applied to the invoice if the if work is completed prior to or exceeds this daily-rate estimate. RRS will communicate with SCS Engineers personnel to determine the efficacy/feasibility the approach when on-site during the first application event. RRS may elect to modify the design based on formation acceptance rates.*

Payment Schedule will be:

- Invoice after completing Injection Event #1 - \$17,382.00
- Invoice after completing injection Event #2 – \$17,382.00

This pricing is contingent upon completion of this scope of work without delays or work stoppages once mobilization occurs. Payment terms are net thirty (30) days from date of each invoice.

Health and Safety

RRS will develop and implement a site specific health and safety plan (HASP) for this project. The safety of all site personnel is a priority on all RRS projects. Tailgate safety meetings will be conducted each morning to review the HASP requirements, identify the location of first aid stations to site personnel, review activities planned for the day, discuss safety concerns and modify plans, as needed. All on-site personnel will be up to date with Occupational Safety and Health Administration (OSHA) 1910.120 HAZWOPER training requirements.

The injection equipment utilized by RRS is specifically designed to monitor and handle the chemical reagents being applied. Pressure bypass lines, pressure relief valves, and sufficiently rated equipment are just a few of the engineering controls installed within the injection unit to mitigate potential health and safety issues. All RRS personnel are trained to properly operate the injection unit and maintain the equipment within acceptable ranges.

RRS Standard Assumptions and Qualifications

- In generating this preliminary estimate, REGENESIS relied upon professional judgment and site specific information provided by others. Using this information as input, we performed calculations based upon known chemical and geologic relationships to generate an estimate of the mass of product and subsurface placement required to affect remediation of the site.
- CLIENT personnel will take delivery of the remedial products prior to RRS mobilization and arrange for secure storage in an environment that will prevent exposure to inclement weather (i.e., freezing temperatures, rain, etc.). If material is stored off-site, CLIENT personnel will coordinate the delivery of the material to the site.
- In the event the fine grained nature of the soils is determined to be not suitable for injection of the remedial fluids, a 15% re-stocking fee will be charge for all returned goods. Return freight must be prepaid and product must be in saleable condition. No product will be accepted for return after 90-days from original delivery date.
- RRS will call in a public utility locate for area in or near the injection zones. All private, on-site underground utilities and any known subsurface features (i.e., piping, storage tanks, septic systems, etc.) will be clearly marked/cleared by CLIENT prior to RRS mobilization to the site. RRS is not responsible for damage to any unmarked utilities or subsurface features.
- RRS will collect project related refuse, empty product containers and used PPE on a daily basis to keep the site clean. This nonhazardous refuse will be placed in an on-site refuse container provided by others.
- A high volume water source (i.e. hydrant) capable of producing at least 40 gpm will be available to RRS for the duration of the project, within 300 feet of the work area, at no cost to RRS. RRS will utilize this water for the injection activities.
- RRS will have access to the site for equipment operation and storage of materials and equipment.
- CLIENT is responsible for securing injection permits prior to mobilizing to the site.
- CLIENT is responsible for any soil, air and/or groundwater sampling and analysis (as required).

**Proposal for Site
Remedy**

- This proposal does not account for concrete coring, if applicable. If concrete coring is necessary, RRS will charge a lump sum rate of \$450.00 per event. DPI points will be bentonite grouted to surface after use.
- RRS will not be responsible for any treatment chemistry infiltration into undesired locations (e.g., subsurface utility corridors). Damage to utilities via infiltration will not be the responsibility of RRS.
- Proposal assumes probing and drilling will begin at ground surface. If hand augering or air knife services will be required, additional charges will apply.
- This proposal assumes work will be performed within the building and that a limited access geoprobe unit will be needed to gain access to the work area.

REGENESIS appreciates the opportunity to present you with this proposal. If you need any additional information please do not hesitate to contact Steve Barnes at 574-349-0650 or Doug Davis at 614-447-0492.

REGENESIS



Steven R. Barnes
Remediation Services Project Manager



Doug Davis
Central Region Technical Manager

Attachment: Site Map Depicting the Proposed Treatment Area

Please sign below to acknowledge acceptance of proposal #49571rev1 for the **Platteville Cleaners Site** in Platteville, WI and authorize RRS to perform stated work:

SCS Engineers

Authorized Signature

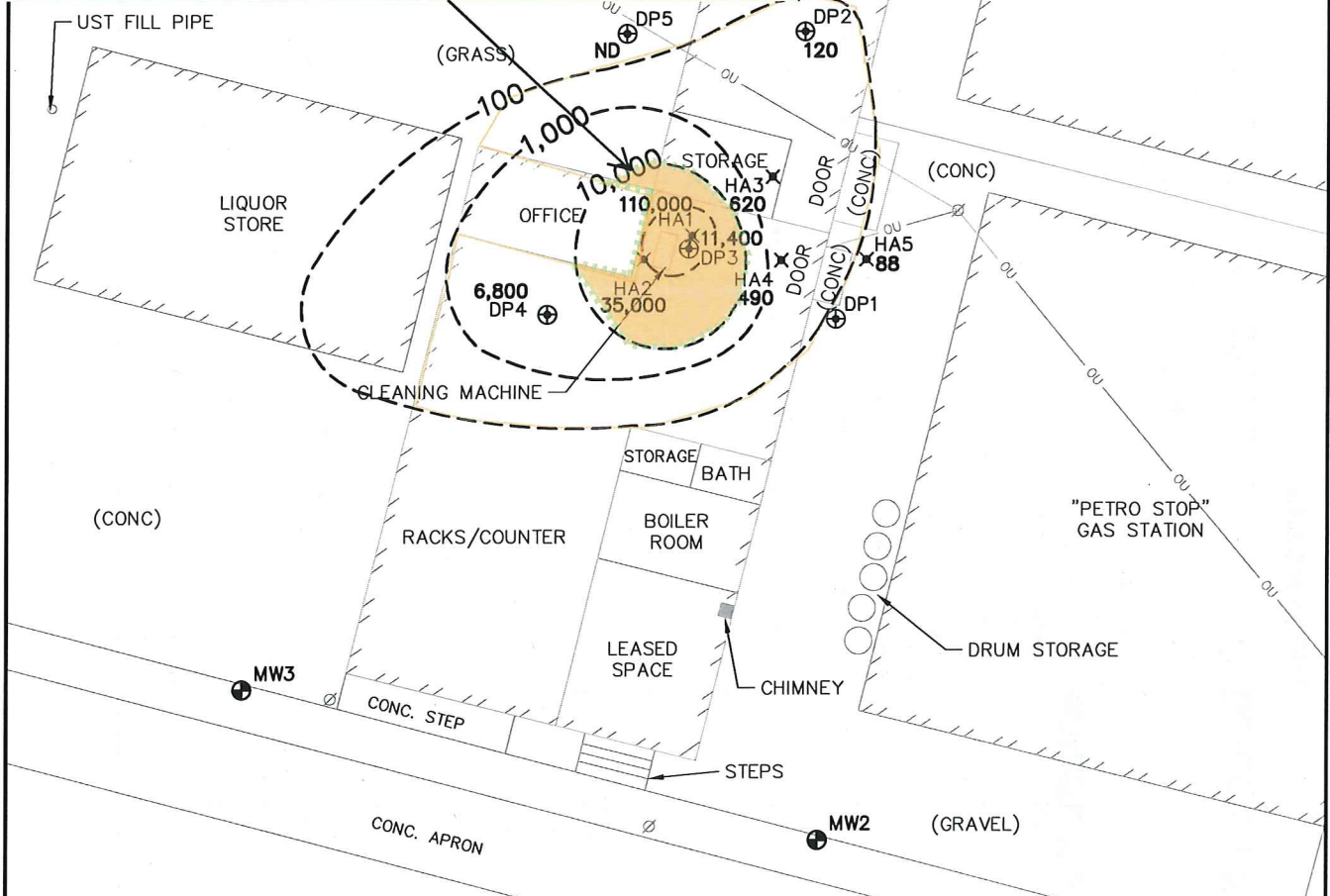
Date

Name (print)

P.O. or Project Number

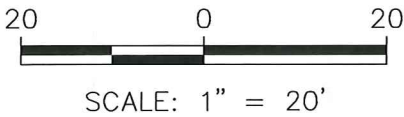
PersulfOx® Application Design Summary

Soil		Field App. Instructions
Application Method	Direct Push	
Spacing Within Rows (ft)	6	
Spacing Between Rows (ft)	6	
Injection Points (per app.)	9	
Number of Applications	2	
Areal Extent (square ft)	340	Field Mixing Ratios
Top Application Depth (ft bgs)	0	Water per Pt (gals)
Bottom Application Depth (ft bgs)	20	155
PersulfOx to be Applied (lbs)	2,590	PersulfOx per Pt (lbs)
PersulfOx Solution %	10%	144
Volume Water (gals)	2,793	Total Volume per Pt (gals)
Total Volume (gals)	2,922	162



LEGEND

- ⊕ MONITORING-WELL
- ✕ HAND AUGER SOIL BORING
- ⊕ DIRECT PUSH SOIL BORING
- ∅ LIGHT/UTILITY POLE
- OU OVERHEAD UTILITY
- 88 PCE CONCENTRATION (μg/kg)
- ND NOT DETECTED
- 100--- ESTIMATED PCE ISO-CONCENTRATION IN SOIL <6' BELOW GROUND SURFACE (μg/kg)



CLIENT	PLATTEVILLE CLEANERS 250 WEST MAIN STREET PLATTEVILLE, WISCONSIN		SITE	PLATTEVILLE CLEANERS 250 WEST MAIN STREET PLATTEVILLE, WISCONSIN		ENGINEER	SHALLOW SOIL RESULTS MAP	
	PROJECT NO.	3439A		DRAWN BY:	SAS/KP		SCS ENGINEERS 2830 DAIRY DRIVE MADISON, WI 53718-6751 PHONE: (608) 224-2830	FIGURE
	DRAWN:	04/03/09		CHECKED BY:	REL			7
REVISED:	07/18/13	APPROVED BY:	REL 07/18/13					



Project Information		PersulfOx® Application Design Summary	
Platteville Cleaners Platteville, WI Soil Prepared For: Robert Langdan (SCS)		Soil Application Method: Direct Push Spacing Within Rows (ft): 6 Spacing Between Rows (ft): 6 Injection Points (per app.): 9 Number of Applications: 2 Areal Extent (square ft): 340 Top Application Depth (ft bgs): 0 Bottom Application Depth (ft bgs): 20 PersulfOx to be Applied (lbs): 2,590 PersulfOx Solution %: 10% Volume Water (gals): 2,793 Total Volume (gals): 2,922	
Target Treatment Zone (TTZ) Info		Field App. Instructions	
Treatment Area	ft ²	340	
Top Treat Depth	ft	0.0	
Bot Treat Depth	ft	20.0	
Vertical Treatment Interval	ft	20.0	
Treatment Zone Volume	ft ³	6,800	
Treatment Zone Volume	cy	252	
Soil Type	---	clay	
Porosity	cm ³ /cm ³	0.45	
Effective Porosity	cm ³ /cm ³	0.10	
Treatment Zone Pore Volume	gals	22,890	
Treatment Zone Effective Pore Volume	gals	5,087	
Fraction Organic Carbon (foc)	g/g	0.010	
Soil Density	g/cm ³	1.5	
Soil Weight	lb/ft ³	94	
Soil Weight	lbs	6.4E+05	
Hydraulic Conductivity	ft/day	0.0	
Hydraulic Conductivity	cm/sec	3.53E-07	
Hydraulic Gradient	ft/ft	0.100	
GW Velocity	ft/day	0.00	
GW Velocity	ft/yr	0	
Sources of Oxidant Demand		Value	
Sorbed Phase Contaminant Mass	lbs	70	
Dissolved Phase Contaminant Mass	lbs	0.0	
Total Contaminant Mass	lbs	70	
Stoichiometric PersulfOx Demand	lbs	233	
Efficiency/Safety Factor	---	5.0	
Stoichiometric PersulfOx Required	lbs	1,167	
SOD PersulfOx Required	lbs	1,415	
Total PersulfOx Required	lbs	2,582	
Application Dosing		Assumptions/Qualifications	
PersulfOx Required	lbs	2,590	
		Prepared By: Date: 6/19/2014	
		Technical Notes/Discussion Volume per vertical ft gals 8	
In generating this preliminary estimate, Regensis relied upon professional judgment and site specific information provided by others. Using this information as input, we performed calculations based upon known chemical and geologic relationships to generate an estimate of the mass of product and subsurface placement required to affect remediation of the site.			

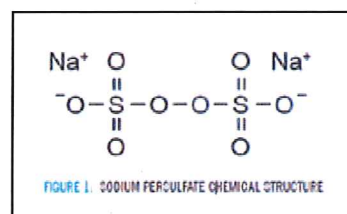
PersulfOx[®] Technical Description

PersulfOx is an *In Situ* Chemical Oxidation (ISCO) reagent that destroys organic contaminants found in groundwater and soil through powerful, yet controlled, chemical reactions. A sodium persulfate-based technology (figure 1), PersulfOx employs a patented catalyst to enhance the oxidative destruction of both hydrocarbons and chlorinated contaminants in the subsurface.

Typically, sodium persulfate is activated with the addition of heat, chelated metals, hydrogen peroxide, or base in order to generate sulfate radicals. These activation processes are inherently complex, costly and can pose additional health and safety risks. In comparison, PersulfOx is a relatively safe and easy-to-use ISCO agent with a built-in catalyst which activates the persulfate component, generating contaminant-destroying free radicals without the need for the addition of a separate activator. The equation below shows the net complete oxidation of toluene, a constituent of gasoline, by PersulfOx:



Example of PersulfOx



For a list of treatable contaminants with the use of PersulfOx, view the [Range of Treatable Contaminants Guide](#)

Chemical Composition

- Sodium Persulfate - CAS #7775-27-1
- Sodium Silicate - CAS #1344-09-8

Properties

- pH - 7 to 11.5 at 25°C
- Appearance - White, free-flowing powder, clear to cloudy when mixed with water
- Odor - Not detectable
- Vapor Pressure - None
- Chemical Hazard Classification - Class 5.1 Oxidizer

Storage and Handling Guidelines

Storage

Store locked up
Keep away from heat
Store in a cool, dry place out of direct sunlight

Handling

Minimize dust generation and accumulation
Routine housekeeping should be instituted to ensure that dust does not accumulate on surfaces

PersulfOx® Technical Description

Storage (continued)

Store in original tightly closed container

Store in a well-ventilated place

Do not store near combustible materials

Store away from incompatible materials

Recommended to store at less than 40°C

Provide appropriate exhaust ventilation in places where dust is formed

Handling (continued)

Avoid mixing with combustibles

Avoid contamination

Keep away from clothing and other combustible materials

Wear appropriate personal protective equipment

Avoid breathing dust

Avoid contact with eyes, skin, and clothing

Avoid prolonged exposure

Do not taste or swallow

When using, do not eat, drink or smoke

Wear appropriate personal protective equipment

Wash hands thoroughly after handling

Observe good industrial hygiene practices

Applications

- PersulfOx is mixed with water at a rate of 5% to 20% prior to application.
- For most applications, REGENESIS suggests a 10-15% solution. The resulting mixture has viscosity similar to water.
- Injects into formation through direct push injection points, injection wells or other injection delivery systems.

Application instructions for this product are contained here [PersulfOx Application Instructions](#).

Health and Safety

Material is relatively safe to handle; however, avoid contact with eyes, skin and clothing. OSHA Level D personal protection equipment including: vinyl or rubber gloves, eye protection, and dust mask are recommended when handling this product. Please review the Material Safety Data Sheet for additional storage, usage, and handling requirements here: [PersulfOx SDS](#).



Persulfate Soil Oxidant Demand (SOD) Testing

Soil Oxidant Demand testing, or SOD, can be used to estimate the amount of oxidant consumed during persulfate-based in-situ chemical oxidation (ISCO) applications. The test is a quantitative measurement of the amount of sodium persulfate consumed by reactions with the soil matrix over time. SOD testing results are reported in units of g/kg (g of persulfate consumed per kg of soil). The results of SOD tests can be used alone or in combination with site characterization data to estimate the quantity of sodium persulfate required to remediate a given contaminated aquifer.

Regenesis offers SOD testing services at our laboratory in southern California. The cost of each SOD analysis is \$400 for the first soil sample. Additional samples can be run at a price of \$150 per sample. The testing requires 1lb. of sample with a standard turnaround time of 3-4 weeks upon sample receipt.

The persulfate SOD for each sample soil will be determined by a batch test method containing a 10:1 ratio of site groundwater (or distilled water) to site soil. The water phase, dosed with sodium persulfate, will be sampled after 48 hours and analyzed for persulfate concentration. All samples will be kept in an incubator set to 15°C, which is representative of a typical groundwater temperature.

All samples for SOD analysis must be sent with a Regenesis COC form to the attention of the contact listed below.

Soil and Groundwater Requirements: 1 lb. of site soil

Cost of SOD Test: \$400 per soil sample, \$150 per additional sample

Shipping/Contact Information: Attn: Joy Gravitt
Regenesis
1011 Calle Sombra
San Clemente, CA 92673
949.366.8000 x 151
jgravitt@regenesisis.com

ATTACHMENT B

SCS Engineers Cost Estimate and DERF Budget Spreadsheet

DERF Remediation Change Order No. 2 Cost Estimate - SCS Engineers
 Platteville Cleaners Soil Chemical Injection and Groundwater Natural Attenuation Monitoring
 SCS Project No. 25211343.92

Task	Project Director \$185	Senior Project Manager \$145	Project Professional \$118	Field Professional \$98	Sr. Designer/ CAD Tech \$93	Project Administrator \$83	Admin Asst \$65	Total Hours	Subtotal	Exp	Subs.	Total	Option Total Rounded to \$10
Soil Chemical Oxidation & Natural Attenuation Groundwater Monitoring													
Preparation of Change Order No. 2	1	4					1	6	\$830			\$830	
Project Coordination (2 yrs)	2	24	12			24	12	74	\$8,038			\$8,038	
Waste Disposal Coordination		4	2					6	\$816			\$816	
Oversee Pilot Injection (Event No. 1), assumes up to 3 days per event*		8		32			2	42	\$4,426			\$4,426	
Oversee Second Injection (Event No. 2), assumes up to 3 days per event*		8		32			2	42	\$4,426			\$4,426	
Conduct Post-Injection Soil Confirmation Sampling		6		24				30	\$3,222			\$3,222	
Quarterly Groundwater Monitoring (8 rounds)	2	16	8	124			16	166	\$16,826			\$16,826	
Private Utility Locate								0	\$0		\$600	\$600	
Concrete Coring Contractor								0	\$0		\$1,000	\$1,000	
Injection Contractor (Events No. 1 and 2), assumes up to 3 days per event*								0	\$0		\$44,164	\$44,164	
Geoprobe Contractor (post-injection soil sampling)								0	\$0		\$3,500	\$3,500	
Laboratory Contractor (soil waste, pre/post injection soil, 8 rounds quarterly gw monitoring)								0	\$0		\$8,346	\$8,346	
City of Platteville Fire Hydrant Fee								0	\$0		\$120	\$120	
Purge Water Disposal (8 rounds)		2		10				12	\$1,270		\$200	\$1,470	
Waste Disposal (soil cuttings, hazardous)								0	\$0		\$500	\$500	
SCS Expenses								0	\$0	\$4,220		\$4,220	
Injection Report	1	8	20		4		6	39	\$4,467			\$4,467	
Semiannual Groundwater Reports (4)	4	24	64		16		20	128	\$14,560			\$14,560	
Subtotal	10	104	106	222	20	24	59	545	\$58,881	\$4,220	\$58,430	\$121,531	\$121,530
Total	10	104	106	222	20	24	59	545	\$58,881	\$4,220	\$58,430	\$121,531	\$121,530
* The February 17, 2016 Regensis Proposal assumes 2 days per injection event with a daily rate of \$4,700 per additional day. We assume the injection will take up to 3 days per event.												Estimated Non-Eligible Costs	\$4,200
												Estimated Eligible Costs	\$117,330

02/18/16

I:\3439A\Budgets\CO_2_Remediation_Injection_RNA\Remedial Action Options Cost Estimate_160215.xlsx\labor

**Dry Cleaner Environmental
Response Program**

Site Name: *Platteville Cleaners*
 BRRTS #: *02-22-550753*
 Type of Action: *Remedial Action*

TASKS		BUDGET					Total Invoiced Costs	Budget Remaining Use (-) to indicate cost over-run	% Task Complete, Remarks
Bid / Budgeted Description	Bid / Budgeted Amount	CO #1 02/09/15	CO #2 02/18/16	Total Approved Budget	Total Invoiced Costs				
Consultant Costs									
Workplan Development	\$ 4,500.00		\$ 830.00	\$ 5,330.00	\$ 4,594.00	\$ 736.00	100		
Well Repair		\$ 800.00		\$ 800.00	\$ 671.00	\$ 129.00	100		
Soil Treatment and Groundwater Monitoring			\$ 58,070.00	\$ 58,070.00	\$ -	\$ 58,070.00	0		
<i>Consultant Cost Total</i>	\$ 4,500.00	\$ 800.00	\$ 58,900.00	\$ 64,200.00	\$ 5,265.00	\$ 58,935.00	--		
Sub-Contractor Costs									
Private Locator			\$ 600.00	\$ 600.00	\$ -	\$ 600.00	0		
Concrete Core and Geoprobe			\$ 4,500.00	\$ 4,500.00	\$ -	\$ 4,500.00	0		
Injection/Soil Treatment			\$ 44,164.00	\$ 44,164.00	\$ -	\$ 44,164.00	0		
Laboratory			\$ 8,346.00	\$ 8,346.00	\$ -	\$ 8,346.00	0		
Platteville Fire Hydrant Fees			\$ 120.00	\$ 120.00	\$ -	\$ 120.00	0		
Platteville WWTP			\$ 200.00	\$ 200.00	\$ -	\$ 200.00	0		
Soil Disposal			\$ 500.00	\$ 500.00	\$ -	\$ 500.00	0		
<i>Sub-Contractor Cost Total</i>	\$ -	\$ -	\$ 58,430.00	\$ 58,430.00	\$ -	\$ 58,430.00	--		
DERF ELIGIBLE SUB-TOTALS	\$ 4,500.00	\$ 800.00	\$ 117,330.00	\$ 122,630.00	\$ 5,265.00	\$ 117,365.00			

ATTACHMENT C

SCS 2016 Fee Schedule

SCS ENGINEERS

FEE SCHEDULE

PERSONNEL

<u>Category</u>	<u>Rate/Hour</u>
Project Director/Senior Project Advisor	\$ 185
Senior Project Manager.....	\$ 145 – \$ 170
Project Manager/Senior Project Professional.....	\$ 118 – \$ 140
Project Professional	\$ 108
Staff Professional	\$ 103
Associate Professional	\$ 98
Field Professional.....	\$ 98
Senior Designer/CAD Technician	\$ 93
Senior Technician	\$ 85
Project Administrator.....	\$ 83
Designer/CAD Technician.....	\$ 77
Technician.....	\$ 65
Administrative Assistant.....	\$ 65

EQUIPMENT AND EXPENSES

Groundwater Monitoring			
Ice.....	\$ 7/bag		
Chipped Bentonite	\$ 12/bag		
pH, Conductivity, Temp, TDS Meter.....	\$ 20/day		
Dedicated Bailers	\$ 35/each		
Disposable Bailers	\$ 15/each		
Dissolved Oxygen Tubes	\$ 5/each		
Dissolved Oxygen Meter	\$ 40/day		
Dissolved Oxygen Test Kit	\$ 25/day		
Field Filters.....	\$ 16/each		
Field Filtering Apparatus	\$ 22/day		
Well Caps	\$ 18.25/each		
Petroleum Product Interface Probe.....	\$ 70/day		
pH Meter.....	\$ 20/day		
Pressure Trans. / Data Logger	\$ 125/day		
Water Level Indicator	\$ 20/day		
Brass Well Locks.....	\$ 10/each		
Pumps			
Well Development Pump	\$ 30/day		
Peristaltic Pump	\$ 30/day		
Submersible Pump	\$ 100/day		
2" Gas Engine Pump.....	\$ 40/day		
Sump Pump	\$ 10/day		
Explosion Proof Pump	\$ 100/day		
PPE and Air and Gas Monitoring			
Air Monitoring Detector Tubes.....	\$ 15/each		
Four Gas Meter.....	\$ 65/day		
Landfill Gas Meter.....	\$ 100/day		
Personal Air Sampling Pump	\$ 30/day		
Respirator Cartridges	\$ 35/pair		
Tyvek Suit	\$ 20/each		
Level D PPE	\$ 5/day		
Modified Level D PPE.....	\$ 15/day		
Soil Sampling and Testing			
FID/PID Rental.....	\$ 75/day		
Hand Auger Kit	\$ 30/day		
Nuclear Density Gauge	\$ 125/day		
Soil Scale	\$ 25/day		
Vapor Sampling Kit.....	\$ 25/day		
Concrete Core Drill.....	\$ 120/day		
Concrete Air/Slump	\$ 30/each		
Concrete Cylinder Mold.....	\$ 3/each		
Surveying			
Level/Laser Level	\$ 5/hour		
GPS Unit/Total Station	\$ 20/hour		
Survey Lath	\$ 0.60/each		
Survey Hubs	\$ 0.60/each		
Survey Chasers	\$ 0.30/each		
Marking Paint	\$ 5/each		
¾-inch Irons.....	\$ 4/each		
Miscellaneous			
55-Gallon Drums	\$ 55/each		
Water Storage Tank	\$ 75/day		
Air Compressor.....	\$ 40/day		
Curlex Blanket.....	\$ 65/each		
Curlex Staples.....	\$ 10/box		
Digital Camera.....	\$ 10/day		
Portable Generator	\$ 40/day		
Metal Detector	\$ 35/day		
Oil Dry Absorbent	\$ 8/bag		
Oil Absorbent Boom (5" x 10').....	\$ 70/each		
Oil Absorbent Boom (8" x 10').....	\$ 90/each		
Hard Boom (10").....	\$ 1.80/foot		
Oil Absorbent Pad.....	\$ 1.00/each		
Plastic Sheeting.....	\$ 80/roll		
Spill Response Trailer.....	\$ 150/day		
Utility Trailer.....	\$ 25/day		
Flatbed Trailer	\$ 65/day		
Copies.....	\$ 0.07/each		
Vehicle	\$ 0.56/mile		
Orange Safety Fence	\$ 40/roll		

Equipment and expense rates may be modified by SCS Engineers from time to time as new equipment is added or costs change. Client will be notified prior to any change in the personnel rates that will affect the project billings.

Outside services contracted through SCS Engineers will be billed at cost plus 10 percent. Outside services may include, but are not limited to, laboratory testing, drilling, or other subcontracted services.



