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**Central Valley Regional Water Quality Control Board**

11 April 2016

**CERTIFIED MAIL**  
**7009 1410 0002 1422 2366**

Mr. Eric Jenks  
Wilbur-Ellis Company  
Agribusiness Division  
PO Box 511  
Yuba City, CA 95991

***NOTICE OF APPLICABILITY OF GENERAL ORDER NO. R5-2015-0012-015, IN-SITU GROUNDWATER REMEDIATION AND DISCHARGE OF TREATED GROUDWATER TO LAND, FORMER JOHN TAYLOR FERTILIZER CO, 1819 SOUTH ARGONAUT STREET, STOCKTON, SAN JOAQUIN COUNTY***

John Taylor Fertilizer Company (JTF), which is a wholly-owned subsidiary of Wilbur-Ellis Company (Wilbur-Ellis), (Discharger) submitted a Notice of Intent, dated 13 October 2015, requesting coverage under General Order No. R5-2015-0012, "General Waste Discharge Requirements for In-situ Groundwater Remediation and discharge of treated groundwater to land". Based on information in your submittal, it is our determination that this project meets the required conditions to be approved under Order No. R5-2015-0012. All of the requirements contained in the general order are applicable to your project. You are assigned Order No. R5-2015-0012-015.

**Project Location:**

The project is in the City of Stockton in San Joaquin County, California.  
Township 1N; Range 6E; Section 15; Assessor's Parcel No. 16320008.

**Project Description:**

JTF operated a retail fertilizer distribution facility at its 1819 South Argonaut Street site (Site) in Stockton from 1955 until early 1999, when JTF became a wholly-owned subsidiary of Wilbur-Ellis. Operations at the Site by JTF/Wilbur-Ellis ended in 2008. The Site is currently vacant. Existing data and information about the Site show the presence of various chemicals of concern (COCs), including total oxidized nitrogen, 1,2,3-trichloropropane (1,2,3-TCP), and 1,2-dichloropropane (1,2-DCP) in groundwater, emanating from the property and resulting from the Discharger's past operations. Groundwater monitoring shows that nitrate and fumigants exceeded water quality goals at the Site. Groundwater is about 15 feet below ground surface (bgs). The concentrations of these COCs have impaired the beneficial use of groundwater resources at the Site. The Discharger has conducted groundwater and soil investigations at the Site from 1999 to 2014 including installation of seven (7) shallow groundwater monitoring wells, and six (6) deeper groundwater monitoring wells both on- and off-Site. The Discharger has also conducted a deeper Cone Penetration test (CPT) investigation on and off-Site to delineate the vertical and lateral extent of the COCs.

Environmental investigations at the Site have been conducted since 1999 that included testing and evaluation of soil, soil gas, and both shallow and deeper groundwater including CPT borings. The shallow groundwater bearing zone appears to be present from 20 to 30 feet bgs and some locations extending to as deep as approximately 55 feet bgs. The deeper groundwater bearing zone is from 70 to 80 feet bgs and up to 115 feet bgs farther downgradient from the Site. Groundwater flow direction is generally towards the east to northeast with a gradient ranging from 0.00049 feet per foot (ft/ft) to 0.0017 ft/ft.

On behalf of JTF/Wilbur-Ellis, Geosyntec Consultants (Geosyntec) retained SiREM Laboratory (SiREM) to perform a laboratory biotreatability study to assess the potential for in-situ bioremediation of 1,2-DCP and 1,2,3-TCP in groundwater at the Site. The purpose of the study was to assess natural and anaerobic biodegradation of the Site COCs, namely chlorinated propanes. Geologic material and groundwater samples were collected in April and August 2014, respectively from the Site, and were used to create microcosms for this study. The results of the treatability study indicate that reduction of the Site COCs (1,2-DCP, 1,2,3-TCP, as well as nitrate) is achievable using an emulsified vegetable oil/sodium lactate mixture (Newman Zone ®), as the electron donor, combined with bioaugmentation using a specialized microbial consortia (KB-1 ® Plus).

The addition of an electron donor typically results in microbial activity that promotes changes in the redox conditions in groundwater. The naturally aerobic or mildly reducing redox conditions will be transformed to strongly reducing conditions by the addition of the electron donor to groundwater, which is anticipated to promote the anaerobic degradation of chlorinated propanes. During the treatability study, complete sulfate and nitrate reduction was observed by Day 1, resulting in non-detect levels. Reducing conditions required for reductive dechlorination were also achieved.

Following bioaugmentation on day 38, an increase in methane concentrations was observed in the microcosms. These results suggest that methanogenic micro-organisms known to be present in the KB-1® Plus culture were active and consumed a portion of the available electron donor. Based on the treatability study results, acetate and propionate concentrations are expected to increase. The pH remained between 6.39 and 7 in the controls and treatment microcosms over the incubation period.

In June 2015, a Remedial Action Workplan (RAW) was submitted presenting remedial alternatives including Enhanced In-Situ Bioremediation (EISB). EISB was recommended for the implementation at the Site. This remediation technique involves in-situ reduction of Site COCs within the shallow and deeper targeted areas.

The shallow groundwater EISB approach involves a shallow horizontal injection well spanning across the shallow target area and positioned perpendicular to groundwater flow. For this treatment target area, potable water would be amended with Newman Zone ®, as the electron donor and then injected into shallow groundwater via the horizontal injection well. In order to promote COC biodegradation, shallow groundwater will be bioaugmented using KB-1® Plus that would also be delivered through the horizontal injection well. Injections via the horizontal injection well are anticipated to create a biologically-active zone (BAZ) that transects the shallow groundwater plume. This BAZ will treat impacted groundwater through advection and diffusion processes.

The deeper groundwater EISB approach involves delivery of electron donor to the deeper target area via a temporarily- and intermittently-operated groundwater recirculation system. During

operation of recirculation system, deeper groundwater would be extracted from one or two wells located in the northeast corner of the Site. The extracted groundwater would be piped to an amendment dosing system located on-Site. After water is amended with electron donor, the amended groundwater would then be re-injected into deeper groundwater via one (or more) of five deeper groundwater injection wells located within the deeper target area. Similar to the shallow groundwater approach, KB-1® Plus amendment would also be delivered to on-Site groundwater through the deeper injection wells. The anticipated operation for the amendment delivery system is approximately eight to nine months over the course of two to four years with operations being conducted in approximately two to four month-long events per year. This approach will be modified during implementation, based on field observations and performance monitoring results.

Phase 1 of EISB groundwater monitoring will consist of one treatment zone well MW-A, one transition zone well MW-8, one compliance zone well MW-12 and one upgradient well MW-11.

Phase 2 of EISB groundwater monitoring will consist of two shallow treatment zone wells MW-E and MW-F; five transition shallow wells MW-1, MW-2, MW-4, MW-5, and MW-G; one compliance shallow well MW-7; and one upgradient shallow well MW-6. Deeper groundwater monitoring of Phase 2 will consist of MW-A, MW-B, MW-C, MW-D, MW-9, and MW-10 as treatment zone wells; MW-8 as transition zone well, MW-12 as compliance well and MW-11 as the upgradient well.

The Discharger will be conducting sampling and reporting the results as described in the attached Groundwater Monitoring and Reporting Program (MRP).

No comments were received on the tentative NOA and tentative MRP during the 30-day public comment period ending date 25 March 2016.

### Specific Requirements:

1. The project will be operated in accordance with the requirements contained in the General Order and in accordance with the information submitted in the Notice of Intent dated 13 October 2015, and with the *Removal Action Workplan* dated 2 June 2015 and *Removal Action Workplan Addendum* dated 13 October 2015.
2. The required annual fee (as specified in the annual billing you will receive from the State Water Resources Control Board) shall be submitted until this Notice of Applicability (NOA) is rescinded.
3. Injection of materials other than Newman Zone® and KB-1® Plus into the subsurface is prohibited.
4. Failure to abide by the conditions of the General Order could result in an enforcement action as authorized by provisions of the California Water Code.
5. The project will implement the final contingency plan included as part of the Notice of Intent within 30-days of it being triggered. The General Order requires a contingency plan for corrective actions should water quality exceed the requirements of the Order at the point of compliance. The general order prohibits concentrations of metals, TDS, or electrical conductivity 20% greater than their respective background concentrations. As

a contingency plan, the Discharger will cease Newman Zone® and KB-1® Plus additions, implement more frequent monitoring to confirm results, and if declining trends are not noted, submit a revised NOI to implement corrective measures.

6. The Discharger shall comply with the attached Monitoring and Reporting Program, Order No. R5-2015-0012-015, and any revisions thereto as ordered by the Executive Officer.

If you have any questions regarding this matter, please call Siddharth Sewalia at 916-464-4658 or contact him at [ssewalia@waterboards.ca.gov](mailto:ssewalia@waterboards.ca.gov).

  
PAMELA C. CREEDON For  
Executive Officer

Attachment: Monitoring and Reporting program Order No. R5-2015-0012-015

cc: Ms. Della Kramer, Regional Water Quality Control Board, Sacramento  
Ms. Jan Thompson, Wilbur-Ellis Company, Halsey, Oregon  
Ms. Lori Duncan, San Joaquin County Environmental Health Department, Stockton  
Ms. Melissa Schmitt, Geosyntec, Seattle, WA  
Mr. Srinivasa Varadhan, Geosyntec, Rancho Cordova, CA

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2015-0012-015

FOR  
IN-SITU GROUNDWATER REMEDIATION  
AND DISCHARGE OF TREATED GROUNDWATER TO LAND

FOR  
FORMER JOHN TAYLOR FERTILIZERS CO.  
1819 SOUTH ARGONAUT STREET  
STOCKTON, CALIFORNIA  
SAN JOAQUIN COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring the progress of the enhanced in-situ bioremediation program (EISB) at the former John Taylor Fertilizers (JTF) Company facility located at 1819 South Argonaut Street in Stockton, California (the "Site") (Figure 1). The objective of this EISB is to reduce the concentration of 1,2-dichloropropane (1,2-DCP) and 1,2,3-trichloropropane (1,2,3-TCP) in on-Site groundwater. The MRP will be used to monitor the effectiveness and efficiency of EISB both on/off-Site, and to monitor compliance with the general order requirements. The EISB remediation will be implemented in two sequential phases. Phase 1 of the EISB Program includes the delivery of emulsified vegetable oil (Newman Zone®), a microbial consortia (KB-1®Plus), and a soluble electron donor (KB-1® Primer) into a portion of deeper groundwater using direct injection via one well. Phase 2 includes the full-scale delivery of Newman Zone® and KB-1®Plus using both direct injection and recirculation approaches for shallow and remaining deeper on-Site groundwater, respectively.

This MRP is issued pursuant to Water Code Section 13267. The Discharger shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer. As appropriate, California Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) staff shall approve specific sample station locations prior to implementation of sampling activities.

All samples should be representative of the volume and nature of the discharge or matrix of the material sampled. The time, date, and location of each grab sample shall be recorded on the sample chain of custody form.

### GROUNDWATER MONITORING

This section presents the groundwater monitoring programs for the Phase 1 and Phase 2 EISB Programs. Sample collection and analysis shall follow standard United States Environmental Protection Agency (USEPA) protocols and sample analyses shall be completed by a California State-certified laboratory.

*Note:* Currently, a separate monitoring and reporting program (R5-2010-0803) requires semi-annual groundwater monitoring and reporting in the 1<sup>st</sup> and 3<sup>rd</sup> Quarters for on and off-Site monitoring wells, which will continue to be implemented in addition to the activities presented herein. If duplicative sampling is ordered between the two monitoring programs, a single

sample will suffice for both reporting objectives. Duplication of monitoring efforts is not intended.

**PHASE 1 GROUNDWATER MONITORING PROGRAM**

The expected duration of Phase 1 is approximately 6 to 8 months. The locations of the groundwater monitoring wells included in the Phase 1 groundwater monitoring program are shown on Figure 2. The Phase 1 groundwater monitoring wells shall be sampled according to the schedule in Table 1A, and the samples will be analyzed by the methods in Table 2.

**Table 1A: Phase 1 Sampling Frequency and Constituent Suites**

Well Number <sup>1</sup>	Frequency <sup>2</sup>	Constituent Suite(s) <sup>3</sup>	Monitoring Objective
<b>Deeper Groundwater Zone</b>			
MW-12	Pre-injection Baseline	A <sup>4</sup> & B	Compliance <sup>5</sup>
	Semi-Annually	A <sup>4</sup> & B	
MW-A	Pre-injection Baseline	A, B, C, & D	Treatment Zone <sup>6</sup>
	Monthly (Following injection for 3 mo.), then Quarterly	A	
	Quarterly	B, C, and D	
MW-8	Pre-injection Baseline	A & B	Transition Zone <sup>7</sup>
	Quarterly	A & B	
MW-11	Pre-injection Baseline	A & B	Upgradient <sup>9</sup>
	Semi-Annually	A <sup>8</sup> & B	

<sup>1</sup> Well numbers and locations as shown on Figure 2.

<sup>2</sup> For wells and/or constituents scheduled to be monitored quarterly, the monitoring frequency may be reduced to semiannually, contingent upon the following: 1) at least four quarters of sampling have been completed after the Phase 1 injections, 2) quarterly monitoring is no longer needed to evaluate performance (e.g., concentrations are low or within background levels; or trends are stable or predictable), and 3) Central Valley Water Board staff concurrence. Semiannual monitoring and sampling shall occur in the first and third quarters.

<sup>3</sup> Constituent suite components are listed in Table 2.

<sup>4</sup> Compliance well MW-12 shall not be analyzed for Total Volatile Fatty Acids or Total Organic Carbon.

<sup>5</sup> Wells used to evaluate compliance with groundwater limitations.

<sup>6</sup> Wells sampled to evaluate remediation progress inside the treatment zone.

<sup>7</sup> Wells sampled to evaluate migration of constituents downgradient from the treatment zone.

<sup>8</sup> Upgradient well MW-11 shall be analyzed for all Suite A constituents semiannually, with the exception of Total Volatile Fatty Acids, Propene/Propane, and Total Organic Carbon (which shall be analyzed during baseline monitoring only).

<sup>9</sup> Well used to assess groundwater quality in the area located upgradient of the treatment zone.

**PHASE 2 GROUNDWATER MONITORING PROGRAM**

Phase 2 will commence immediately following the completion of Phase 1. The expected duration of Phase 2 is approximately 4 years. The locations of the groundwater monitoring wells included in the Phase 2 groundwater monitoring program are shown on Figure 2. The Phase 2 groundwater monitoring wells shall be sampled according to the schedule shown in Table 1B and the samples analyzed by the methods in Table 2.

**Table 1B: Phase 2 Sampling Frequency and Constituent Suites**

Well Number <sup>1</sup>	Frequency <sup>2</sup>	Constituent Suite(s) <sup>3</sup>	Monitoring Objective
<b><i>Shallow Groundwater Zone</i></b>			
MW-7	Pre-injection Baseline	A <sup>4</sup> & B	Compliance <sup>5</sup>
	Annually	A <sup>4</sup> & B	
MW-E MW-F	Pre-injection Baseline	A, B, C & D	Treatment Zone <sup>6</sup>
	Quarterly (during & 2 quarters after injection), then Semi-Annually	A	
	Semi-Annually	B & C	
	Annually	D	
MW-1 MW-2 MW-4 MW-5 MW-G	Pre-injection Baseline	A & B	Transition Zone <sup>7</sup>
	Semi-Annually	A	
	Annually	B	
MW-6	Pre-injection Baseline	A & B	Upgradient <sup>8</sup>
	Annually	A & B	
<b><i>Deeper Groundwater Zone</i></b>			
MW-12	Pre-injection Baseline	A <sup>4</sup> & B	Compliance <sup>5</sup>
	Annually	A <sup>4</sup> & B	
MW-A MW-B MW-C MW-D MW-9 MW-10	Pre-injection Baseline	A, B, C & D	Treatment Zone <sup>6</sup>
	Quarterly (during & 2 quarters after injection), then Semi-Annually	A	
	Semi-Annually	B & C	
	Annually	D	
EW-A EW-B	Pre-injection Baseline	A & B	Treatment Zone <sup>6</sup>
	Varies, Monthly to Quarterly <sup>9</sup> (during extraction well operation only)	A	
	Semi-Annually	B	

Well Number <sup>1</sup>	Frequency <sup>2</sup>	Constituent Suite(s) <sup>3</sup>	Monitoring Objective
MW-8	Pre-injection Baseline	A & B	Transition Zone <sup>7</sup>
	Semi-Annually	A	
	Annually	B	
MW-11	Pre-injection Baseline	A & B	Upgradient <sup>8</sup>
	Annually	A & B	

<sup>1</sup> Well numbers and locations as shown on Figure 2. Wells MW-A, MW-B, MW-C, MW-D, MW-E, MW-F, MW-G, EW-A, and EW-B are proposed; the locations are subject to adjustment based on Site conditions and each will be given a numerical well ID following installation.

<sup>2</sup> For wells and/or constituents scheduled to be monitored quarterly, the monitoring frequency may be reduced to semiannually, contingent upon the following: 1) at least four quarters of sampling have been completed after the commencement of Phase 2 within their respective groundwater zones, 2) quarterly monitoring is no longer needed to evaluate performance (e.g., concentrations are low or within background levels; or trends are stable or predictable), and 3) Central Valley Water Board staff concurrence. Semiannual monitoring and sampling shall occur in the first and third quarters.

<sup>3</sup> Constituent suite components are listed in Table 2.

<sup>4</sup> Compliance wells MW-7 and MW-12 do not need to be analyzed for Total Volatile Fatty Acids or Total Organic Carbon.

<sup>5</sup> Wells used to evaluate compliance with water groundwater limitations.

<sup>6</sup> Wells sampled to evaluate remediation progress inside the treatment zone.

<sup>7</sup> Wells sampled to evaluate migration of constituents within the shallow groundwater treatment zone.

<sup>8</sup> Wells used to assess groundwater quality in the area located upgradient of the treatment zone.

<sup>9</sup> Only during groundwater extraction from the extraction wells, EW-A and EW-B will be analyzed for VOCs and 1,2,3-TCP on a monthly basis and for the remaining Suite A components on a quarterly basis. The monitoring frequency may be reduced to quarterly or semiannually with Central Valley Water Board staff concurrence, when declining 1,2-DCP and 1,2,3-TCP concentrations are observed in the extracted groundwater. Semiannual monitoring and sampling shall occur in the first and third quarters.



**Table 2: Analytical Methods and Constituent Suite**

Constituent	Analytical Method <sup>1</sup>	Maximum Practical Quantitation Limit <sup>2</sup>
<b>Suite A</b>		
Volatile Organic Compounds (including 1,2-DCP)	EPA 8260B	Varies
1,2,3-TCP (Low-Level)	SRL 524M-TCP	0.005 µg/L
Total Volatile Fatty Acids (VFAs) <sup>3</sup>	HPLC/UV	4 mg/L
Sulfate	EPA 300.0	1 mg/L
Total Oxidizable Nitrogen	SM 4500-NO3 E	0.1 mg/L
Propane/Propene	RSK-175M	1 µg/L
Total Organic Carbon <sup>3</sup>	SM 5310D	0.5 mg/L
<b>Suite B</b>		
Chloride	EPA 300.0	1 mg/L
Total Dissolved Solids	SM 2540C	1 mg/L
Metals <sup>4</sup>	EPA 6010/6020, EPA 200.7, 200.8	Varies
Hexavalent chromium	EPA Method 7196	0.5 µg/L
<b>Suite C</b>		
Carbon Dioxide	SM 4500-CO2D	1 mg/L
Methane	RSK-175M	1 µg/L
<b>Suite D</b>		
Alkalinity	SM 2320B	1 mg/L
<i>Dehalogenimonas (Dhg)</i>	SiREM Gene-Trac®	1,000 cells/L

<sup>1</sup> Or an equivalent US EPA analytical method that achieves the maximum practical quantitation limit.

<sup>2</sup> All concentrations between the Method Detection Limit and the Practical Quantitation Limit shall be reported as an estimated value.

<sup>3</sup> Compliance wells MW-7 and MW-12 do not need to be analyzed for Total Volatile Fatty Acids or Total Organic Carbon.

<sup>4</sup> Metals include, arsenic (dissolved), , iron (dissolved), , manganese (dissolved),,. Monitoring for metals may cease when the impacts of the Phase 1 and Phase 2 injection activities are no longer noted with Central Valley Water Board staff concurrence.

### FIELD SAMPLING

In addition to the above sampling and analysis, field sampling and analysis shall be conducted each time a well location is sampled. The sampling and analysis of field parameters shall be completed as specified in Table 3.

**Table 3: Field Sampling Requirements**

Parameters	Units	Sample Type
Groundwater Elevation	feet mean sea level (ft msl)	Measurement
Oxidation-reduction potential (ORP)	millivolts (mV)	Field Meter
Electrical conductivity (EC)	microsiemens per centimeter ( $\mu\text{S}/\text{cm}$ )	Field Meter
Dissolved Oxygen (DO)	milligrams per liter (mg/L)	Field Meter
Temperature	$^{\circ}\text{C}$ or $^{\circ}\text{F}$	Field Meter
pH	pH units (to 0.1 units)	Field Meter
Volume purged (monitoring wells only)	gallons	Measurement

Field test instruments may be used provided that:

1. The operator is trained in proper use and maintenance of the instruments;
2. The instruments are calibrated prior to each monitoring event;
3. Instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and
4. Field calibration reports are submitted as described in item (c) of the "Reporting" section of this MRP.

### IN SITU DISCHARGE AND EXTRATION MONITORING

The Discharger shall monitor daily the discharge of water and amendments that are injected into the groundwater during the EISB Program, according to the requirements specified in Table 4. Each amendment addition shall be recorded individually, along with information regarding the time period over which the amendment was injected into the aquifer.

**Table 4: Discharge and Extraction Monitoring Requirements**

Parameters	Units	Sample Type
Injected volume	gallons per day	Totalizing Meter
Injection rate	gallons per minute	Measured
Amendment(s) added	pounds	Phase 1 – Measured Phase 2 – Meter
Extracted volume	gallons per day	Totalizing Meter
Extraction and Injection durations	hours	Not applicable

### AMENDMENT ANALYSIS

Prior to use, amendments shall be analyzed for the constituents listed in Table 5. The analysis should be done on a mixture of the amendment and deionized water at the estimated concentrations that would be injected during the project. On February 5 and 9, 2016, discharger provided amendment analysis of KB-1 and Newman Zone, which is acceptable to the Central Valley Water Board.

**Table 5: Amendment Analytical Requirements**

Constituent	Method <sup>1</sup>	Maximum Practical Quantitation Limit( $\mu\text{g/L}$ ) <sup>2</sup>
Volatile organic compounds	EPA 8020 or 8260B	0.5
General minerals <sup>3</sup>	Various	Various
Metals, total and dissolved <sup>4</sup>	EPA 200.7, 200.8, 7196A	Various
Semi-volatile organic Compounds	EPA Method 8270	5.0
Total dissolved solids	EPA 160.1	10,000
pH	meter	NA
Electrical conductivity	meter	NA

<sup>1</sup> Or an equivalent EPA Method that achieves the maximum Practical Quantitation Limit.

<sup>2</sup> All concentrations between the Method Detection Limit and the Practical Quantitation Limit shall be reported as an estimated value.

<sup>3</sup> General Minerals include: alkalinity, bicarbonate, potassium, chloride, sulfate, total hardness, nitrate, nitrite, ammonia.

<sup>4</sup> Metals include arsenic, barium, cadmium, calcium, total chromium, hexavalent chromium, copper, iron, lead, manganese, magnesium, mercury, molybdenum, nickel, selenium and silica.

### ESTABLISHMENT OF BACKGROUND CONCENTRATION VALUES

The discharger shall conduct a Background Study to evaluate the background concentration values of 1,2,3-TCP, 1,2-DCP, dissolved iron, dissolved manganese, arsenic, iron, manganese, , total dissolved solids, pH and electrical conductivity in groundwater following the procedures found in CCR Section 20415(e)(10).

For the initial establishment of the background concentration values, the discharger shall conduct at least three background sampling events prior to implementing Phase 2 injection activities as part of this study. During each background sampling event, samples shall be collected from MW-7 and MW-12 and analyzed for the above constituents. The initial background concentration values for each of the above constituents shall be assigned as the maximum-reported value (on an individual, well-by-well, ongoing basis until six background sampling events are completed).

Once seven background sampling events are completed, the background concentration values for each of the above constituents shall then be calculated (on an individual, well-by-well basis) using the 95% upper confidence limit of the mean. This 95% upper confidence limit of the mean shall be updated as new data is collected during Phase 2 performance monitoring, creating a more robust data set overtime.

Groundwater concentrations at Compliance wells may not exceed the respective background concentration values by more than 20 percent.

Changes in background groundwater quality may occur over time due to environmental factors. In consultation with the Central Valley Water Board staff, the discharger may propose future studies to evaluate changes in background groundwater quality conditions. The discharger may propose updates to background values for certain constituents based on the results of such studies.

### REPORTING

When reporting the data, the Discharger shall arrange the information in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner as to illustrate clearly the compliance with this Order. The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall also be reported to the Central Valley Water Board.

As required by the California Business and Professions Code Sections 6735, 7835, and 7835.1, all reports shall be prepared by a registered professional Civil Engineer or Geologist or their subordinate and signed by the registered professional.

The Discharger shall submit laboratory electronic data reports quarterly by the 1<sup>st</sup> day of the second month following the end of each calendar quarter by **1 February, 1 May, 1 August, and 1 November** until such time as the Executive Officer determines that the reports are no longer necessary. The Discharger shall submit the semi-annual groundwater monitoring report which conforms to the requirements of the California Code of Regulations, Title 23, Division 3, Chapter

30. The semiannual monitoring reports shall be submitted electronically over the internet to the GeoTracker database system by the 1st day of the second month following the end of each semiannual period (i.e. **1 May and 1 November**) until such time as the Executive Officer determines that the reports are no longer necessary.

Each semiannual report shall include the following minimum information:

- (a) a description and discussion of the groundwater sampling event and results, including trends in the concentrations of pollutants, by-products of the injectants, groundwater elevations in the wells, how and when samples were collected, and whether the pollutant plume(s) is delineated.
- (b) a discussion of groundwater quality at compliance wells, with respect to the applicable groundwater limitations;
- (c) field logs that contain, at a minimum, water quality parameters measured before, during, and after purging, method of purging, depth of water, volume of water purged, field instrument calibration reports, etc.;
- (d) groundwater contour maps for all groundwater zones, if applicable;
- (e) pollutant concentration maps for all groundwater zones, if applicable;
- (f) a table showing well construction details such as well number, groundwater zone being monitored, coordinates (longitude and latitude), ground surface elevation, reference elevation, elevation of screen, elevation of bentonite, elevation of filter pack, and elevation of well bottom;
- (g) a table showing historical lateral and vertical (if applicable) flow directions and gradients;
- (h) cumulative data tables containing the water quality analytical results and depth to groundwater;
- (i) a copy of the laboratory analytical data report(s);
- (j) the status of any ongoing remediation, such as system operating time, cumulative extraction and injection volumes/amounts, the effectiveness of the remediation system, and details pertaining to the operation and maintenance of the system; and
- (k) if applicable, the reasons for and duration of all interruptions in the operation of any remediation system, and actions planned or taken to correct and prevent interruptions.

An Annual Report shall be submitted to the Central Valley Water Board by **1 November** of each year. This report shall contain an evaluation of the effectiveness and progress of the investigation and remediation. The Annual Report may be substituted for the second semi-annual monitoring report as long as it contains all of the information required for that report plus that required for the Annual Report. The Annual Report shall contain the following minimum information:

- (a) both tabular and graphical summaries of all data obtained during the year;
- (b) groundwater contour maps and pollutant concentration maps containing all data obtained during the previous year;
- (c) a discussion of the long-term trends in the concentrations of the pollutants in the groundwater monitoring wells;
- (d) an analysis of whether the pollutant plume is being effectively treated;
- (e) a description of all remedial activities conducted during the year, an analysis of their effectiveness in removing the pollutants, and plans to improve remediation system effectiveness;
- (f) an identification of any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program; and
- (g) if desired, a proposal and rationale for any revisions to the groundwater sampling plan frequency and/or list of analytes.

A letter transmitting the monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the penalty of perjury statement by the Discharger, or the Discharger's authorized agent, as described in the Standard Provisions General Reporting Requirements Section B.3.

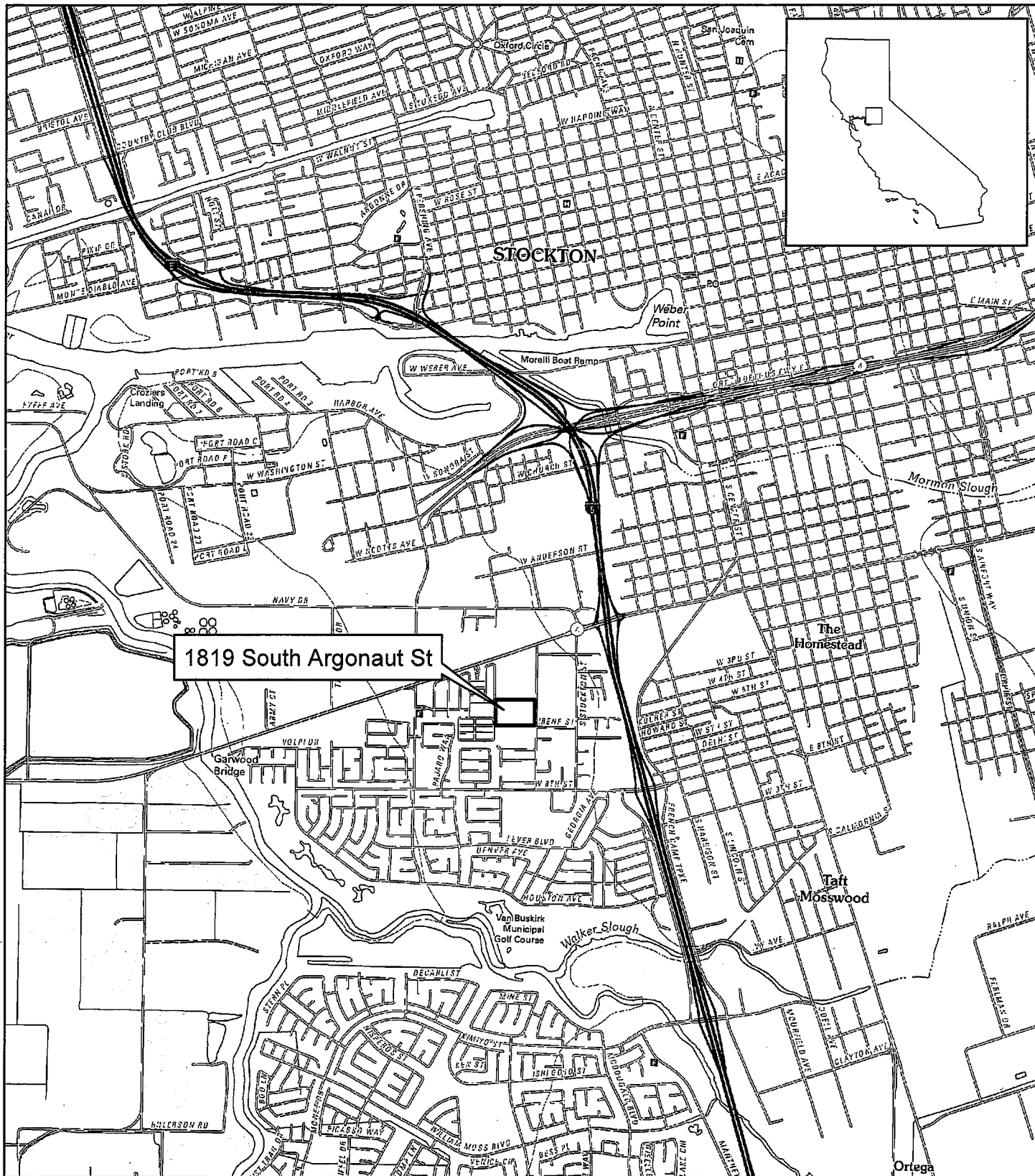
The Discharger shall implement the above monitoring program on the first day of the month following adoption of this Order.

Ordered by:

Andrew Altevogt For  
PAMELA C. CREEDON Executive Officer

4/12/16

(Date)



1819 South Argonaut St

Base Map: 1:24,000 USGS Topographic, 2012  
 T1N R6E, Mt. Diablo Meridian



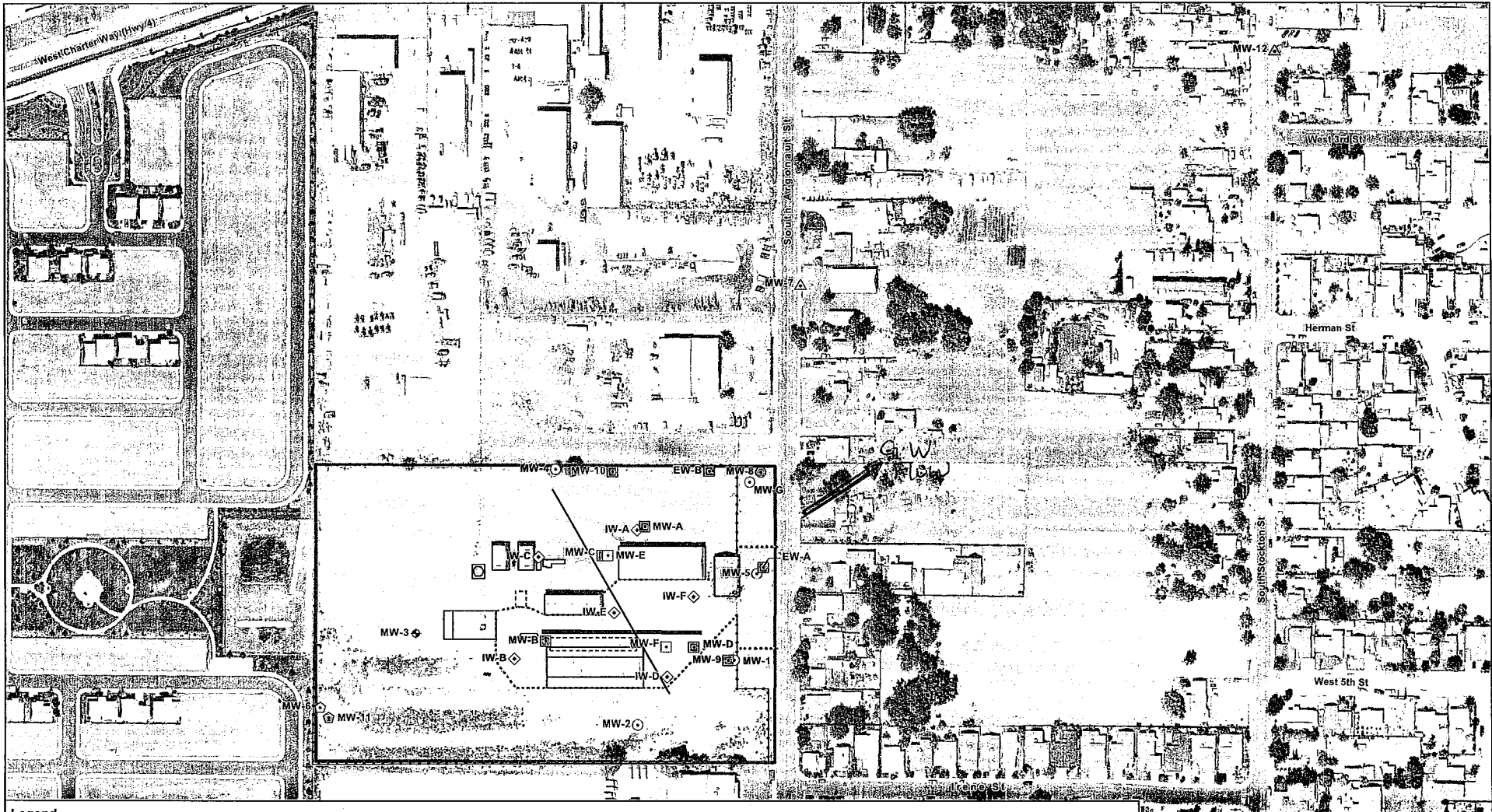
0 750 1,500 3,000 Feet

Figure 1  
 Site Location Map  
 John Taylor Fertilizers Co., Inc.  
 Stockton, California

Project: SAC175

November 2015

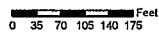
Geosyntec  
 consultants



- Legend**
- Shallow Groundwater Well, Transition Zone
  - △ Shallow Groundwater Well, Compliance Zone
  - ⊙ Shallow Groundwater Well, Background Zone
  - ◇ Proposed Deeper Vertical Injection Well
  - ⊠ Deeper Groundwater Well, Treatment Zone
  - ⊡ Deeper Groundwater Well, Transition Zone
  - ⊕ Deeper Groundwater Well, Compliance Zone
  - ⊞ Deeper Groundwater Well, Background Zone
  - ⊟ Shallow Groundwater Well, not included in PMP
  - ⊠ Proposed Deeper Vertical Injection Well
  - ⊡ Proposed Shallow Horizontal Injection Well
  - ⊞ Site Boundary

- ▭ Building or Structure Outline
- - - Former Building or Structure Outline
- ▬ Concrete Drainage Swale
- Fence
- ⋯ Extent of Paved Area

Notes:  
 EW = Extraction Well  
 MW = Monitoring Well  
 \* Monitoring well MW-A will be installed during Phase I.  
 Image Source - United States Geological Survey,  
 High Resolution Orthomosaic, 25 August 2013.



**Figure 1**  
**Proposed EISB Performance Monitoring Network**  
 John Taylor Fertilizers Co., Inc.  
 Stockton, California

Project:  
SAC175

November 2015

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