CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

REVISED MONITORING AND REPORTING PROGRAM NO. R5-2008-0825

FOR
HJ BAKER & BRO. INC., MARTIN OPERATING PARTNERSHIP, THE PORT OF STOCKTON, AND METROPOLITAN STEVEDORE
MOLTEN SULFUR PROCESSING PLANTS
SAN JOAQUIN COUNTY

This Revised Monitoring and Reporting Program (Revised MRP) describes requirements for monitoring industrial locations that are associated with processing molten sulfur into prill. After processing, the sulfur prill is stockpiled, stored, and later conveyed off site. HJ Baker & Bro., Inc. (Baker) processes molten sulfur and stockpiles the sulfur prill; Martin Operating Partnership (Martin) processes molten sulfur and stockpiles the prill; and the Port of Stockton (the Port) and Metropolitan Stevedore (Metropolitan) convey the prill to ships for transport by others. Baker, Martin, the Port, and Metropolitan are collectively referred to as the "Discharger" within this revised MRP.

As part of operations, Martin and Baker each store prill stockpiles outside and exposed to the environment. In addition, the stockpiles inherently retain some moisture as part of the prilling process. After precipitation and/or moisture contacts the sulfur prill, an acidic solution is formed that has elevated concentrations of electrical conductivity, sulfur, and sulfate. Throughout this revised MRP, this acidic solution is referred to as "sulfur-contact water".

As described in a site investigation report, groundwater has been impacted by the sulfur operations. This revised MRP requires groundwater monitoring by the Discharger, and facility-specific monitoring by Baker, Martin, and the Port. Pursuant to Section 13267 of the California Water Code, the Discharger must comply with this revised MRP. Failure to comply with this revised MRP constitutes noncompliance with the Water Code, which can result in the imposition of civil monetary liability. The Discharger must not implement any changes to this revised MRP unless another revised MRP is issued by the Executive Officer.

MONITORING

All monitoring must be conducted in accordance with a Sample Collection and Analysis Plan, which must include quality assurance and quality control standards which are acceptable to the California Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board). The Discharger submitted its Sample Collection and Analysis Plan, and the Regional Water Board concurred with the plan on 26 March 2009. The groundwater monitoring wells, the surface water sampling location, and facility locations are shown on Attachment A.

All monitoring samples must be representative of the volume, nature, or matrix of material sampled. The time, date, and location of each sample must be recorded on the sample chain-of-custody form. If methods other than U.S. EPA-approved methods or *Standard Methods for the Examination of Water and Wastewater*, latest edition, are used, the exact methodology must be submitted for review and approval. All monitoring points must be sampled and analyzed for parameters and constituents of concern as indicated and listed herein. All monitoring results must be reported and all relevant facts must be fully disclosed.

Martin's Facility-Specific Monitoring

Martin's prill stockpiles generate sulfur-contact water. The sulfur-contact water drains across the floor of the stockpile area to drainage ditches, then to a sump with a sump pump, and finally to a 481,000-gallon above-ground storage tank (AST). Martin recycles its sulfur-contact water through its prilling process. This revised MRP requires that Martin monitor and report the sulfur contact-water constituent concentrations in its 481,000-gallon AST. Table 1 contains the monitoring frequency and parameters for Martin's facility-specific monitoring. Results must be documented in reports due by the **Reporting Due Dates shown in Table A**.

Table 1
Martin's Facility-Specific Monitoring of Its AST Sulfur Contact–Water

Field Parameters	**Units**	**Monitoring Frequency**
Temperature	^{o}C	January and July
Specific Conductance	umhos/cm	January and July
pH	SU	January and July
Monitoring Parameters		
Sulfur, total (EPA 200.7)	mg/L	January and July
Total Dissolved Solids (EPA 160.1)	mg/L	January and July
Sulfate (EPA 300 Series)	mg/L	January and July
Major Anions (See Table 6)	mg/L	January
Major Cations (See Table 6)	mg/L	January

Baker's Facility–Specific Monitoring

Baker stockpiles its prill outside and exposed to the environment. When exposed to rain and/or moisture, the stockpiles generate sulfur-contact water that drains across the floor of the stockpile area and into a collection system. The collection system consists of lined sumps with sump pumps, conveyance pipe, and a 500,000-gallon AST. Baker recycles its sulfur-contact water through its prilling process.

This revised MRP requires that Baker monitor its sulfur-contact water at a location that is representative of the sulfur-contact water generated by the prill stockpiles that are located within the sulfur storage area (i.e., referred to by Baker as its "clay pit").

Table 2 contains Baker's monitoring parameters and frequencies for sampling the sulfur-contact water. Baker must report its results twice per year according to the **Reporting Due Dates shown in Table A of Section A** of this revised MRP.

Table 2
Baker's Facility–Specific Monitoring of Its Sulfur Contact-Water

Field Parameters	**Units**	**Monitoring Frequency**
Temperature	^{o}C	January and July
Specific Conductance	umhos/cm	January and July
pH	SU	January and July
Monitoring Parameters		
Sulfur, total (EPA 200.7)	mg/L	January and July
Total Dissolved Solids (EPA 160.1)	mg/L	January and July
Sulfate (EPA 300 Series)	mg/L	January and July
Major Anions (See Table 6)	mg/L	January
Major Cations (See Table 6)	mg/L	January

The Port's Facility–Specific Monitoring

The Port owns a tunnel, now out of service, beneath Baker's prill stockpile area (see Attachment A for the tunnel location). Formerly, the tunnel included a conveyor belt for moving sulfur prill from Baker's stockpile area to a wharf. The Port cleaned the tunnel system prior to taking it out of service. Historically, water has seeped into the tunnel. The Port shall monitor its tunnel water for the parameters shown in Table 3. Tunnel water samples must be collected at a point along the tunnel where any standing water is deepest along the extent of the tunnel. Tunnel water analytical results must be reported semiannually for the parameters and frequencies shown in Table 3, below.

Table 3
The Port Tunnel Water Monitoring

Field Parameters	**Units**	**Monitoring Frequency**
Temperature	^{o}C	Semiannually
Specific Conductance	umhos/cm	
pH	SU	
Monitoring Parameters		
Sulfur, total (EPA 200.7)	mg/L	Once during the rainy season during a storm event.
Total Dissolved Solids (EPA 160.1)	mg/L	
Sulfate (EPA 300 Series)	mg/L	
Major Anions (See Table 6)	mg/L	
Major Cations (See Table 6)	mg/L	

Discharger's Groundwater Monitoring

Sulfur operations have impacted groundwater. Therefore, the Discharger must continue to operate and maintain its groundwater monitoring system in accordance with this revised MRP as approved by the Executive Officer. Monitoring must be reported semiannually and annually. The Discharger shall collect, preserve, and transport groundwater samples in accordance with the approved Sample Collection and Analysis Plan and this revised MRP. The groundwater monitoring wells include MW-1s, MW-2s, MW-3s, MW-4p, MW-5, MW-6, MW-7, MW-8, MW-9, MW-10, MW-11, MW-12, MW-13p, MW-13s, MW-14, and any additional wells installed thereafter.

The groundwater gradient and flow direction shall be determined and reported semiannually. Groundwater samples must be collected, analyzed, and reported for the monitoring parameters in accordance with the methods and frequency specified in Table 4.

Table 4
Discharger's Groundwater Monitoring

Field Parameters	Units	Monitoring Frequency
Groundwater Elevation	Ft., & hundredths, MSL	Semiannually/annually
Temperature	^{o}C	Semiannually/annually
Specific Conductance	umhos/cm	Semiannually/annually
pH	SU	Semiannually/annually
Monitoring Parameters		
Sulfur, total (EPA 200.7)	mg/L	Semiannually/annually
Total Dissolved Solids (EPA 160.1)	mg/L	Semiannually/annually
Sulfate (EPA 300 Series)	mg/L	Semiannually/annually
Major Anions (See Table 6)	mg/L	Annually
Major Cations (See Table 6)	mg/L	Annually

Discharger's Surface Water Monitoring

The Discharger shall sample and analyze surface water at the storm water retention basin shown on Attachment A to this revised MRP. Surface water samples must be obtained during the first hour of discharge from (1) the first storm event of the wet season, and (2) at least one other storm event in the wet season. Surface water monitoring results must be reported semiannually. Surface water samples must be collected, analyzed, and reported for the monitoring parameters in accordance with the methods and frequency specified in Table 5.

Table 5
Discharger's Surface Water Monitoring

Field Parameters	Units	Monitoring Frequency
Temperature	^{o}C	Obtain all Field Parameters from two storm events as described in the industrial storm water general permit
Specific Conductance	µmhos/cm	
pH	pH number	
Monitoring Parameters		
Major Anions (See Table 6)	mg/L	Obtain all Monitoring Parameters from two storm events as described in the industrial storm water general permit
Major Cations (See Table 6)	mg/L	
Sulfur, total (EPA 200.7)	mg/L	
Total Dissolved Solids (EPA 160.1)	mg/L	
Total Suspended Solids (EPA 160.2)	mg/L	
Sulfate (EPA 300 series)	mg/L	

Analytical Methods

Table 6 contains the constituents and analytical methods for anions, cations, and total sulfur.

Table 6
Analytical Methods for Major Anions, Major Cations, and Total Sulfur

Parameter	Units	USEPA Method
Major anions and sulfate (bicarbonate, carbonate, chloride, sulfate)	mg/L	300 Series
Major cations (calcium, magnesium, sodium, potassium)	mg/L	6010
Sulfur, total	mg/L	200.7

REPORT CONTENTS AND REPORT SUBMITTAL DATES

Semiannual, annual, and facility-specific monitoring reports shall be submitted by the dates shown below in **Table A** of Section A. The Discharger, Martin, Baker, and the Port must fully disclose and report all monitoring data and all relevant information as required in this revised MRP.

In reporting any monitoring data, the Discharger, Martin, Baker, and the Port shall arrange the data in tabular form so that the date, sample type, and reported field and analytical result for each sample are readily discernible. The Discharger, Martin, Baker, and the Port must summarize the data in such a manner so as to illustrate clearly compliance with this MRP, spatial trends, and temporal trends, as applicable. The results of any monitoring done more frequently than required by the revised MRP must be fully disclosed and reported in the semiannual report for the period in which the monitoring occurred.

A letter transmitting each monitoring report must accompany each report, including any groundwater, surface water, and/or facility-specific monitoring report. The Discharger, Martin, Baker, the Port, and Metropolitan must include a brief description of any corrective measures and/or a schedule for implementing the measures. **All reports and transmittal letters must be signed** by persons identified below:

a. For a corporation*:* by a principal executive officer of at least the level of senior vice-president.
b. For a partnership or sole proprietorship*:* by a general partner or the proprietor.
c. A duly authorized representative of a person designated in a or b above if:
    i. The authorization is made in writing by a person described in a or b of this provision;
    ii. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, superintendent, or position of equivalent responsibility. A duly authorized representative may thus be either a named individual or any individual occupying a named position; and
    iii. The written authorization is submitted to the Central Valley Water Board.

For any monitoring report, a penalty of perjury statement must be signed by Martin, Baker, the Port, and Metropolitan:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

As required by the California Business and Professions Code Sections 6735, 7835, and 7835.1, all Groundwater Monitoring Reports must be prepared under the direct supervision of a Registered Engineer or Geologist and must be signed and stamped by the registered professional.

Any transmittal letter or report that does not comply with the required format will be rejected and the Discharger, Martin, Baker, and/or the Port as applicable will be deemed to be in noncompliance with the revised MRP. Reports must include the information listed below in addition to the results of monitoring required by the revised MRP.

A. Reporting Due Dates

The following table provides the due dates for submittal of reports.

Table A
Reporting Due Dates

Report Type	Monitoring Frequency/Schedule	Monitoring Period	Reporting Due Date
Semiannual	Semiannual	1 January – 30 June	**31 July**
		1 July – 31 December	**31 January**
Facility–specific	January	January	**31 July**
Facility–specific	July	July	**31 January**
Annual		1 January – 31 December	**31 January**

B. Semiannual Monitoring Reports

Any semiannual monitoring report must include the transmittal letter, signed certification statement, water quality data, field data, the Port's facility-specific tunnel monitoring, and observations collected during the reporting period. Reports must be submitted per the **Reporting Due Dates in Table A** of Section A, above. Semiannual monitoring reports must include the results of all monitoring performed for the monitoring period, in addition to the information listed below:

1. Semiannual monitoring reports must be submitted in hard copy;

2. The Discharger must report the surface water monitoring results. If no surface water was present during the monitoring period, then this information must be included in the semiannual report;

3. The Discharger must include the Port's facility-specific monitoring and analysis of the tunnel water. If the tunnel was dry, then this information must be included in the semiannual report;

4. The Discharger must report the groundwater flow rate, gradient, and direction in the uppermost aquifer, in any zones of perched water, and in any additional zone of

saturation monitored pursuant to this revised MRP. Results must be reported semiannually, including the times of highest and lowest elevations of the water levels in the wells;

5. The Discharger must provide any monitoring data in summary tables. In reporting any monitoring data, the Discharger must arrange the data in tables so that the date, the constituents, the concentrations, units, and compliance are readily discernible. The data must be summarized to illustrate clearly increasing trends and decreasing trends. Constituent concentrations greater than water quality objectives must be shown in bold font. All historical and current analytical results must be tabulated and submitted;

6. The Discharger must include a discussion of the monitoring results;

7. Notations of any groundwater constituent concentrations greater than water quality objectives must precede any tabular summaries;

8. The Discharger must include a site map showing the facility features, existing and historical monitoring wells, direction of groundwater flow, and storm water and surface water monitoring locations;

9. The Discharger must include hard copies of all analytical reports as signed by the laboratory director. Signed chains-of-custody must be included;

10. The Discharger must include the monitoring well field data sheets that provide the date and time, type of pump, purging and sampling method, and water disposal method; and

11. The Discharger must provide a description of the sampling procedure (number and description of the samples, field blanks, travel blanks, and duplicate samples taken, the type of containers and preservatives used, the date and time of sampling, the name of the person taking the samples, and any other observations.

C. Baker and Martin's Facility-Specific Monitoring Reports

Baker and Martin's facility-specific monitoring reports must include the data obtained from sampling the sulfur-contact water. Baker and Martin must submit their facility-specific monitoring reports per the **Reporting Due Dates shown in Table A** of Section A, above. Any facility-specific monitoring report must include the following:

1. Reports must be submitted in hard copy with a transmittal letter and signed certification statement;

2. Stiff diagrams must be prepared from the major cations and anions and must be submitted with the report due by 31 July of each year;

3. Historical and current monitoring data of the sulfur-contact water must be presented in summary tables (laboratory reports are not considered to be summary tables) so that the sample date, the constituents, the concentrations, and units are readily discernible; and

4. Signed hard copies of laboratory reports and chains-of-custody must be included.

D. Annual Monitoring Summary Report

The Discharger shall submit an Annual Monitoring Summary Report to the Central Valley Water Board covering the previous monitoring year by the **Reporting Due Dates shown in Table A** of Section A, above. The annual report must contain the transmittal letter, signed certification statements, monitoring results, information required in the semiannual monitoring report, and the additional information as defined below:

a. The Discharger must provide tabular summaries of all monitoring data collected during the year;

b. The Discharger must submit time versus concentration graphs. For each groundwater monitoring well, the Discharger must submit time-series graphs showing analytical data for all historical samples (i.e., 1991 through the current year). Each time-series graph must plot the concentration of one constituent for one or more wells for the period of record at a scale appropriate to show trends or variations in water quality. Graphs for background wells must be plotted at the same scale as any other well. The graphs must plot each datum, rather than plotting mean values. Log and semi-log graphs are not acceptable for this requirement;

c. The Discharger must include a comprehensive discussion of its compliance record, any planned corrective actions, and the results of any implemented corrective actions;

d. The Discharger must include a written summary of the monitoring results, indicating any changes made or observed since the previous annual report;

e. The Discharger must submit hydrographs of each well semiannually. The hydrographs must show the elevation of groundwater with respect to the elevations of the top and bottom of the screened interval and the elevation of the pump intake;

f. The Discharger must discuss any data gaps and potential deficiencies/redundancies in the monitoring system or reporting program;

g. The Discharger must evaluate the groundwater monitoring parameters annually with regards to the cation/anion balance, and the results must be graphically presented using Stiff diagrams; and

h. The Discharger must submit a database with electronic Excel tables on a CD that includes the historical and current analytical results, field parameters, the analyte, test

method, units, PQL, MDL, laboratory qualifiers, dates, and sample identification numbers. Numbers must be presented as numbers, not text. In the tables, non-detects must be represented by "ND" or the symbol "<" followed by the laboratory's MDL. The laboratory's qualifiers must be defined. In addition, all historical data for 1991 through the current year must be submitted in the electronic Excel tables. The database format must be acceptable to the Central Valley Water Board so that statistical and other analysis may be performed.

The Discharger must implement the above monitoring program on the effective date of this Order.

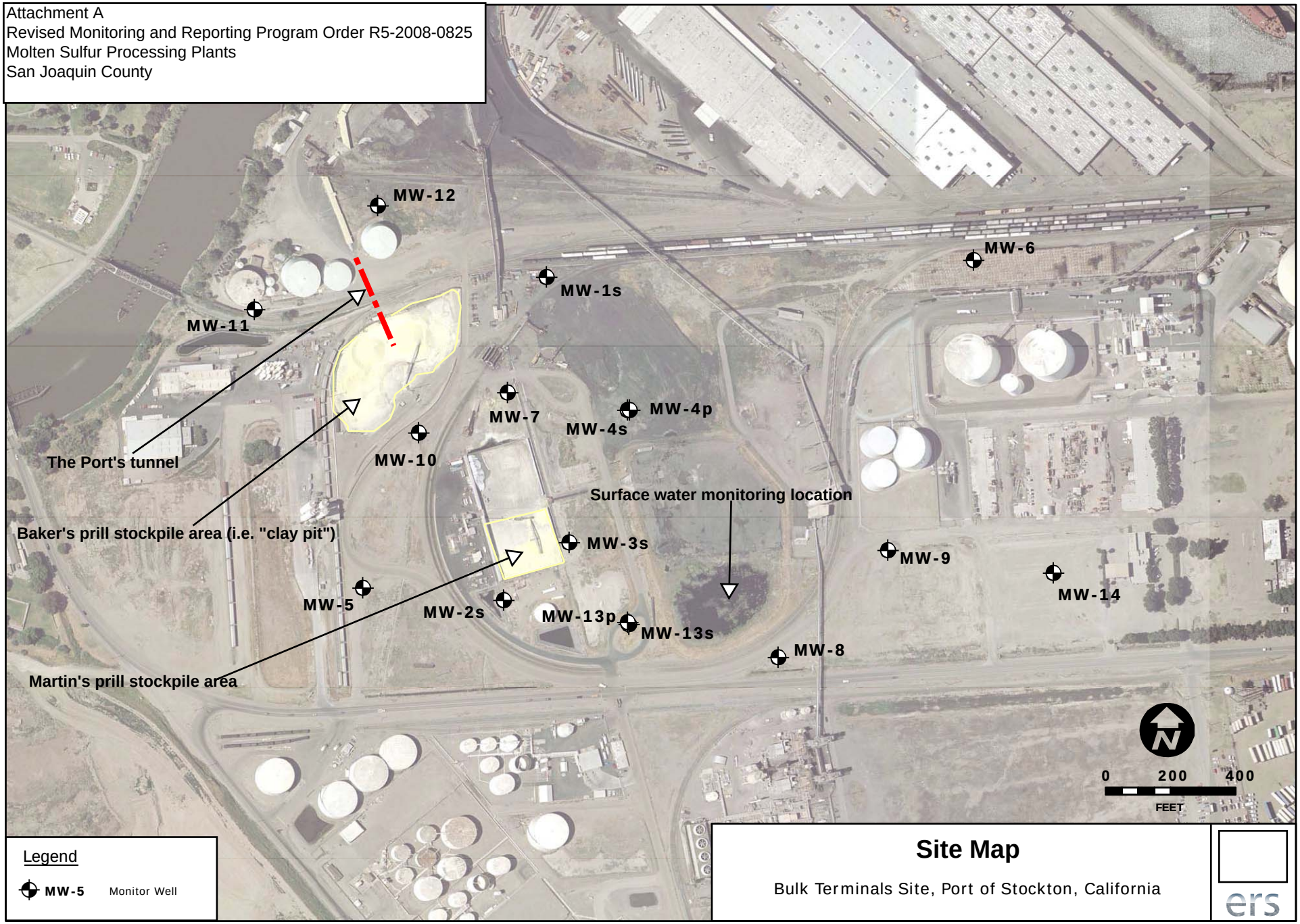
Original signed by

PAMELA C. CREEDON, Executive Officer

13 July 2010

Attachment A: Site Map

Attachment A
Revised Monitoring and Reporting Program Order R5-2008-0825
Molten Sulfur Processing Plants
San Joaquin County



Legend

MW-5 Monitor Well

Site Map

Bulk Terminals Site, Port of Stockton, California

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Environmental Risk Services Corporation