



EDMUND G. BROWN JR.
GOVERNOR

MATTHEW RODRIGUEZ
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Los Angeles Regional Water Quality Control Board

January 20, 2017

Mr. Marco Barrantes
VP Administration and Finance
Lisi Aerospace
2600 Skypark Drive
Torrance, CA 90509

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
CLAIM NO. 7014 2120 0004 7561 7436

REVISED MONITORING AND REPORTING PROGRAM NO. 9935 - THE HI-SHEAR PROPERTY, 2600 SKYPARK DRIVE, TORRANCE, CALIFORNIA 90509 (SITE ID NO. 2042300, FILE NO. 13-006, CI-9935, ORDER NO. R4-2014-0187, SERIES NO. 044, GLOBAL ID WDR100009872)

Dear Mr. Barrantes:

The Regional Water Quality Control Board, Los Angeles Region (Regional Board), is the public agency with primary responsibility for the protection of ground and surface water quality for all beneficial uses within major portions of Los Angeles and Ventura Counties, including the facility mentioned above.

On May 13, 2013, Hi-Shear Corporation (hereinafter Discharger), was enrolled under Regional Board Order No. R4-2007-0019 which authorized the injection of 3-D Microemulsion (3DMe™) and HRC Primer™ for implementation of the May 31, 2012, "*Enhanced In-Situ Bioremediation Pilot Test Work Plan*," as approved by the Regional Board Site Cleanup Unit.

On June 1, 2015, Regional Board Site Cleanup Unit staff approved the injection of *Dehalococcoides* species (DHC), as proposed in the "*Work Plan to Continue Enhanced In-Situ Bioremediation Pilot Test (With Injection of LARWQCB-Approved DHC)*."

On October 5, 2015, it was determined that General Waste Discharge Requirements, Order No. R4-2014-0187, "*General Waste Discharge Requirements for In-Situ Groundwater Remediation and Groundwater Re-Injection*," applied to the proposed injection, and the Discharger was enrolled under Order No. R4-2014-0187. Prior enrollment under Order No. R4-2007-0019 did not cover the injection of DHC.

In 2015, a pilot test was conducted in the vicinity of monitoring well MW-15 using six existing remedial injection wells (IW-1 through IW-6) under Order No. R4-2014-0187. Injection for the pilot test concluded in October 2015.

Based on the results of the pilot test, remedial injection is now planned for a larger portion of the elevated volatile organic compound (VOC) groundwater plume. Planned injection will implement Phase I of the remedial activities proposed in the May 10, 2016, "*Groundwater Remedial Action Plan*" (GWRAP), which was approved in an October 6, 2016, letter.

The planned remedial injection targets a portion of the western part of the trichloroethene (TCE) plume within and adjacent to the 10,000 micrograms per liter ($\mu\text{g/L}$) concentration TCE contour. One hundred and fifty two wells, consisting of 75 pairs of new, dual completion injection wells (IW-7S through IW-81D) and two existing, single completion injection wells (IW-3 and IW-5) will be used. The shallower ('S' wells) of the paired wells will be screened from 88 feet to 98 feet below ground surface (bgs) and the deeper ('D' wells) of the paired wells will be screened from 103 to 113 feet bgs. The two existing single screen wells are screened from 87 to 112 feet bgs.

For wells within the 10,000 $\mu\text{g/L}$ TCE contour an estimated 214,000 pounds of 3DMe™ (25,644 gallons) will be mixed with 487,238 gallons of water for a total 3DMe™ mix volume of 512,882 gallons, and a 3DMe™ concentration of 5% by weight. A total of 85,600 pounds of CRS™ (9,772 gallons) will be mixed with the 3DMe™ solution and injected at the same time. In addition, a total of 396 gallons of Bio-Dechlor INOCULUM+™ (BDI+™) will be applied to produce a total 3DMe™/CRS™/BDI+™ application volume of 523,050 gallons. Within the 10,000 $\mu\text{g/L}$ TCE contour each of the 55 dual-nested injection wells (for both shallow and deep casings) plus existing Wells IW3 and IW5 will receive an approximate mix volume of 9,176 gallons of 3DMe™/CRS™/BDI+™.

For wells outside the 10,000 $\mu\text{g/L}$ TCE contour an estimated 74,000 pounds of 3DMe™ (8,868 gallons) will be mixed at a 5% concentrate with 168,484 gallons of water for a total 3DMe™ mix volume of 177,352 gallons. A total of 29,600 pounds of CRS™ (3,379 gallons) will be mixed with the 3DMe™ solution and injected at the same time. In addition, a total of 135 gallons of BDI+™ will be applied to the 20 dual-nested wells to produce a total 3DMe™/CRS™/BDI+™ application volume of 180,866 gallons. Each of the 20 dual-nested injection wells (for both shallow and deep casings) will receive an approximate mix volume of 9,043 gallons of 3DMe™/CRS™/BDI+™ per well. The injection rate of the mixture is expected to range up to 50 gallons per minute.

The Request indicates that, during the first week of injections, injections will be limited to dual-nested wells IW-52S&D, IW-58S&D, IW-59S&D, IW-60S&D, IW-66S&D, and IW-67S&D, to optimize injection parameters rates and pressures. Approximately 4 weeks after the initial injection, injection will proceed at the remaining 69 new dual-nested wells (plus existing Wells IW3 and IW5). The duration of the injection at the remaining 69 wells will be approximately 6 weeks (5 days per week and 10 hours per day).

Under the revised Monitoring and Reporting Program (MRP) the monitoring network will include one upgradient well (MW-7R), three treatment zone wells (MW-6, MW-15, and MW-18), and two downgradient wells (MW-8 and MW-12). The constituents and frequencies of sampling are provided in the revised Monitoring and Reporting Program (MRP) No. CI-9935 dated January 20, 2017.

The revised MRP is enclosed. The proposed discharge shall not cause the mineral constituents of the receiving groundwater at the compliance point, downgradient outside the application area, to exceed applicable limits (West Coast Basin of the Los Angeles Coastal Plain Groundwater Basin of the Los Angeles Coastal Plain Groundwater Basin) given in Attachment B (Table 3-13 from the updated 2013 Basin Plan) of Order No. R4-2014-0187.

The revised MRP No. CI-9935 requires you to implement the monitoring program on the effective date of this enrollment under Regional Board Order No. R4-2014-0187. When submitting monitoring or technical reports to the Regional Board per these requirements, please do not combine other reports with your monitoring reports. Submit each type of report as a separate document. Quarterly and Annual reports must be submitted as individual documents, or, if combined, the title shall so state.


The Discharger shall comply with the Electronic Submittal of Information (ESI) requirements by submitting all reports required under the revised MRP, including groundwater monitoring data, discharge location data, and pdf monitoring reports to the State Water Resources Control Board GeoTracker database under Global ID WDR100009872.

Please see Electronic Submittal for GeoTracker Users, dated December 12, 2011 at:
<http://www.waterboards.ca.gov/losangeles/resources/Paperless/Paperless%20Office%20for%20GT%20Users.pdf>.

To avoid paying future annual fees, please submit a written request for termination of your enrollment under the general permit in a separate letter, when your project has been completed and the permit is no longer needed. Be aware that the annual fee covers the fiscal year billing period beginning July 1 and ending June 30, the following year. You will pay the full annual fee if your request for termination is made after the beginning of the new fiscal year beginning July 1.

If you have any additional questions, please contact the Project Manager, Mr. Peter Raftery at (213) 620-6156 (peter.raftery@waterboards.ca.gov) or the Groundwater Permitting Unit Chief, Dr. Eric Wu at (213) 576-6683 (eric.wu@waterboards.ca.gov).

Sincerely,


Samuel Unger, P.E.
Executive Officer

Enclosure:

- 1) Revised Monitoring and Reporting Program No. CI-9935

cc: Mr. Mike Cassidy, Alta Environmental
Mr. Steven Ridenour, Alta Environmental

STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

REVISED MONITORING AND REPORTING PROGRAM NO. CI-9935
FOR
HI-SHEAR FACILITY
2600 SKYPARK DRIVE, TORRANCE, CA

ENROLLMENT UNDER REGIONAL BOARD
ORDER NO. R4-2014-0187 (SERIES NO. 044)
FILE NO. 13-006

I. MONITORING AND REPORTING REQUIREMENTS

- A. HI-Shear Corporation. (Hi-Shear), hereinafter Discharger, shall implement this revised Monitoring and Reporting Program at the Hi-Shear Facility located at 2600 Skypark Drive, Torrance, California which is shown on the accompanying figure, on the effective date of this enrollment (January 20, 2017) under Regional Board Order No. R4-2014-0187. The first monitoring report under this monitoring program is due **April 30, 2017**.

Subsequent monitoring reports shall be received by the dates in the following schedule:

<u>Reporting Period</u>	<u>Report Due</u>
January – March	April 30
April – June	July 30
July – September	October 30
October – December	January 30

- B. If there is no discharge or injection of 3D Microemulsion (3DMe), Bio-Dechlor INOCULUM[®] Plus (BDI Plus), or Chemical Reducing Solution (CRS) during any reporting period, the report must be submitted to the Regional Board and shall so state. By March 1st of each year, beginning March 1, 2018, the Discharger shall submit an annual summary report to the Regional Board. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous calendar year. In addition, the Discharger shall discuss the compliance record and the corrective actions taken, or planned, which may be needed to bring the discharge into full compliance with the waste discharge requirements.
- C. The Discharger shall comply with requirements contained in Section G of Order No. R4-2014-0187 "*Monitoring and Reporting Requirements*."

II. IN SITU GROUNDWATER REMEDIATION

A. DISCHARGE MONITORING PROGRAM

The monitoring reports shall contain the following information regarding the injection activities:

1. Location map showing injection points used for chemical injection.

2. Written and Tabular summary defining depth of injection points, screened interval, quantity and concentration of chemicals injected at each injection point, and total amount of each chemical injected at the site.
3. Documentation of visual inspection of each injection point during injection at the point, with written descriptions and photographs recorded during injection.

B. GROUNDWATER MONITORING PROGRAM

A groundwater monitoring program shall be implemented to evaluate impacts associated with injection activity. Baseline sampling shall be conducted prior to injection (not more than 1 month prior to the start of injection), and quarterly thereafter. Water temperature, volatile organic compounds (VOCs), pH, dissolved oxygen, turbidity, oxidation-reduction potential, specific conductance, alkalinity, total organic carbon, nitrate, sulfate, boron, chloride, dissolved gasses (methane, carbon dioxide, ethane, and ethene), *Dehalococcoides* species, and total dissolved solids, shall be monitored during baseline and post-treatment sampling.

The quarterly reports shall contain the following information regarding the injection activities and per monitoring requirements in Table 1.

1. Location map showing injection points.
2. Written summary defining:
 - Depth and interval of injection;
 - Estimated volume and concentration of the chemical at the injection point; and
 - Estimated total mass of chemical injected at Site.
3. During injection, daily visual inspections at each active injection point shall be conducted. The quarterly report shall include written and photographic summary of the visual inspections when applicable.

III. GROUNDWATER MONITORING PROGRAM FOR PHASE I INTERIM REMEDIAL ACTION

A groundwater monitoring program shall be implemented to detect and evaluate impacts associated with the injection activities. For the 3DMe, BDI Plus, and CRS injection Groundwater samples shall be collected from monitoring wells MW-6, MW-7R (upgradient well, near west corner of Lowe's Home Improvement Center building), MW-8, MW-12, MW-15, and MW-18 (see attached figure for well locations). The Discharger shall conduct baseline sampling not more than 1 month before the start of injection. The table below identifies the constituents that will be analyzed for during a baseline sampling event, and quarterly thereafter for the purpose of evaluating impacts from injection. The objectives of this Monitoring and Reporting Program are to detect and evaluate impacts associated with the injection activities.

The objectives of this Monitoring and Reporting Program are to detect and evaluate impacts associated with the injection activities. For the 3DMe, BDI Plus, and CRS injection, groundwater monitoring wells, MW-6, MW-7R (upgradient well, near west corner

of Lowe's Home Improvement Center building), MW-8, MW-12, MW-15, and MW-18 shall constitute the Monitoring and Reporting Program. The locations of the monitoring wells are shown on the attached figure. The sampling stations shall not be changed and any proposed changes of monitoring locations shall be identified and approved by the Regional Board Executive Officer (Executive Officer) prior to their use.

TABLE 1 – GROUNDWATER MONITORING CONSTITUENTS

<u>CONSTITUENT</u>	<u>UNITS</u>	<u>TYPE OF SAMPLE</u>	<u>MINIMUM FREQUENCY OF ANALYSIS</u>
Water Temperature	°C	Grab	Baseline and quarterly thereafter
Specific Conductance	µS/cm	Grab	Baseline and quarterly thereafter
Dissolved Oxygen	mg/L	Grab	Baseline and quarterly thereafter
Turbidity	NTU	Grab	Baseline and quarterly thereafter
pH	pH units	Grab	Baseline and quarterly thereafter
Oxidation-Reduction Potential	mV	Grab	Baseline and quarterly thereafter
Volatile Organic Compounds (VOCs) – complete suite (EPA Method 8260B)	µg/L	Grab	Baseline and quarterly thereafter
Dissolved Gases (ethene, ethane, methane) (Method RSK-175)	µg/L	Grab	Baseline and quarterly thereafter
Sulfate (EPA Method 300)	µg/L	Grab	Baseline and quarterly thereafter
Chloride (EPA Method 300)	mg/L	Grab	Baseline and quarterly thereafter
Total Dissolved Solids (Standard Method 2540C)	mg/L	Grab	Baseline and quarterly thereafter
Boron (EPA Method 200.7)	mg/L	Grab	Baseline and quarterly thereafter
Nitrate and Nitrite (EPA Method 300)	mg/L	Grab	Baseline and quarterly thereafter
Alkalinity (SM2320B)	mg/L	Grab	Baseline and quarterly thereafter
Total Organic Carbon (Method 5310D)	mg/L	Grab	Baseline and quarterly thereafter
<i>Dehalococcoides</i> species	cells/mL	Grab	Baseline and quarterly thereafter

All groundwater monitoring reports must include, at minimum, the following:

- a. Well identification, date and time of sampling;
- b. Sampler identification, and laboratory identification;
- c. Observation of groundwater levels, recorded to 0.01 feet mean sea level and groundwater flow direction.

IV. MONITORING FREQUENCIES

Specifications in this monitoring program are subject to periodic revisions. Monitoring requirements may be modified or revised by the Executive Officer based on review of monitoring data submitted pursuant to this Order. Monitoring frequencies may be adjusted to a less frequent basis or parameters and locations dropped by the Executive Officer if the Discharger makes a request and the request is backed by statistical trends of monitoring data submitted.

V. CERTIFICATION STATEMENT

Each report shall contain the following completed declaration:

"I certify under penalty of law that this document, including all attachments and supplemental information, was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment.

Executed on the ____ day of _____ at _____.

(Signature)

(Title)"

VI. ELECTRONIC SUBMITTAL OF INFORMATION (ESI) TO GEOTRACKER

The Discharger shall comply with the Electronic Submittal of Information (ESI) requirements by submitting all reports required under the MRP, including groundwater monitoring data, discharge location data, and pdf monitoring reports to the State Water Resources Control Board GeoTracker database under Global ID 100009872.

All records and reports submitted in compliance with this Order are public documents and will be made available for inspection during business hours at the office of the California Regional Water Quality Control Board, Los Angeles Region, upon request by interested parties. Only proprietary information, and only at the request of the Discharger, will be treated as confidential.

Ordered by: Samuel Unger
Samuel Unger, P.E.
Executive Officer

Date: January 20, 2017

