

**STATE OF CALIFORNIA**

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SANTA ANA REGION**

**MONITORING AND REPORTING PROGRAM (M&RP) NO.R8-2016-0049**  
(As authorized under ORDER NO. R8-2016-0049)

for

**IN-SITU REMEDIATION OF GROUNDWATER  
AT THE TRIUMPH PROCESSING– EMBEE DEVISION, INC.  
2136 South Hathaway Street, Santa Ana**  
(Discharge Authorized on September 16, 2016)

**A. Monitoring Requirements**

1. All sampling, sample preservation, transport and analyses must be conducted in accordance with the current edition of "Standard Methods for the Examination of Water and Wastewater" (American Public Health Association) and/or with U.S. Environmental Protection Agency's guidelines for sampling, collection and preservation, unless other test procedures have been specified in this Order or by the Executive Officer.
2. Unless otherwise permitted by the Executive Officer, all analyses shall be conducted at a laboratory certified for such analyses by the State Water Resources Control Board, Division of Drinking Water. The Executive Officer may allow use of an uncertified laboratory under exceptional circumstances, such as when the closest laboratory to the monitoring location is outside the State boundaries and, therefore, not subject to certification. All analyses shall be required to be conducted in accordance with the latest edition of "Standard Methods for the Examination of Water and Wastewater" (American Public Health Association) and/or with U.S. Environmental Protection Agency's guidelines for sampling, collection and preservation.
3. All chemical, bacteriological, and bioassay analyses shall be conducted at a laboratory certified for such analyses by the State Water Resources Control Board, Division of Drinking Water - Environmental Laboratory Accreditation Program (ELAP) or other State agency authorized to undertake such certification, or as approved by the Executive Officer.
4. For every item where the requirements are not met, the Discharger shall submit a statement of the actions undertaken or proposed that will bring the discharge into full compliance with requirements at the earliest time and submit a timetable for correction.
5. The Discharger shall report all instances of noncompliance, submit a statement of actions undertaken or proposed that will bring the discharge into full compliance with requirements, and submit a timetable for corrective action.
6. The Discharger shall notify the Executive Officer within 24 hours by telephone of any adverse condition resulting from the discharge; such notification shall be affirmed in writing within five working days.

7. If the Discharger monitors any contaminants more frequently than required by this order, using applicable test procedures, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Discharger's monitoring report. The increased frequency of monitoring shall also be reported.
8. All monitoring instruments and devices which are used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy.
9. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.
10. Daily samples shall be collected on each day of the week.
11. Monthly samples shall be collected on any representative day of each month.
12. The discharger shall assure that records of all monitoring information are maintained and accessible for a period of at least five years from the date of the sample, report, or application. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or by the request of the Board at any time. Records of monitoring information shall include:
  - (a) The date, exact place, and time of sampling or measurements;
  - (b) The individual(s) who performed the sampling, and/or measurements;
  - (c) The methods used for groundwater purging/sampling;
  - (d) The date(s) analyses were performed;
  - (e) The individual(s) who performed the analyses;
  - (f) The analytical techniques or method used; and
  - (g) All sampling and analytical results, including -
    - i. units of measurement used;
    - ii. minimum reporting limit for the analysis (minimum level);
    - iii. results less than the reporting limit but above the method detection limit (MDL);
    - iv. data qualifiers and a description of the qualifiers;
    - v. quality control test results (and a written copy of the laboratory quality assurance plan);
    - vi. dilution factors, if used; and
    - vii. sample matrix type.
13. The Discharger shall maintain all sampling, measurement and analytical results, including the date, exact place, and time of sampling or measurement; individual(s) who did the sampling or measurement; the method used for sampling or measurement; the date(s) and location(s) where analyses were conducted; analysts' name(s); and analytical techniques or methods used.

15. All reports and/or information submitted to the Executive Officer shall be signed by a responsible officer or duly authorized representative of the discharger and shall be submitted under penalty of perjury.
16. The Discharger shall file a report of any material change or proposed change in the character, location or volume of the discharge that is not mentioned in the RAP.

## B. Monitoring Plan

A sampling station shall be established for each point of discharge and shall be located where representative samples of the discharge can be obtained. The following shall constitute the monitoring program:

**Table 1a. Well Information for the Existing Interim Measure Area**

<i>Well ID</i>	<i>Latitude</i>	<i>Longitude</i>	<i>TOC Elevation (amsl)<sup>1,2</sup></i>
<b><i>Upgradient Monitoring Wells</i></b>			
EP-5A	33.7186	-117.8528	68.21
EP-20A	33.7184	-117.8525	68.40
EP-5C	33.7186	-117.8528	68.25
<b><i>Existing Interim Measures Area</i></b>			
<b><i>Shallow Zone Monitoring Wells</i></b>			
EP-1	33.71788	-117.8528	65.90
EP-2	33.71739	-117.8528	65.54
EP-6A	33.71827	-117.8527	67.25
EP-8A	33.71692	-117.8530	63.37
EP-12A	33.71782	-117.8526	65.83
MW-8 <sup>3</sup>	33.71691	-117.8530	63.37
MW-9	33.71732	-117.8526	64.88
EP-14A	33.71797	-117.8525	67.35
EP-15A	33.71818	-117.8526	67.81
EP-28A (Primary) <sup>4</sup>	33.71624	-117.8537	63.10 <sup>5</sup>
EP-28A (Alternate) <sup>4</sup>	33.71636	-117.8535	63.10 <sup>5</sup>
MW-27 <sup>3</sup>	33.71719	-117.8528	64.20

**Table 1a-Continued. Well Information for the Existing Interim Measure Area**

<i>Well ID</i>	<i>Latitude</i>	<i>Longitude</i>	<i>TOC Elevation (amsl)<sup>1,2</sup></i>
<b><i>Shallow Zone Injection Wells</i></b>			
IW-3A	33.7183	-117.8527	67.46
IW-4A	33.7183	-117.8526	67.38
IW-5A	33.7183	-117.8527	67.05
IW-6A	33.7182	-117.8526	67.15
IW-7A	33.7182	-117.8527	66.92
IW-8A	33.7182	-117.8526	67.00
IW-9A	33.7182	-117.8527	66.69
IW-10A	33.7181	-117.8526	66.88
IW-11A	33.7181	-117.8527	66.55
IW-12A	33.7181	-117.8526	66.70
IW-13A	33.7180	-117.8526	67.12
IW-14A	33.7180	-117.8526	67.35
IW-15A	33.7180	-117.8526	66.83
IW-16A	33.7180	-117.8526	66.58
IW-17A	33.7179	-117.8526	66.07
IW-18A	33.7179	-117.8527	65.82
IW-19A	33.7179	-117.8527	65.71
IW-20A	33.7179	-117.8527	65.67
IW-21A	33.7179	-117.8528	65.75
IW-22A	33.7179	-117.8528	65.64
IW-23A	33.7179	-117.8528	65.78
IW-24A	33.7179	-117.8529	65.62
IW-25A	33.7179	-117.8529	65.52
IW-26A	33.7179	-117.8529	65.59
IW-27A	33.7179	-117.8530	65.40
IW-28A	33.7179	-117.8530	65.21
IW-29A	33.7179	-117.8530	65.27
IW-30A	33.7179	-117.8531	65.12
IW-31A	33.7175	-117.8530	65.21
IW-32A	33.7174	-117.8529	65.30
IW-33A	33.7175	-117.8529	65.47
IW-34A	33.7174	-117.8529	65.52
IW-35A	33.7175	-117.8528	65.48
IW-36A	33.7173	-117.8528	64.56
IW-37A	33.7174	-117.8528	65.02
IW-38A	33.7174	-117.8528	64.65
IW-39A	33.7174	-117.8527	65.02
IW-40A	33.7174	-117.8527	64.67
IW-41A	33.7174	-117.8527	65.13

**Table 1a-Continued. Well Information for the Existing Interim Measure Area**

<i>Well ID</i>	<i>Latitude</i>	<i>Longitude</i>	<i>TOC Elevation (amsl)<sup>1,2</sup></i>
IW-42A	33.7173	-117.8526	64.57
IW-43A	33.7174	-117.8526	64.98
<b><i>Deep Zone Monitoring Wells</i></b>			
EP-6C	33.7182	-117.8527	67.32
EP-8C	33.7173	-117.8528	64.63
EP-12C	33.7178	-117.8526	65.89
EP-21C	33.7170	-117.8530	63.94
EP-28C (Primary) <sup>4</sup>	33.7162	-117.8537	63.10 <sup>5</sup>
EP-28C (Alternate) <sup>4</sup>	33.7164	-117.8535	63.10 <sup>5</sup>
MW-11 <sup>3</sup>	33.7172	-117.8526	64.20
MW-12 <sup>3</sup>	33.7170	-117.8529	63.96
MW-13 <sup>3</sup>	33.7169	-117.8527	63.54
MW-22 <sup>3</sup>	33.7166	-117.8531	63.13
MW-23 <sup>3</sup>	33.7166	-117.8528	63.10
D2-B1 <sup>3</sup>	33.7159	-117.8538	62.36
IW-19C	33.7179	-117.8527	65.62
<b><i>Deep Zone Injection Wells</i></b>			
IW-21C	33.7179	-117.8528	65.63
IW-23C	33.7179	-117.8528	65.60
IW-25C	33.7179	-117.8529	65.47
IW-27C	33.7179	-117.8530	65.36
IW-31C	33.7175	-117.8530	65.24
IW-33C	33.7175	-117.8529	65.70
IW-35C	33.7175	-117.8528	65.56
IW-37C	33.7174	-117.8528	65.19
IW-39C	33.7174	-117.8527	65.08
IW-41C	33.7174	-117.8527	65.01
IW-43C	33.7174	-117.8526	64.85
IW-61C	33.7179	-117.8526	65.80 <sup>5</sup>
IW-62C	33.7175	-117.8531	64.80 <sup>5</sup>
IW-63C	33.7175	-117.8530	64.80 <sup>5</sup>

1. Elevation is measured from the top of the well casing (TOC).
2. amsl: above mean sea level
3. Wells belong to Soco West property located at 1341 East Maywood Street, Santa Ana
4. Two approximate well locations are proposed. The exact locations will be determined based on the access agreement.
5. Well coordinates and TOC data are approximate.

**Table 2a. Well Information for the Expansion of Interim Measure Area**

<i>Well ID</i>	<i>Latitude</i>	<i>Longitude</i>	<i>TOC Elevation (amsl)<sup>1,2</sup></i>
<b>Expansion of Interim Measures Area</b>			
<b><i>Shallow Zone Monitoring Wells</i></b>			
EP-4A	33.7177	-117.8532	64.33
EP-7A	33.7175	-117.8531	64.79
EP-16A	33.7177	-117.8536	64.38
EP-17A	33.7175	-117.8534	63.39
EP-18A	33.7174	-117.8539	63.76
EP-19A	33.7172	-117.8544	64.53
EP-22A	33.7169	-117.8544	66.11
EP-23A	33.7176	-117.8544	65.16
EP-24A	33.7179	-117.8541	65.55
EP-25A	33.7172	-117.8537	63.80
EP-26A	33.7165	-117.8544	66.00 <sup>3</sup>
EP-27A	33.7161	-117.8544	65.90 <sup>3</sup>
<b><i>Shallow Zone Injection Wells</i></b>			
IW-44A	33.7177	-117.8532	64.57
IW-45A	33.7177	-117.8533	64.16
IW-46A	33.7177	-117.8533	64.07
IW-47A	33.7177	-117.8534	63.86
IW-48A	33.7176	-117.8534	63.82
IW-49A	33.7177	-117.8535	63.83
IW-50A	33.7177	-117.8535	64.20
IW-51A	33.7177	-117.8536	64.17
IW-52A	33.7177	-117.8537	64.48
IW-53A	33.7177	-117.8537	64.61
IW-54A	33.7177	-117.8538	64.64
IW-55A	33.7177	-117.8538	64.64
IW-56A	33.7177	-117.8539	64.84
IW-57A	33.7177	-117.8539	65.04
IW-58A	33.7173	-117.8543	64.08
IW-59A	33.7173	-117.8543	64.02
IW-60A	33.7173	-117.8544	64.33

**Table 2a-Continued. Well Information for the Expansion of Interim Measure Area**

<i>Well ID</i>	<i>Latitude</i>	<i>Longitude</i>	<i>TOC Elevation (amsl)<sup>1,2</sup></i>
<b><i>Deep Zone Monitoring Wells</i></b>			
EP-4C	33.7177	-117.8532	64.12
EP-7C	33.7175	-117.8531	64.86
EP-16C	33.7177	-117.8537	64.2
EP-17C	33.7175	-117.8534	63.66
EP-18C	33.7174	-117.8539	63.66
EP-19C	33.7172	-117.8544	64.35
EP-22C	33.7169	-117.8544	66.18
EP-23C	33.7176	-117.8544	64.96 <sup>3</sup>
EP-24C	33.7179	-117.8541	65.50 <sup>3</sup>
EP-25C	33.7172	-117.8537	63.84 <sup>3</sup>
EP-26C	33.7165	-117.8544	66.00 <sup>3</sup>
EP-27C	33.7161	-117.8544	65.90 <sup>3</sup>
EP-18D	33.7173	-117.8539	63.98
<b><i>Deep Zone Injection Wells</i></b>			
IW-44C	33.7177	-117.8532	64.46
IW-46C	33.7177	-117.8533	64.05
IW-47C	33.7177	-117.8534	63.71
IW-48C	33.7176	-117.8534	63.73
IW-49C	33.7177	-117.8535	63.76
IW-50C	33.7177	-117.8535	64.37
IW-51C	33.7177	-117.8536	64.09
IW-52C	33.7177	-117.8536	64.42
IW-53C	33.7177	-117.8537	64.54
IW-54C	33.7177	-117.8538	64.37
IW-56C	33.7177	-117.8538	64.82
IW-57C	33.7177	-117.8539	64.92
IW-58C	33.7173	-117.8543	64.22
IW-59C	33.7173	-117.8543	64.11
IW-60C	33.7173	-117.8544	63.98

1. Elevation is measured from the top of the well casing (TOC).
2. amsl: above mean sea level
3. Well coordinates and TOC data are approximate.

**Table 3a. Well Information for the Pilot Study Area**

<i>Well ID</i>	<i>Latitude</i>	<i>Longitude</i>	<i>TOC Elevation (amsl)<sup>1,2</sup></i>
<b><i>Pilot Study Area</i></b>			
<b><i>Deep Zone Monitoring Wells</i></b>			
TW-1	33.7172	-117.8531	64.2 <sup>3</sup>
TW-2	33.7168	-117.8534	62.7 <sup>3</sup>
TW-3	33.7168	-117.8531	63.6 <sup>3</sup>
<b><i>Deep Zone Injection Locations</i></b>			
a	33.7172	-117.8530	64.5 <sup>3</sup>
b	33.7172	-117.8531	64.5 <sup>3</sup>
c	33.7172	-117.8532	64.5 <sup>3</sup>
d	33.7168	-117.8530	63.9 <sup>3</sup>
e	33.7168	-117.8531	63.9 <sup>3</sup>
f	33.7168	-117.8532	63.9 <sup>3</sup>

1. Elevation is measured from the top of the well casing (TOC).
2. amsl: above mean sea level
3. Well /injection point coordinates and TOC data are approximate.

**Table 2a. Monitoring Parameters and Frequency for the Existing Interim Measure Area**

Sample Parameter	Parameter Type	Unit	Method of Analysis	Sample Location	Baseline	Quarterly Events <sup>3</sup>
Field Parameters <sup>1</sup>	General Groundwater Parameters	<sup>2</sup>	Field Measurement		X	<u>X</u>
VOCs	Contaminants of Concern	µg/L	EPA Method 8260B	EP-5A, EP-20A, EP-1, EP-2, EP-6A, EP-8A, EP-12A, MW-8, MW-9, MW-14A, MW-15A, MW-27, EP-28A, EP-5C, EP-6C, EP-8C, EP-12C, EP-21C, EP-28C, MW-11, MW-12, MW-13, MW-22, MW-23, D2-B1	X	<u>X</u>
Hexavalent Chromium			EPA Method 7199		X	<u>X</u>
Total Chromium			EPA Method 6010B		X	<u>X</u>
Perchlorate			EPA Method 314.0		X	<u>X</u>
1,4-Dioxane			EPA Modified Method 8270 SIM		X	<u>X</u>
Total Organic Carbon			Electron Donor/Carbon Substrate		mg/L	SM 5310B
Nitrate as nitrogen and Sulfate	Competing Electron Acceptors	mg/L	EPA Method 300.0	EP-5A, EP-2, EP-6A, MW-15A, MW-27, EP-28A, EP-5C, EP-6C, EP-12C, MW-27, EP-28C	X	<u>X</u>
Total Dissolved Gases (Methane/Ethane/Ethane)	Effectiveness Monitoring Parameter	µg/L	EPA Method RSK-175	EP-5A, EP-1, EP-2, EP-6A, EP-12A, MW-9, EP-5C, EP-6C, EP-8C, EP-12C, MW-11	X	<u>X</u>

1. Field parameters include dissolved oxygen (mg/L), oxidation-reduction potential (mV), conductivity (µS/cm), temperature (°F), and pH (SU).

2. See the description of field parameters.

3. Sixteen (16) quarterly monitoring events are required.

**Table 2b. Monitoring Parameters and Frequency for the Expansion of Interim Measure Area**

Sample Parameter	Parameter Type	Unit	Method of Analysis	Sample Location	Baseline	Monthly 1	Monthly 2	Quarterly Events <sup>3</sup>
Field Parameters <sup>1</sup>	General Groundwater Parameters	<sup>2</sup>	Field Measurement	EP-4A, EP-7A, EP-16A, EP-17A, EP-18A, EP-19A, EP-22A, EP-23A, EP-24A, EP-25A, EP-26A, EP-27A EP-4C, EP-7C, EP-16C, EP-17C, EP-18C, EP-19C, EP-22C, EP-23C, EP-24C, EP-25C, EP-26C, EP-27C, EP-18D	X	X	X	X
VOCs	Contaminants of Concern	µg/L	EPA Method 8260B		X	X	X	X
Hexavalent Chromium			EPA Method 7199		X	X	X	X
Total Chromium			EPA Method 6010B		X	X	X	X
Perchlorate			EPA Method 314.0		X	X	X	X
1,4-Dioxane			EPA Modified Method 8270 SIM		X	X	X	X
Total Organic Carbon	Electron Donor/Carbon Substrate	mg/L	SM 5310B		X	X	X	X
Rhodamine Tracer	Tracer	mg/L	Spectrophotometry	X	X	X	X	
Nitrate as nitrogen and Sulfate	Competing Electron Acceptors	mg/L	EPA Method 300.0	X	--	--	X	
Total Dissolved Gases (Methane/Ethene/Ethane)	Effectiveness Monitoring Parameter	µg/L	EPA Method RSK-175	EP-4A, EP-7A, EP-16A, EP-19A EP-4C, EP-7C, EP-16C, EP-19C	X	--	--	X

1. Field parameters include dissolved oxygen (mg/L), oxidation-reduction potential (mV), conductivity (µS/cm), temperature (°F), and pH (SU).  
 2. See the description of field parameters.  
 3. Thirty six (36) quarterly monitoring events are required.

**Table 2C. Monitoring Parameters and Frequency for the Pilot Study Area**

Sample Parameter	Parameter Type	Unit	Method of Analysis	Sample Location	Baseline	Monthly 1	Monthly 2	Quarterly 1	Quarterly 2
Field Parameters <sup>1</sup>	General Groundwater Parameters	--	Field Measurement	TW-1, TW-2, TW-3	X	X	X	X	X
VOCs	Contaminants of Concern	ug/L	EPA Method 8260B		X	X	X	X	X
Hexavalent Chromium			EPA Method 7199		X	X	X	X	X
Total Chromium			EPA Method 6010B		X	X	X	X	X
Perchlorate			EPA Method 314.0		X	X	X	X	X
1,4-Dioxane			EPA Modified Method 8270 SIM		X	X	X	X	X
Nitrate as nitrogen and Sulfate	Competing Electron Acceptors	mg/L	EPA Method 300.0		X	--	--	X	X
Rhodamine Tracer	Tracer	mg/L	Spectrophotometry		X	X	X	X	X
Total Organic Carbon	Electron Donor/Carbon Substrate	mg/L	SM 5310B		X	X	X	X	X

1. Field parameters include dissolved oxygen (mg/L), oxidation-reduction potential (mV), conductivity (µS/cm), temperature (°F), and pH (SU).  
 2. See the description of field parameters.

### C. Reporting Requirements

1. All analytical data shall be reported with method detection limit<sup>1</sup> (MDLs) and with identification of either reporting level or limits of quantitation (LOQs).
2. Laboratory data for effluent samples must quantify each constituent down to the approved reporting levels for specific constituents. Any internal quality control data associated with the sample must be reported when requested by the Executive Officer. The Regional Water Board will reject the quantified laboratory data if quality control data are unavailable or unacceptable.
3. Discharge monitoring data shall be submitted in a format that is acceptable to the Executive Officer and must be arranged in a manner that clearly demonstrates compliance and/or noncompliance with this Order. Monitoring results shall be reported in a tabulated format which identifies all applicable chemical constituents required to be analyzed under the monitoring program and presents the associated sample collection dates and analytical detections for each compound in relation to waste discharge limitations and requirements established by this Order.
4. For every item of monitoring data where the requirements are not met, the monitoring report shall include a statement discussing the reasons for noncompliance, and of the actions undertaken or proposed which will bring the discharge into full compliance with requirements at the earliest time, and an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Executive Officer by letter when compliance with the time schedule has been achieved.
5. Conclusions and recommendations regarding continuation of the existing process or any proposed modifications thereto shall be clearly presented for agency consideration, along with appropriate supporting justification or rationale.
6. All reports, plans and documents required under this Order shall be prepared under the direction of appropriately qualified professionals. The lead professional performing engineering and geologic evaluations and judgments shall sign and affix their professional geologist or civil engineering license stamp to all technical reports, plans or documents submitted to the Regional Water Board.
7. All monitoring reports submitted to the Executive Officer in compliance with this Order in paper copy format is also required to be submitted electronically via the Internet into the SWRCB's GeoTracker database. To comply with state regulations, the update to the GeoTracker database must include the following minimum information:
  - (a) The elevation of groundwater in any permanent monitoring well relative to the surveyed elevation.

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<sup>1</sup> The standardized test procedure to be used to determine the method detection limit (MDL) is given at Appendix B, "Definition and Procedure for the Determination of the Method Detection Limit" of 40 CFR 136.

- (b) A site map or maps showing the location of all sampling points referred to in the report.
- (c) The depth to the screened interval and the length of screened interval of any permanent monitoring well.
- (d) Boring logs, in PDF format.
- (e) Laboratory analytical data from any soil testing and/or groundwater monitoring shall be reported in Electronic Deliverable Format (EDF) in accordance with CWC Section 13195 ET. seq. requirements, if applicable.
- (f) A complete copy of the report, in PDF format, which includes the signed transmittal letter and professional certification.

The GeoTracker website address is: <https://geotracker.waterboards.ca.gov>.  
 Deadlines for electronic submittals coincide with deadlines for paper copy submittals.

#### D. Report Schedule

Monitoring reports shall include all data collected during the monitoring period, and shall be submitted on a quarterly basis to Regional Water Board staff in accordance with the following schedule:

<b>Monitoring Period</b>	<b>Report Due</b>
January – March	May 1 <sup>st</sup>
April – June	August 1 <sup>st</sup>
July – September	November 1 <sup>st</sup>
October – December	February 1 <sup>st</sup>

The Executive Officer has the authority to change the report submittal schedule, if deemed necessary, based on changes to the Site conditions.

Monitoring reports shall be submitted

to: Executive Officer  
 California Regional Water Quality Control Board  
 Santa Ana Region  
 3737 Main Street, Suite 500  
 Riverside, CA 92501

Ordered by: \_\_\_\_\_ Kurt V. Berchtold  
 Executive  
 Officer

Date: \_\_\_\_\_

Attachment: Figure 2 – Proposed Injection/Monitoring Locations, June 24, 2016.