CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

TENTATIVE ORDER No. R2-2012-0XXX

UPDATED SITE CLEANUP REQUIREMENTS AND RESCISSION OF ORDER NO. 92-093 FOR:

EQUILON ENTERPRISES LLC doing business as (dba)
SHELL OIL PRODUCTS US (SHELL)

For the

SOUTH SAN FRANCISCO TERMINAL
SOUTH SAN FRANCISCO, SAN MATEO COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter the Board), finds that:

1. **Site Location:** The South San Francisco Terminal (hereinafter referred to as the Facility or the Site) is located at 135 North Access Road in South San Francisco (Figure 1). The Facility is located in a mixed industrial-commercial area and is bordered by the South San Francisco Water Quality Control Plant to the north, San Bruno Creek and the San Francisco International Airport (SFO) to the south, San Francisco Bay (Bay) to the east, and commercial businesses to the west.

2. **Site Description:** The 7-acre Facility is an operating petroleum product distribution terminal that provides emergency backup storage of fuel for SFO. The Facility includes nine aboveground fuel tanks (ASTs), an inactive vapor recovery unit, an inactive truck rack, and a terminal office building (Figure 2).

3. **Site Ownership and Discharger:** The Terminal is currently owned and operated by Equilon Enterprises LLC (Equilon) doing business as (dba) Shell Oil Products US (Shell). Equilon is the sole landowner and Facility operator and is hereinafter referred to as the Discharger.

4. **Site History and Environmental Impacts:** The Terminal was constructed in 1964 and has been used for storage of petroleum fuel products, including gasoline, diesel, and aviation fuel. Jet-A aviation fuel is the only fuel currently stored at the Facility. Several investigations to evaluate soil and groundwater conditions at the Facility have been conducted since the mid-1980s. The results of these investigations indicate that gasoline, diesel, fuel components benzene, toluene, ethylbenzene, xylene (BTEX), and fuel oxygenates [methyl-tertiary butyl ether (MTBE), and tert-butyl alcohol (TBA)] have been detected in soil and groundwater beneath various portions of the Facility. Impacted groundwater has also been detected to the south of the Facility across North Access Road.

5. **Regulatory Status:** In August 1992, the Board adopted Site Cleanup Requirements (SCR) Order No. 92-093, which required removal of all separate phase hydrocarbons (SPH), and investigation and remediation of on-site soil and groundwater contamination. The requirements of this Order have been met by Equilon.

6. **Purpose of Order:** Equilon has discharged petroleum fuel hydrocarbons and oxygenates to soil and groundwater underlying the Facility and off-site. Concentrations of petroleum fuel hydrocarbons have exceeded applicable water quality objectives for groundwater and could potentially threaten surface water quality in the adjacent San Bruno Creek. The purpose of this Order is to require additional remediation of soil and groundwater contamination caused by releases from the Facility to a level protective of human and environmental health and beneficial uses of water resources, considering current and reasonable future land and water uses. This Order establishes appropriate cleanup standards and requires 1) performance monitoring to demonstrate remedial action effectiveness, 2) removal of SPH to the extent practicable, 3) optimization of the groundwater monitoring well network, 4) trigger levels for potential off-site impacts and completion of a contingency plan should additional remedial measures become necessary, 5) remediation of groundwater potentially discharging to San Bruno Creek, and 6) a monitoring program to provide an ongoing assessment of groundwater conditions and impacts from potential new releases at the Facility.

7. **Geology:** The Site elevation is approximately 12 feet above mean sea level and is situated on land reclaimed from the Bay; artificial fill is underlain by up to 33 feet of Holocene bay mud and marine deposits consisting of sandy silt, clayey silt, clayey sand, silty clay, and sandy clay with occasional interbedded silty sand and clayey sand to the total depth explored of 34 feet below the ground surface (bgs). The Holocene bay mud and marine deposits generally thicken to the east; however, directly east of the Site they are interrupted by an outcrop of Franciscan sandstone.

8. **Hydrogeology:** The groundwater gradient and flow direction in the water-bearing artificial fill are highly variable, but flow is generally to the south-southwest. The depth to groundwater at the Site has historically been measured as shallow as zero feet bgs and as deep as 31.4 feet bgs, but typically is found ranging between 4 to 10 feet bgs.

9. **Hydrology**: The closest surface water body is San Bruno Creek, which is directly south of the Site across North Access Road. The lower reach of the Creek is partially tidally controlled, and flows eastward towards the San Francisco Bay, which is approximately 500 feet east of the Site. Due to the low elevation of the Site and the proximity to the Bay, projected sea-level rise could cause inundation of the terminal at some point in the future.

10. **Storm Water Management**: Storm water drains into two sump pumps and one catch basin within the unpaved tank farm area, and into two catch basins in the paved operational area (Figure 3). Collected storm water is routed to the main lift station prior to discharge off-site. Storm water from the paved terminal yard is allowed to gravity-drain to the lift station, where it is sampled. Storm water from the tank farm area is sampled as it is pumped into the lift station from an external spigot. The water is held in the lift station until analytical data is received (this applies only to the first sampling event of the year) and reviewed. If the

analytical data indicate there are no pollutants present in storm water, the water is discharged from an outfall into San Bruno Creek.

11. Storm Water Monitoring: The Site operates under the National Pollutant Discharge Elimination System's (NPDES) Industrial Storm Water General Permit Order 97-03-DWQ (General Permit), which requires implementation of management measures that will achieve best conventional pollutant control. The General Permit also required the development of a Storm Water Pollution Prevention Plan (SWPPP) and a monitoring plan, which was developed by Equilon and is reviewed annually. Equilon's monitoring plan includes best management practices (BMPs) for preventing pollution and removing pollutants from storm water discharges.

Storm water is collected twice during the rainy season (October through May), and analyzed for total suspended solids, total organic carbon, specific conductivity, and pH. Equilon previously analyzed storm water for BTEX, MTBE and oil and grease; however, these analyses were discontinued for BTEX after the 2000-2001 wet season and for MTBE and Oil and Grease after the 2005-2006 wet season due to low to non-detectable concentrations of each constituent. Equilon's policy to not resample for low to non-detectable constituents after two consecutive samplings is based on the General Permit sections B.5.c.ii and B.5.c.iii.

12. Remedial Investigations and Monitoring: Equilon has conducted numerous subsurface assessments to evaluate soil and groundwater conditions at the Site since 1985, many of which were in response to known spills and releases that occurred due to piping, oil/water separator, clarifier, and underground waste water, sump, and/or storage tank leaks. Known releases of gasoline, diesel, jet fuel, and fuel additives occurred near the loading rack and vapor recovery unit between 1981 and 1999. Assessment activities included the installation of 30 groundwater monitoring wells and multiple soil borings. Tables 1 and 2 summarize the maximum contaminant concentrations in groundwater during the most recent three-year period (2009-2011) as measured in on-site and off-site wells, respectively. Figures 4A-E show the lateral extent of diesel, gasoline, benzene, MTBE and TBA in groundwater in 2004 and 2011, respectively. Details of previous remedial investigation activities are presented the Revised Feasibility Study and Corrective Action Plan (FS/CAP), *CRA, July 30, 2012*.

Table 1: Maximum Contaminant Concentrations in Groundwater Measured in On-Site Monitoring Wells[1] (2009 through 2011)

Constituent	Contaminant Concentration (µg/l)	Basis
Gasoline (TPH-g)	62,000	RW-19 (Jun-09); 2011 Semi-Annual Monitoring, 3rd and 4th Quarters
Diesel Fuel (TPH-d)	41,000	MW-7A (Mar-09); 2011 Semi-Annual Monitoring, 3rd and 4th Quarters
Benzene	2,800	RW-19 (Sept-09); 2011 Semi-Annual Monitoring, 3rd and 4th Quarters
Toluene	4,400	RW-19 (Jun-09); 2011 Semi-Annual Monitoring, 3rd and 4th Quarters

Ethylbenzene	1,100	RW-19 (Jun-09); 2011 Semi-Annual Monitoring, 3rd and 4th Quarters
Xylenes	12,000	RW-19 (Jun-09); 2011 Semi-Annual Monitoring, 3rd and 4th Quarters
Methyl-tert Butyl Ether (MTBE)	7,100	RW-17 (Jun-09); 2011 Semi-Annual Monitoring, 3rd and 4th Quarters
tert-Butyl Alcohol (TBA)	8,000	MW-29 (Jun-10); 2011 Semi-Annual Monitoring, 3rd and 4th Quarters

[1] On-site wells include MWs 1, 2A, 3A, 7A, 10 through 16, 20, 21, 22, and 25 through 30, and RWs: 4, 6, 8A, 9, and 17 through 19

Table 2: Maximum Contaminant Concentrations in Groundwater Measured in Off-Site Monitoring Wells[1] (2009 through 2011)

Constituent	Contaminant Concentration (µg/l)	Basis
Gasoline (TPH-g)	2,100	MW-31 (Sept-10); 2011 Semi-Annual Monitoring, 3rd and 4th Quarters
Diesel Fuel (TPH-d)	140	MW-24 (Mar-10); 2011 Semi-Annual Monitoring, 3rd and 4th Quarters, Appendix A
Benzene	<5	2011 Semi-Annual Monitoring, 3rd and 4th Quarters, Appendix A
Toluene	<10	2011 Semi-Annual Monitoring, 3rd and 4th Quarters, Appendix A
Ethylbenzene	<10	2011 Semi-Annual Monitoring, 3rd and 4th Quarters, Appendix A
Xylenes	<10	2011 Semi-Annual Monitoring, 3rd and 4th Quarters, Appendix A
Methyl-tert Butyl Ether (MTBE)	2,000	MW-31 (Sept-10); 2011 Semi-Annual Monitoring, 3rd and 4th Quarters, Appendix A
tert-Butyl Alcohol (TBA)	560	MW-31 (Mar-11); 2011 Semi-Annual Monitoring, 3rd and 4th Quarters, Appendix A

[1] Off-site wells include MWs 23, 24, and 31

13. Risk Assessment: Human and ecological health risks from exposure to impacted soil, groundwater, or associated vapors were assessed by comparison of contaminant levels to the Board's May 2008 Environmental Screening Levels (ESLs) based on the current land use of the Facility and surrounding properties. This risk evaluation is presented in the July 2012 FS/CAP. This type of "tier 1" screening level risk assessment is appropriate for the Facility because ESLs are conservative indicators considering human and environmental exposure. Specific potential exposure pathways and/or receptors considered include 1) direct Facility worker contact with soil contamination, 2) groundwater discharge into San Bruno Creek and potential risk to ecological receptors and wildlife habitat, and 3) vapor intrusion from groundwater to indoor air. Findings suggest that there are currently no unacceptable risks for the potential exposure pathways listed above, based on the current land use. However, concentrations of gasoline and MTBE detected in off-site well MW-31 have steadily

increased since 2009; therefore, the potential for threats to San Bruno Creek may increase to unacceptable levels if trends continue.

A more detailed human and/or ecological health risk assessment will be required 1) if data indicate that reasonable potential human or ecological exposures exist as determined by the Discharger or Board staff; 2) upon presentation of a credible, specific reuse/redevelopment plan to Board staff for the Site or areas immediately adjacent to the Site where off-site impacts exist; or 3) upon any actual or proposed material change to the Site as determined by the Discharger or Board staff. The purpose of the risk assessment would be to identify and estimate risks to potential human or ecological receptors posed by any residual environmental contaminants at the Site for any proposed change in land use.

14. **Corrective Action Plan:** Several phases of remedial activities have been conducted at the Site since 1985 in response to documented releases of petroleum fuel hydrocarbons to soil and groundwater and to address the presence of SPH in specific portions of the Site. Remedial actions have included UST removal and soil excavation, installation of seven total-fluids recovery wells and a groundwater extraction (GWE) system, as well as a one-year air sparging pilot test. Historically, SPH have been detected at different times in monitoring wells RW-4, 6, 8A, 17, 18, and 19 and MW-7A, 14, 20 and 29; however, SPH were only detected in MW-7A and MW-29 in 2011. A detailed discussion of remedial actions is presented in the July 2012 FS/FS/CAP.

Board staff approved the FS/FS/CAP in a letter dated August 15, 2012. The FS/CAP evaluated dual-phase extraction (DPE), soil excavation, high-pressure granulated active carbon (GAC) slurry injection, and monitored natural attenuation (MNA) as potential remedial technologies for the Site. Findings presented in the FS/CAP indicate:

a) DPE is likely infeasible economically because of the costly additions of wells and infrastructure that would be required to overcome low soil permeability, as indicated by the low TPH and MTBE mass removal rates by the former groundwater extraction system that operated on-site from 1999 to 2009;
b) soil excavation would be cost prohibitive and difficult to implement given the location of storage tanks and related infrastructure; and
c) high-pressure GAC is feasible but not warranted based on remaining concentrations of COCs in soil and groundwater at the Site.

The Discharger selected MNA as the preferred remedial alternative based on its technical feasibility and the adequacy of environmental protection at and around the Site. The choice of MNA as a remedy is supported by:

a) the absence or relatively low concentrations of COCs in off-site and perimeter monitoring wells(with the exception of well MW-31, which contains elevated concentrations of COCs that are potentially discharging to San Bruno Creek);
b) the absence of drinking water wells around the Site, and
c) the low existing risk to sensitive receptors.

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15. Order Requirements: This Order establishes appropriate cleanup standards and requires:

1) performance monitoring to demonstrate effectiveness of MNA (Task #1),
2) removal of SPLH to the extent practicable (Task #2),
3) optimization of the monitoring well network (Task #3)
4) trigger levels for potential off-site impacts (Task #4a),
5) completion of a contingency plan should additional remedial measures become necessary (Task #4b),
6) remediation of petroleum-impacted groundwater potentially discharging to San Bruno Creek (Task #5), and
7) a monitoring program to provide an ongoing assessment of groundwater conditions and impacts from potential new releases at the Facility (Self-Monitoring Program, attached).

16. Basis for Cleanup Standards:

a. **General**: State Board Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California," applies to this discharge and requires attainment of background levels of water quality, or the highest level of water quality which is reasonable if background levels of water quality cannot be restored. Cleanup levels other than background shall be consistent with the maximum benefit to the people of the State, not unreasonably affect present and anticipated beneficial uses of such waters, and not result in exceedance of applicable water quality objectives.

State Board Resolution No. 92-49, "Policies and Procedures for Investigation and Cleanup and Abatement of Discharges under Water Code Section 13304," applies to this discharge. This order and its requirements are consistent with the provisions of Resolution No. 92-49, as amended.

b. **Beneficial Uses**: The Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) is the Board's master water quality control planning document. It designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. It also includes programs of implementation to achieve water quality objectives. The Basin Plan was duly adopted by the Board and approved by the State Board, U.S. EPA, and the Office of Administrative Law where required.

Board Resolution No. 89-39, "Sources of Drinking Water," defines potential sources of drinking water to include all groundwater in the region, with limited exceptions for areas of high total dissolved solids (TDS), low yield, or naturally-high contaminant levels. Groundwater underlying the Site does not qualify as a potential source of drinking water based on elevated TDS concentrations and the formation's limited sustained yield.

The Site is located within the South San Francisco Groundwater Basin, as defined in the Basin Plan. The Basin Plan designates the following existing and potential beneficial uses of groundwater in this basin, including underlying and adjacent to the Site:

1) Municipal and domestic supply
2) Industrial process supply

3) Industrial service supply
4) Agricultural supply

San Bruno Creek has the following additional potential beneficial uses, as defined in the Basin Plan:

1) Water contact recreation
2) Non-contact water recreation
3) Warm fresh water habitat
4) Wildlife habitat

c. **Basis for Groundwater Cleanup Standards**: The groundwater cleanup standards for the Site are based on aquatic habitat goals and odor or nuisance values. Cleanup to these levels will protect existing and potential future beneficial uses of groundwater.

17. **Future Changes to Cleanup Standards**: The goal of this remedial action is to restore the beneficial uses of groundwater underlying and adjacent to the Site. Results from other similar sites suggest that full restoration of beneficial uses to groundwater as a result of active remediation at this Site may not be possible. Establishment of containment zones may be considered, provided they are consistent with Resolution 92-49.

18. **Reuse or Disposal of Extracted Groundwater**: Board Resolution No. 88-160 allows discharges of extracted, treated groundwater from site cleanups to surface waters only if it has been demonstrated that neither reclamation nor discharge to the sanitary sewer is technically and economically feasible.

19. **Basis for 13304 Order**: California Water Code Section 13304 authorizes the Board to issue orders requiring the Discharger to cleanup and abate waste where the Discharger has caused or permitted waste to be discharged or deposited where it is or probably will be discharged into waters of the State and creates or threatens to create a condition of pollution or nuisance.

20. **Cost Recovery:** Pursuant to California Water Code Section 13304, the Discharger is hereby notified that the Board is entitled to, and may seek reimbursement for, all reasonable costs actually incurred by the Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial actions, required by this order.

21. **CEQA:** The remedial option chosen for the Site is MNA, and no activities other than continued Site monitoring will be associated with the chosen remedy. Consistent with Section 15061 b.3, the activity is covered by the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment. Where it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment, the activity is not subject to CEQA.

22. Notification: The Board has notified the Discharger and interested agencies and persons of its intent to update Site cleanup requirements and has provided them with an opportunity to submit their written views and recommendations.

23. Public Hearing: The Board, in a public meeting, heard and considered all comments pertaining to the proposed waste discharge requirements for the Site.

IT IS HEREBY ORDERED, pursuant to Section 13304 and Section 13267 of the California Water Code, that the Discharger (and/or its agents, successors, or assigns) shall cleanup and abate the effects described in the above findings as follows:

A. PROHIBITIONS

1. The discharge of wastes or hazardous substances in a manner which will degrade water quality or adversely affect beneficial uses of waters of the State is prohibited.

2. Further significant migration of wastes or hazardous substances through subsurface transport to waters of the State is prohibited.

3. Activities associated with the subsurface investigation and cleanup which will cause significant adverse migration of wastes or hazardous substances are prohibited.

B. REMEDIAL ACTION PLAN AND CLEANUP STANDARDS

1. **Implement Corrective Action**: The Discharger shall implement corrective actions as necessary to comply with the requirements of this Order.

2. **Groundwater Cleanup Standards**: Groundwater, including on-site and off-site, that is impacted by petroleum fuel hydrocarbons and oxygenates attributable to releases at the Site shall be cleaned up to the final standards identified by the Discharger in the FS/CAP, as approved by the Board staff on August 15, 2012, presented below.

Constituent	Standard (µg/l)	Basis
Gasoline (TPH-g)	210	Aquatic habitat goal[1]
Diesel Fuel (TPH-d)	210	Aquatic habitat goal
Benzene	46	Aquatic habitat goal
Methyl-tert Butyl Ether (MTBE)	1,800	Ceiling value[2]
tert-Butyl Alcohol (TBA)	18,000	Aquatic habitat goal

1 Aquatic Habitat Goals can be found in the environmental screening level (ESL) document Table B and F-1b, in Screening for Environmental Concerns at Sites With Contaminated Soil and Groundwater, California Regional Water Quality Control Board, Interim Final – November 2007 [Revised May 2008].

2 Ceiling Value is based on an odor threshold, half the solubility or 50,000 µg/L maximum, whichever is lower. Intended to limit nuisances and general resource degradation.

C. TASKS

1. **Implementation of Corrective Action Plan (CAP) and Self-Monitoring Program (SMP):** The Discharger shall immediately begin collection and review of bioparameter data to evaluate subsurface biological conditions as proposed in the approved FS/CAP, although the remedial actions may be subsequently revised. At a minimum, implementation of remedial actions shall be demonstrated through compliance with the SMP attached to this Order, and also may be revised by the Executive Officer. The attached SMP is designed to collect information necessary to evaluate the potential migration of COCs associated with known releases at the Site and the effectiveness of remedial actions implemented to address those releases. The attached SMP may be revised at the discretion of the Executive Officer, as necessary to better evaluate Site conditions, discharges, and remedial action effectiveness.

   COMPLIANCE DATE: Upon adoption of Order

2. **Contingency Plan for Separate-Phase Liquid Hydrocarbon (SPLH) Removal:** The Discharger shall submit a technical report, acceptable to the Executive Officer, which proposes appropriate measures for removal of SPLH, when present, to the extent practicable. Contingency SPLH removal measures shall consider all appropriate passive and active methods. The plan shall also include a strategy, acceptable to the Executive Officer, with specific triggers and a time table for when and how SPLH removal measures will be implemented. The Discharger shall install any monitoring devices and conduct any testing necessary to appropriately and adequately evaluate SPLH removal measures and ensure that SPLH removal is occurring to the extent that is economically and technologically practicable. Certification that contingency measures have been implemented and discussion of their performance and effectiveness shall be included in the self-monitoring reports submitted pursuant to Task No. 1.

   COMPLIANCE DATE: January 30, 2013

3. **Optimization of Monitoring Well Network:** The Discharger shall submit a technical report, acceptable to the Executive Officer, which evaluates and optimizes the location, condition, and effectiveness of all monitoring wells that comprise the Site groundwater monitoring network. The evaluation shall consider well location, total well depth, screen interval, as well as the total number and spatial distribution of wells in terms of providing adequate monitoring data for plume monitoring and remediation effectiveness evaluation. The report shall propose destruction, repair, and/or replacement of any wells that are damaged, improperly screened, or poorly located. The report shall also propose construction of any new wells necessary to provide sufficient monitoring data needed to adequately perform the tasks specified in this Order.

   COMPLIANCE DATE: March 30, 2013

4a) **Trigger Levels for Potential Off-Site Impacts:** The Discharger shall submit a technical report, acceptable to the Executive Officer, which proposes concentration limits for petroleum fuel hydrocarbons and/or fuel additives in groundwater, which will serve as

triggers for additional remediation (Note- these trigger levels are not the cleanup goals listed in section B.2 above).

Trigger levels are meant to apply to groundwater impacts at the property boundary (such as those indicated at monitoring wells MW-25 through MW-30) which are attributable to releases at the Facility. At a minimum, trigger levels shall be based on the magnitude of contaminant concentrations in groundwater at the property boundary and off-site for the most recent three-year period. Trigger levels shall be set at a level, which when exceeded, is a strong indication of a new release or significant change in Site conditions or plume behavior. Trigger levels shall be re-evaluated every three years as long as groundwater impacts, attributable to releases at the Facility, exceed cleanup standards. The report shall identify specific monitoring wells (compliance points) where trigger levels will apply and shall propose procedures, such as immediate re-sampling, to be used to confirm a trigger level exceedance. A confirmed exceedance of a trigger level shall be followed by bi-monthly or more frequent sampling of the suspect monitoring well for at least one year, or until constituent concentrations drop below trigger levels for three consecutive bi-monthly sampling events.

4b) **Contingency Remediation Plan:** In the event that a trigger level is exceeded for any three of six consecutive bi-monthly sampling events, including the initial sample exceedance, the Discharger shall submit a technical report, acceptable to the Executive Officer, which proposes a contingency remediation plan. The contingency remediation plan shall identify the source of the exceedance and shall propose a method for active source control and/or cleanup. The contingency remediation plan shall also propose a method to control and/or cleanup all impacts in excess of trigger levels at the property boundary and off-site for impacts attributable to the Facility, regardless if a new source is identified

COMPLIANCE DATE: May 30, 2013, then every three years thereafter

5. **Remediation of Groundwater Potentially Discharging to San Bruno Creek**: The Discharger shall submit a work plan, acceptable to the Executive Officer, which proposes remediation measures to address elevated and increasing concentrations of COCs detected in monitoring well MW-31. The Discharger shall investigate the lateral extent of the impact around MW-31, evaluate and propose suitable groundwater treatment options, and increase monitoring frequency until concentrations have been decreased to the technical and economical extent practical.

COMPLIANCE DATE: July 30, 2013

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6. **Remedial Action Effectiveness Evaluation:** The Discharger shall submit a technical report, acceptable to the Executive Officer, which evaluates the effectiveness of all remedies implemented at the Site to contain and/or cleanup contamination or contaminated media such as soil, separate-phase hydrocarbon product, and groundwater addressed by this Order. At a minimum, demonstration of remedial action effectiveness shall be based on adequately measured soil, geologic, hydrologic, and water quality parameters, including contaminant concentrations and water levels, and on appropriately calculated hydraulic, pressure, and

chemical gradients, as necessary. The remedial action effectiveness evaluation shall also address the following:

a. Summary of effectiveness in controlling contaminant migration and protecting human health and the environment
b. Comparison of contaminant concentration trends with cleanup standards
c. Remediation performance data (e.g., contaminant mass removed, volume and mass of separate-phase product removed)
d. Summary of additional investigations (including results)
e. Additional remedial actions proposed to meet cleanup standards (if applicable) including a time schedule for implementing such actions

The remedial action effectiveness evaluation shall include visual presentation of the full current extent of groundwater impacts, in excess of established cleanup standards, using posted contaminant concentrations next to each well or point where measured. For remediation by natural attenuation, which relies on intrinsic biodegradation, remedial action effectiveness shall be based on established spatial and temporal trends of contaminant concentrations and indicator parameters. At a minimum, indicator parameters for intrinsic biodegradation in groundwater (aerobic and anaerobic) shall include dissolved oxygen, nitrate, sulfate, ferrous iron, methane, carbon dioxide, oxygen-reduction (redox) potential, Total Kjeldahl Nitrogen (TKN), phosphate, and pH. The following data presentation methods shall be used to demonstrate spatial and temporal trends of contaminant concentrations and indicator parameters:

a. Figures showing the current and historic extent of contamination
b. Graphs showing current and historic contaminant concentrations and water levels versus time in the direction of groundwater flow and at plume boundaries
c. Graphs showing current and historic contaminant concentrations versus distance in the direction of groundwater flow
d. Figures showing the current and historic spatial distribution of indicator parameters for intrinsic biodegradation
e. Graphs showing current and historic indicator parameter concentrations versus time in the direction of groundwater flow and at plume boundaries
f. Graphs showing current and historic indicator parameter concentrations versus distance in the direction of groundwater flow

In addition, the remedial action effectiveness evaluation shall estimate the time to reach cleanup standards in groundwater, both on-site and off-site, using regression analysis of temporal contaminant concentration trends. The evaluation must evaluate whether other feasible and implementable remedial methods might significantly accelerate the attainment of cleanup standards.

COMPLIANCE DATE: January 30, 2015 and every three years thereafter

7. **Long-Term Flood Protection Report:** The Discharger shall submit a report, acceptable to the Executive Officer, for long-term flood protection at the Terminal. The plan shall include

a consideration of feasible options for achieving protection from the 100-year flood in the face of rising sea levels and increased flood frequency and intensity. The plan shall consider the methods developed by the San Francisco Bay Conservation and Development Commission to predict and protect against future flooding. The Plan shall be updated every 5 years throughout the operational life of the Terminal with the most recently available and credible information at the time of the update.

COMPLIANCE DATE: December 31, 2013, and every 5 years thereafter

8. **Risk Assessment:** When required, the Discharger shall submit a technical report, acceptable to the Executive Officer, which contains a human and/or ecological health risk assessment (risk assessment). An updated and/or more detailed human and/or ecological health risk assessment will be required 1) if data indicate that reasonable potential human or ecological exposures exist as determined by the Discharger or Board staff, 2) upon presentation by the property owner of a credible, specific reuse and/or redevelopment plan to Board staff and the Discharger for areas immediately adjacent to the Site where off-site impacts may exist, or 3) upon any actual or proposed material change to the Facility as determined by the Discharger or Board staff. The purpose of the risk assessment would be to identify risks to potential human or ecological receptors posed by petroleum fuel hydrocarbons discharged from the Facility both on-site and off-site, when applicable.

   COMPLIANCE DATE: 90 days after triggering condition

9. **Proposed Curtailment:** Submit a technical report acceptable to the Executive Officer containing a proposal to curtail remediation. Curtailment includes monitoring program reduction or termination (e.g., abandonment of some or all monitoring wells). The report should include the rationale for curtailment. Proposals for final closure should demonstrate that cleanup standards have been met, contaminant concentrations are stable, and contaminant migration potential is minimal.

   COMPLIANCE DATE: 60 days prior to proposed curtailment

10. **Implementation of Curtailment:** Submit a technical report acceptable to the Executive Officer documenting completion of the tasks identified in Task 9.

    COMPLIANCE DATE: 60 days after Executive Officer approval

11. **Evaluation of New Health-Based Criteria:** Submit a technical report acceptable to the Executive Officer evaluating the effect on the approved remedial action plan of revising one or more cleanup standards in response to revision of drinking water standards, maximum contaminant levels, or other health-based criteria.

    COMPLIANCE DATE: 90 days after requested by Executive Officer

12. **Evaluation of New Technical Information:** Submit a technical report acceptable to the Executive Officer evaluating new technical information that bears on the approved remedial

action plan and cleanup standards for this Site. In the case of a new cleanup technology, the report should evaluate the technology using the same criteria used in the feasibility study. Such technical reports will not be requested unless the Executive Officer determines that the new information is reasonably likely to warrant a revision in the approved remedial action plan or cleanup standards.

COMPLIANCE DATE: 90 days after requested by Executive Officer

13. **Delayed Compliance**: If the Discharger is delayed, interrupted, or prevented from meeting one or more of the completion dates specified for the above tasks, the Discharger shall promptly notify the Executive Officer, and the Board or the Executive Officer may consider revision to this Order.

D. PROVISIONS

1. **No Nuisance**: The storage, handling, treatment, or disposal of polluted soil or groundwater shall not create a nuisance as defined in California Water Code Section 13050(m).

2. **Operations and Maintenance**: The Discharger shall maintain in good working order and operate as efficiently as possible any facility or control system installed to achieve compliance with the requirements of this Order.

3. **Cost Recovery**: The Discharger is liable, pursuant to California Water Code Section 13304, to the Board for all reasonable costs actually incurred by the Board to investigate unauthorized discharges of waste and to oversee cleanup of such waste, abatement of the effects thereof, or other remedial action, required by this Order. If the Site addressed by this Order is enrolled in a State Board-managed reimbursement program, reimbursement shall be made pursuant to this Order and according to the procedures established in that program. Any disputes raised by the Discharger over reimbursement amounts or methods used in that program shall be consistent with the dispute resolution procedures for that program.

4. **Access to Site and Records**: The Discharger shall permit the Board or its authorized representative:

    a. Entry upon premises in which any pollution source exists, or may potentially exist, or in which any required records are kept, which are relevant to this Order.
    b. Access to copy any records required to be kept under the requirements of this Order.
    c. Inspection of any monitoring or remediation facilities installed in response to this Order.
    d. Sampling of any groundwater or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the Discharger.

5. **Contractor / Consultant Qualifications**: All technical documents shall be signed by and stamped with the seal of a California registered geologist, a California certified engineering geologist, or a California registered civil engineer.

6. **Lab Qualifications**: All samples shall be analyzed by State-certified laboratories or laboratories accepted by the Board using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control (QA/QC) records for Board review. This provision does not apply to analyses that can only reasonably be performed on-site (e.g., temperature).

7. **Document Distribution**: Copies of all correspondence, technical reports, and other documents pertaining to compliance with this Order shall be provided to the following agencies. The Executive Officer may modify this list as needed.

    a. San Francisco Bay Regional Water Quality Control Board
    b. City of South San Francisco
    c. San Mateo County Department of Environmental Health

8. **Electronic Reporting:** All reports submitted pursuant to this Order shall be submitted as electronic files in PDF format. The Board has implemented a document imaging system, which is ultimately intended to reduce the need for printed report storage space and streamline the public file review process. Documents in the imaging system may be viewed, and print copies made, by the public, during file reviews conducted at the Board's office.

    Upon request by Board staff, monitoring results, including water level measurements, sample analytical results, coordinates, elevations, etc., shall be provided electronically in Microsoft Excel® or similar spreadsheet format. This format facilitates data computations and/or plotting that Board staff may undertake during their review. Data tables submitted in electronic spreadsheet format will not be included in the case file for public review as long as a PDF version is included.

    All electronic files shall be submitted via the Board's Geotracker website, email (only if the file size is less than 3 MB) or on CD. CD submittals may be included with a print report. Email notification should be provided to Board staff whenever a file is uploaded to Geotracker.

9. **Reporting of Changed Owner or Operator**: The Discharger shall file a technical report on any changes in Site occupancy or ownership associated with the property described in this Order.

10. **Reporting of Hazardous Substance Release**: If any hazardous substance is discharged in or on any waters of the State, or discharged or deposited where it is, or probably will be, discharged in or on any waters of the State, the Discharger shall report such discharge to the Board by calling (510) 622-2369 during regular office hours (Monday through Friday, 8:00 to 5:00). A written report shall be filed with the Board within five working days. The report shall describe the nature of the hazardous substance, estimated quantity involved, duration of incident, cause of release, estimated size of affected area, nature of effect, corrective actions taken or planned, schedule of corrective actions planned, and persons/agencies notified. This reporting is in addition to reporting to the Office of Emergency Services required pursuant to the Health and Safety Code.

11. **Implementation of Self-Monitoring Program**: The Discharger shall implement the Self-Monitoring Program attached to this Order and as may be revised by the Executive Officer.

12. **Rescission of Existing Order**: This Order supercedes and rescinds Order No. 92-093.

13. **Periodic SCR Review**: The Board will review this Order periodically and may revise it when necessary.

I, Bruce H. Wolfe, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on XXXX.

_____

Bruce H. Wolfe
Executive Officer

Attachments: Figure 1: Site Location Map
Figure 2: Groundwater Monitoring Locations
Figure 3: Storm Water Monitoring Locations
Figure 4A-E: Groundwater Plume Isoconcentration Maps for TPHd, TPHg, MTBE, Benzene, and TBA
Self-Monitoring Program

09/04/2012

I:\SHELL\6-chars\2417--\241730-South San Francisco 135 N Access\241730-FIGURES\241730 VICINITY.AI

FIGURE
1

0 1/8 1/4 1/2 1

SCALE : 1" = 1/4 MILE

Shell San Francisco Terminal

135 North Access Road

South San Francisco, California

CONESTOGA-ROVERS & ASSOCIATES

Site Location Map

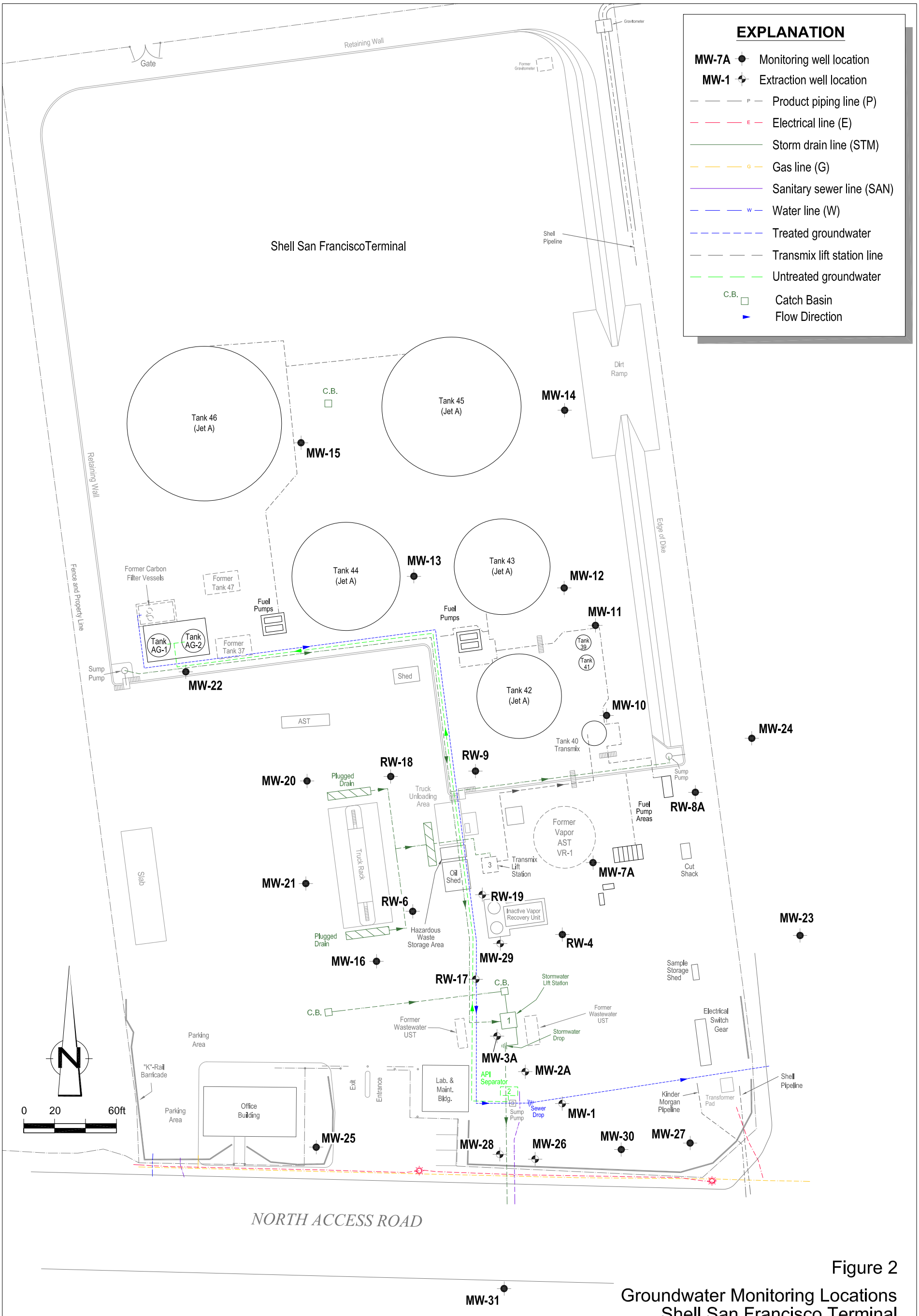
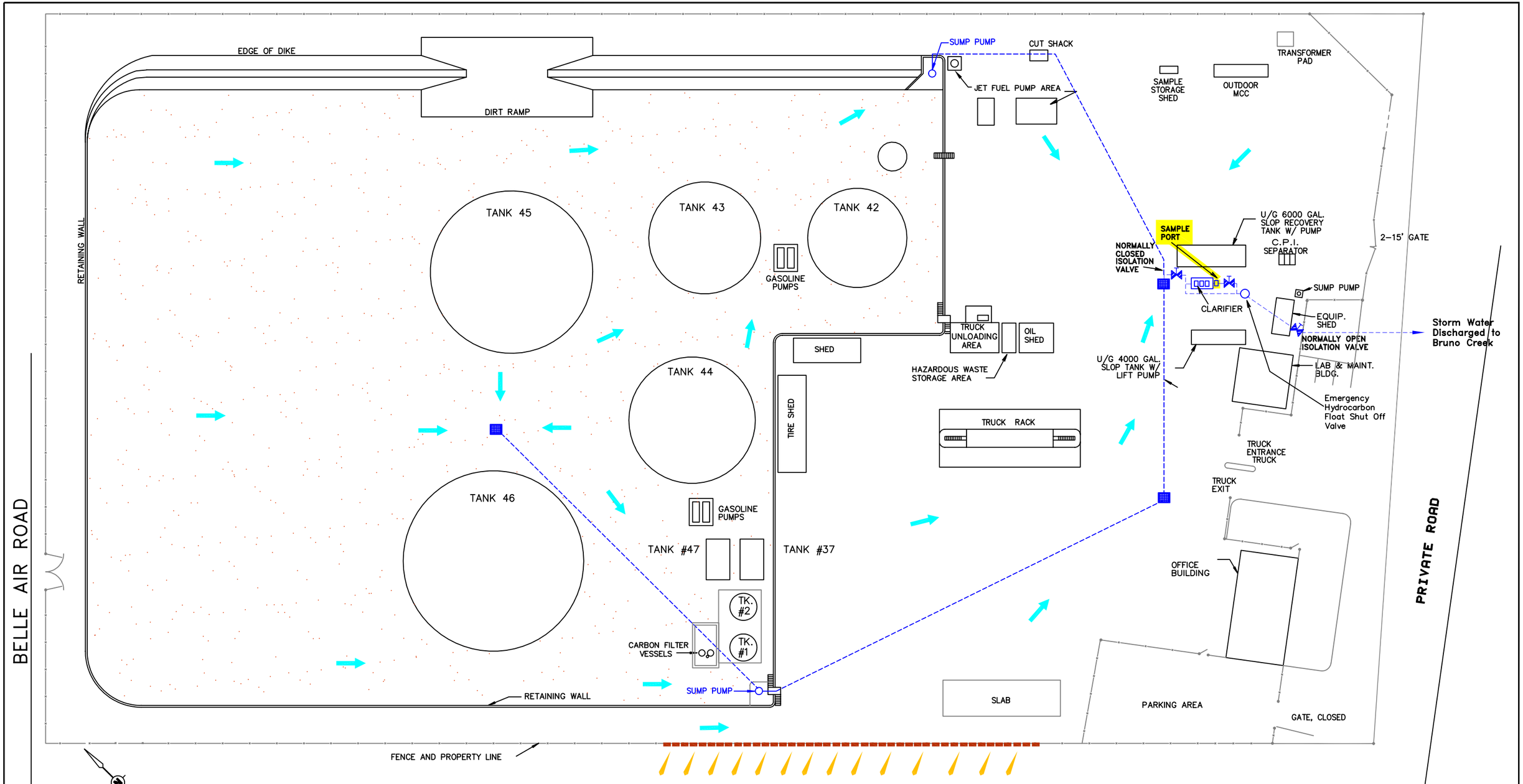


Figure 2

Groundwater Monitoring Locations
Shell San Francisco Terminal
135 North Access Road
South San Francisco, California

I:\Shell\6-chars\2417--\241730-South San Francisco 135 N Access\241730-FIGURES\241730 SITE PLAN.DWG (09/04/2012)



Legend:

- Area Not Impervious to Storm Water
- Direction of Storm Water Flow
- Storm Water Catch Basin
- Sandbag Berm
- Run-on from southwest property
- Highlighted Sampling Point

Notes:

1. Shell parcel is 5.242 acres.
2. Storm water sewer piping locations are estimated.

REV. NO.	DATE	REVISION	ES NO.	BY	CHK.	ELEC. ENGR	MECH ENGR	APP.	APP.	APP.
1.0	1/19/1999	Revised for SWPPP		JMT						
1.1	4/9/1999	Revised storm water piping		JMT						
1.2	8/17/2010	Revised Name		AHO						
1.3	7/21/2011	Remove VRU, sheds, and tanks, show areas of potential run-on and added BMPs		AHO						
2.0	8/30/2012	Highlight sampling area and rename drawing for site cleanup requirements Permit		AHO						

Shell Oil Products US

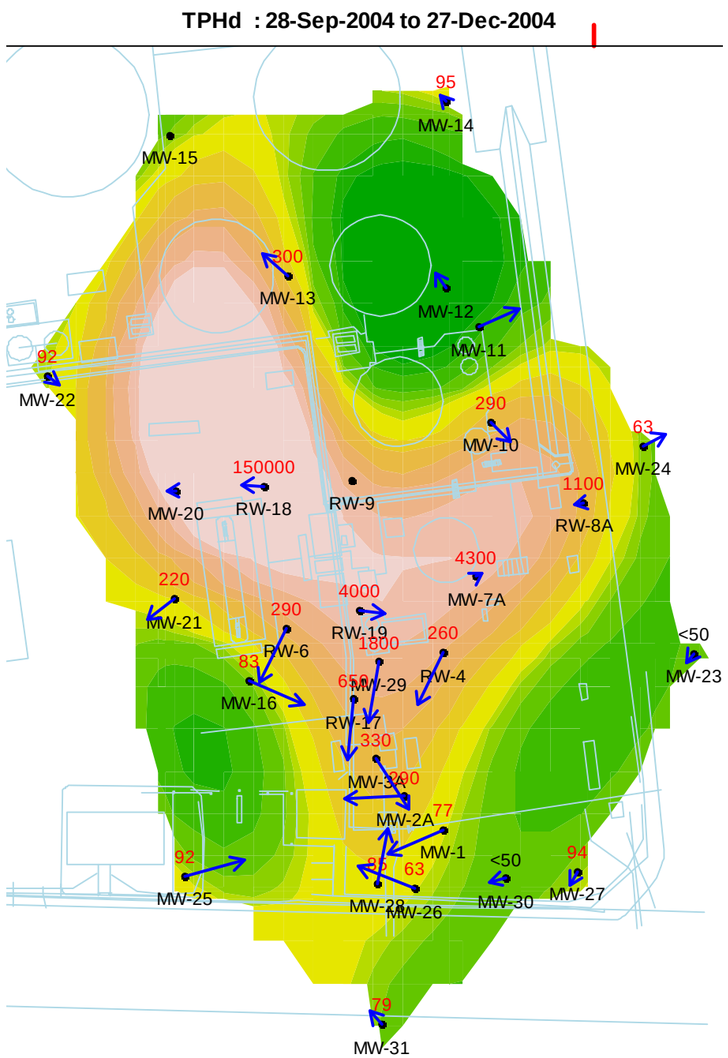
SHELL AVIATION
SO. SAN FRANCISCO TERMINAL

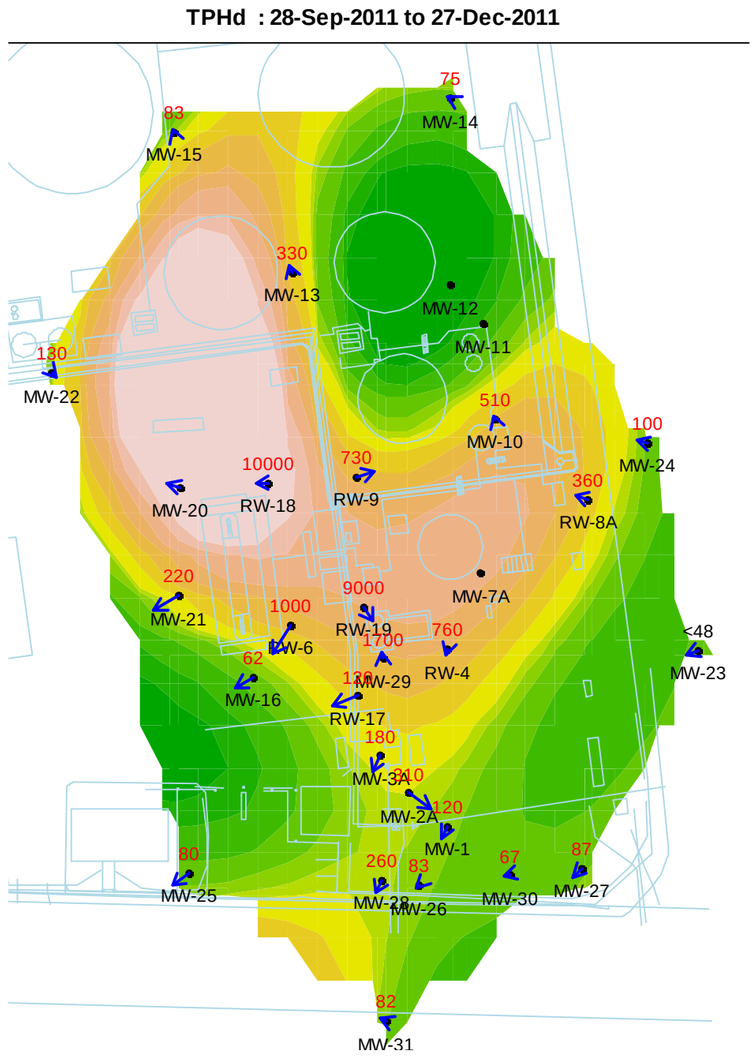
APPROVED

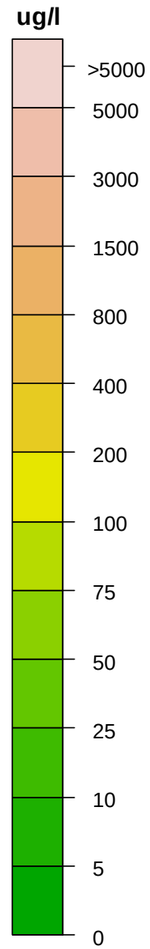
FIGURE 3
STORM WATER MONITORING LOCATIONS

SCALE: 1" = 60 '
DRAWN: WGR Southwest, Inc.
DATE 4/9/99
REV.

WGR: jmt C:\\projects\equilon enterprises\san francisco\p10107.dwg





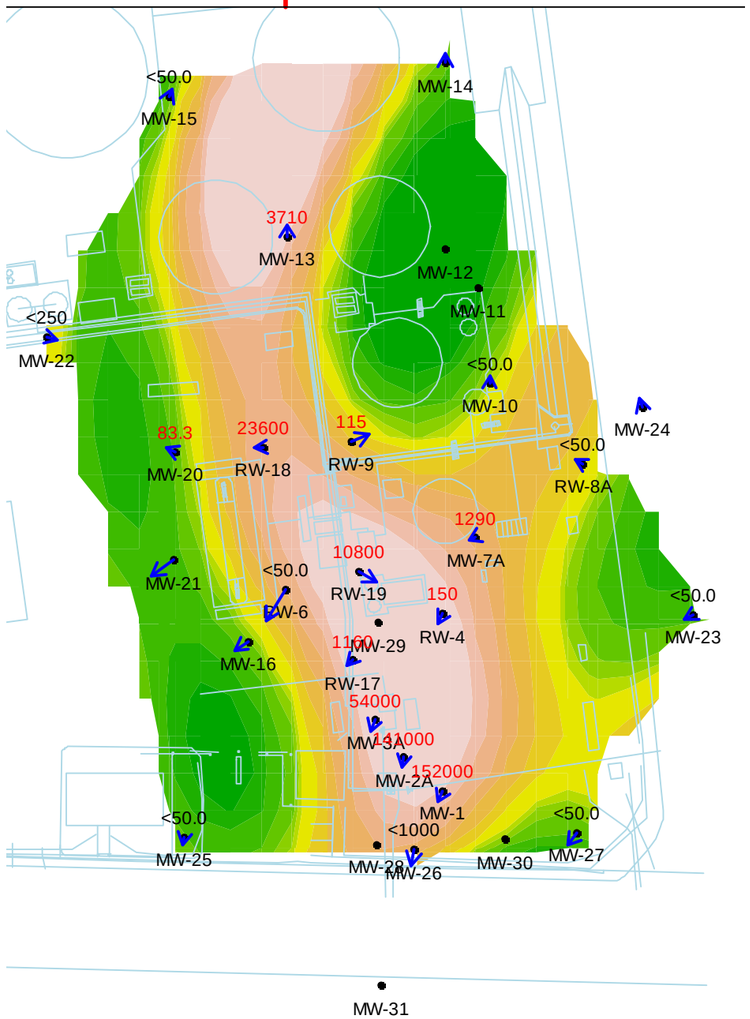


Figure

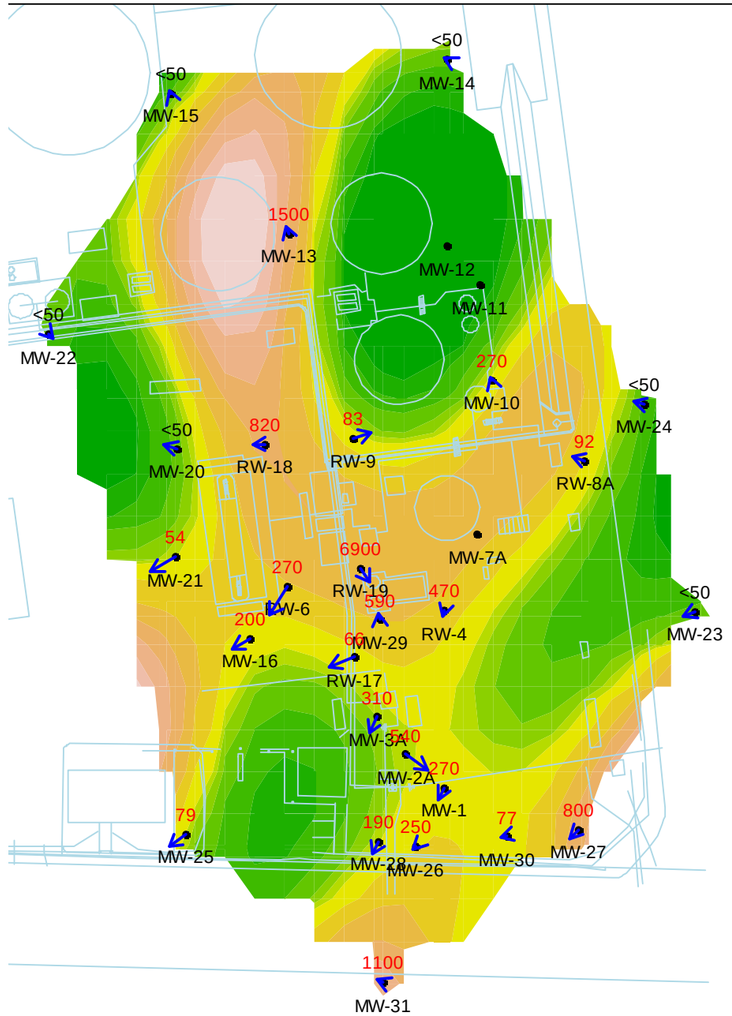
4A

TPHd in Groundwater
Shell San Francisco Terminal
135 North Access Road
South San Francisco, California

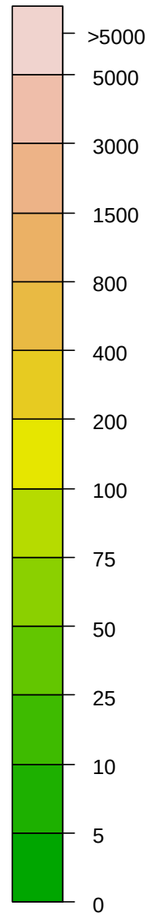
TPHg : 28-Mar-1999 to 27-Jun-1999



TPHg : 28-Sep-2011 to 27-Dec-2011



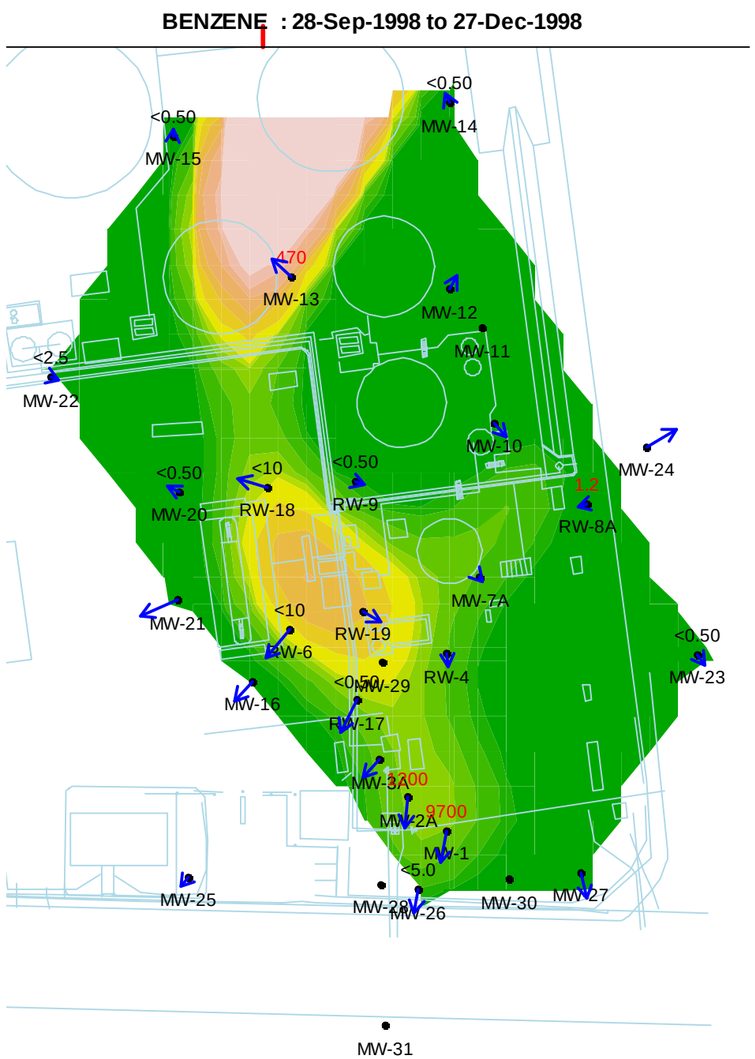
ug/l

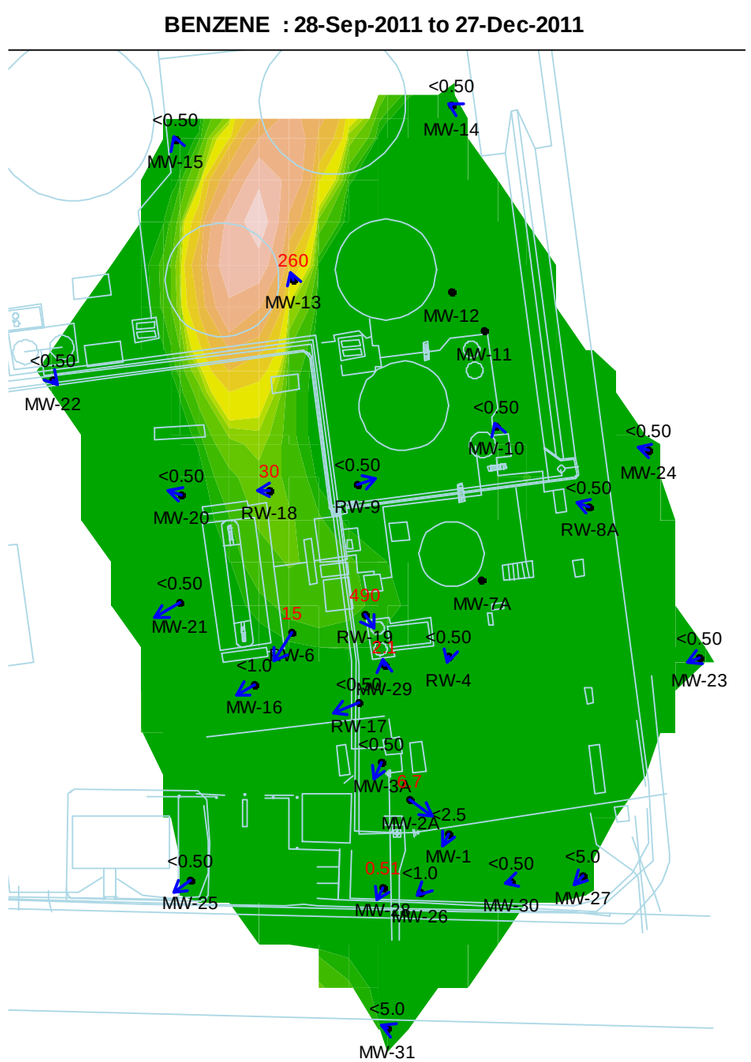


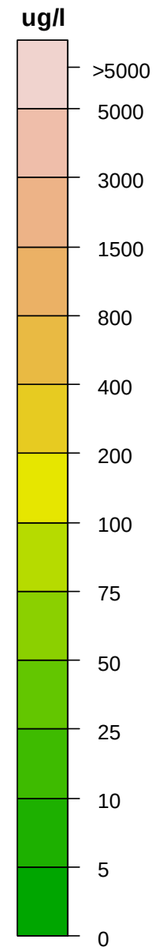
Figure

4B

TPHg in Groundwater
Shell San Francisco Terminal
135 North Access Road
South San Francisco, California



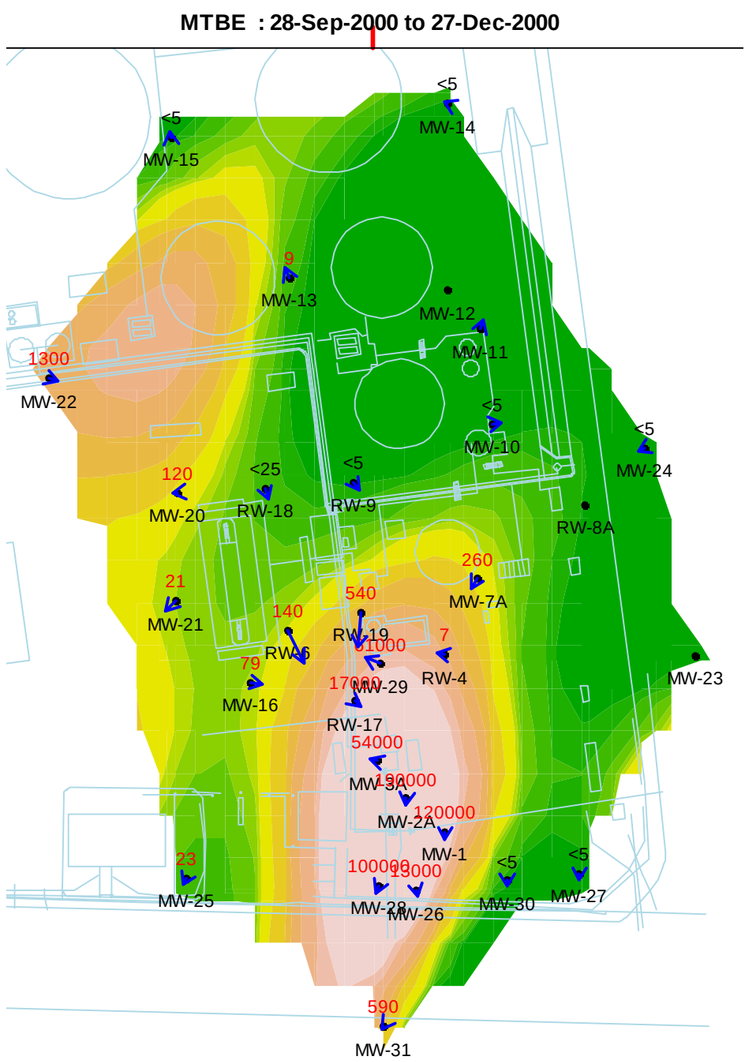


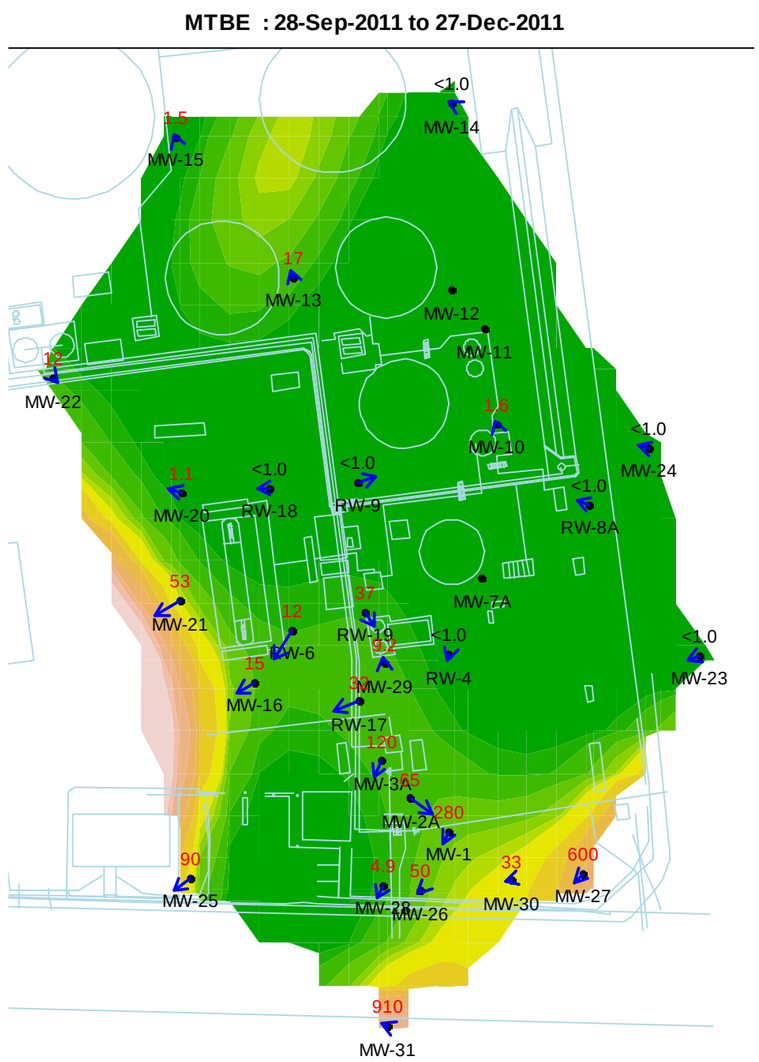


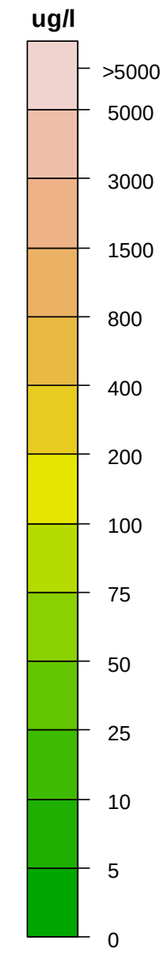
Figure

4C

Benzene in Groundwater
Shell San Francisco Terminal
135 North Access Road
South San Francisco, California



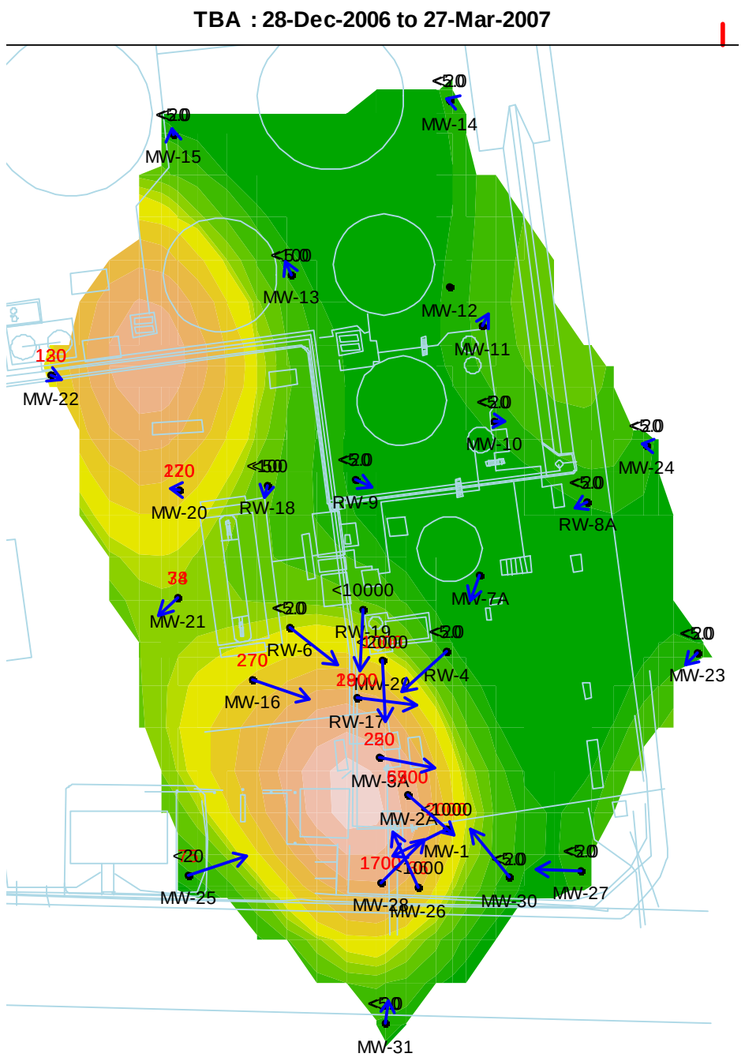


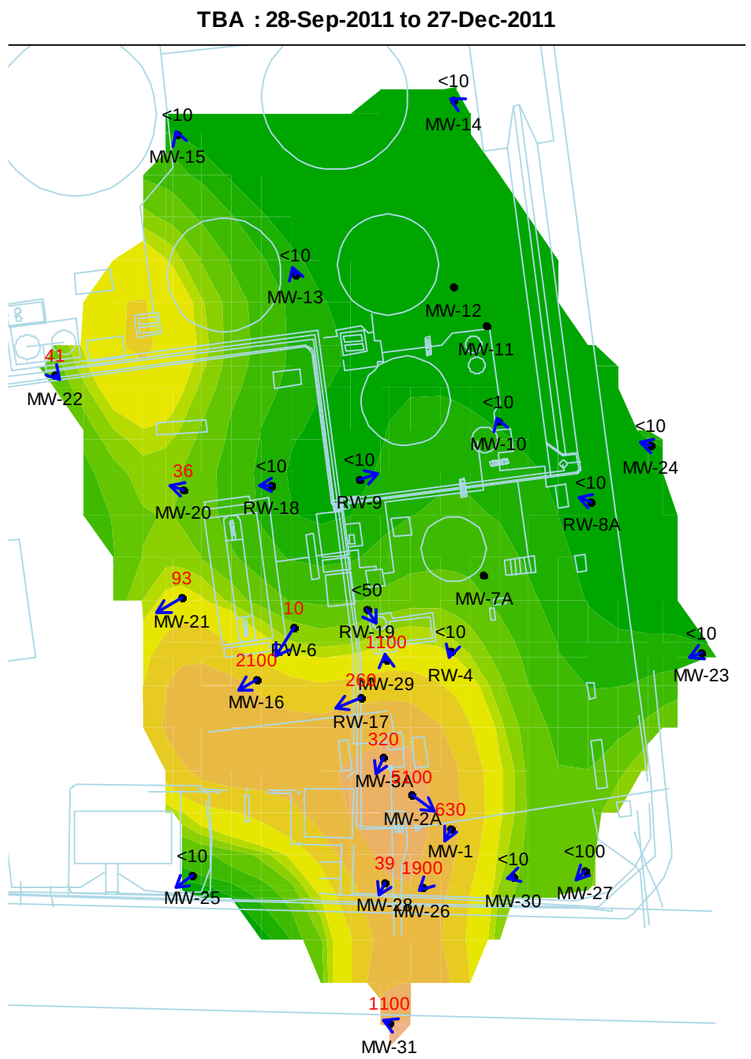


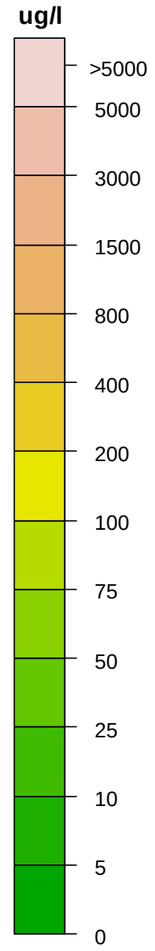
Figure

4D

MTBE in Groundwater
Shell San Francisco Terminal
135 North Access Road
South San Francisco, California







Figure

4E

TBA in Groundwater
Shell San Francisco Terminal
135 North Access Road
South San Francisco, California

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM FOR
SITE CLEANUP REQUIREMENTS ORDER No. R2-2012-0XXX
ADOPTED XXXX FOR

EQUILON ENTERPRISES LLC dba
SHELL OIL PRODUCTS US (SHELL)

For the

SHELL SOUTH SAN FRANCISCO TERMINAL
SOUTH SAN FRANCISCO, SAN MATEO COUNTY

1. **Authority and Purpose**: The Board requests the technical reports required in this Self-Monitoring Program pursuant to Water Code Sections 13267 and 13304. This Self-Monitoring Program is intended to document compliance with Board Order No. R2-2012-XXXX (Site cleanup requirements).

2. **Monitoring Requirements**: The Discharger shall perform monitoring (water level measurement, observations, and analytical sampling) according to Table SMP-1, which specifies monitoring location ID, frequencies, parameters, and analytes. Monitoring locations are shown on Figure SMP-1. The Discharger shall sample any new monitoring wells quarterly and analyze groundwater samples for the same constituents as shown in Table SMP-1. The Discharger may propose changes in the below table; any proposed changes are subject to Executive Officer approval.

3. **Reporting Requirements:** The Discharger shall submit self-monitoring reports (SMRs) to Board staff in accordance with the following schedule. Reports due at the same time may be combined into one report for convenience, as long as monitoring activities and results pertaining to each monitoring period are clearly distinguishable.

Reporting Frequency	**Report Due Dates**
Semi-Annual	**February 15, August 15**

At a minimum, each SMR shall include the following information:

a. **Transmittal Letter**: A cover letter transmitting the essential points shall be included with each monitoring report. The transmittal letter shall discuss any violations during the reporting period and actions taken or planned to correct the problem. The letter shall also

certify the completion of all monitoring requirements. The letter shall be signed by the Dischargers' principal executive officer or his/her duly authorized representative, and shall include a statement by the official, under penalty of perjury, that the report is true and correct to the best of the official's knowledge.

b. **Graphic Presentation**: The following maps, figures, and graphs (if applicable) shall be included in each SMR to visually present data collected pursuant to this SMP:

(1) Plan-view maps showing all monitoring and sampling locations, surface water bodies, and Site/property boundaries
(2) Groundwater level/piezometric surface contour maps for each groundwater-bearing zone of interest showing calculated groundwater gradients and flow directions under/around the Site, based upon the past and present water level elevations and pertinent visual observations
(3) Post-plot maps with analyte concentration posted adjacent to each sampling location and/or iso-concentration contour maps displaying analyte concentrations and sample locations
(4) Concentration vs. time graphs for key sampling parameters for select sampling locations
(5) Any other maps, figures, photographs, cross-sections, graphs, and charts necessary to visually demonstrate the appropriateness and effectiveness of sampling, monitoring, characterization, investigation, or remediation activities relative to the goals of this SMP

c. **Tabular Presentation**: The following data (if applicable) shall be presented in tabular form and included in each SMR to show a chronological history and allow quick and easy reference:

(1) Well designations
(2) Well location coordinates (latitude and longitude)
(3) Well construction (including top of well casing elevation, total well depth, screen interval depth below ground surface, and screen interval elevation)
(4) Groundwater depths
(5) Groundwater elevations
(6) Horizontal groundwater gradients
(7) Vertical groundwater gradients (including comparison wells from different zones), when appropriate
(8) Separate-phase hydrocarbon product elevations
(9) Separate-phase hydrocarbon thicknesses
(10) Current analytical results (including analytical method and detection limits for each constituent)
(11) Historical analytical results (including at least the past five years unless otherwise requested)
(12) Measurement dates
(13) Contaminant mass removal, including:
    (a) Average daily removal rate

(b) Total mass removed for monitoring period
(c) Cumulative total mass removed since removal inception

d. **Discussion**: Discussion of the following information, based on field and laboratory data results, shall be provided in each SMR:

(1) Data Interpretations
(2) Conclusions
(3) Recommendations
(4) Newly implemented or planned investigations & remedial measures
(5) Data anomalies
(6) Variations from protocols
(7) Condition of wells
(8) Explanation why monitoring could not be performed at any required location

e. **Appendices:** The following information shall be provided as appendices in electronic format (PDF format). Hard copies of the following information should be submitted only if requested by Board staff.

(1) New boring and well logs
(2) Method and time of water level measurements (field data sheets)
(3) Purging methods and results including the type of pump used, pump placement in the well, pumping rate, equipment and methods used to monitor field pH, temperature, and conductivity, calibration of the field equipment, pH, temperature, conductivity, and turbidity measurements, and method of disposing of the purge water
(4) Sampling procedures, field, trip, and equipment blanks, number and description of duplicate samples, type of sample containers and preservatives used, the date and time of sampling, the name of the person actually taking the samples, and any other relevant observations
(5) Documentation of laboratory results, analytical methods, detection limits, and Quality Assurance/Quality Control (QA/QC) procedures for the required sampling.

4. **Violation Reports**: If the Discharger violates requirements in the Site Cleanup Requirements, then the Discharger shall notify the Board office by telephone as soon as practicable once the Discharger has knowledge of the violation. Board staff may, depending on violation severity, require the Discharger to submit a separate technical report on the violation within five working days of telephone notification.

5. **Other Reports**: The Discharger shall notify the Board in writing prior to any Site activities, such as construction or underground or aboveground tank removal, which have the potential to cause further migration of contaminants or which would provide new opportunities for Site investigation.

6. **Record Keeping**: The Discharger or its agent shall retain data generated for the above reports, including lab results and QA/QC data, for a minimum of six years after origination and shall make them available to the Board upon request.

7. **SMP Revisions**: Revisions to the Self-Monitoring Program may be ordered by the Executive Officer, either on his/her own initiative or at the request of the Discharger. Prior to making SMP revisions, the Executive Officer will consider the burden, including costs, of associated self-monitoring reports relative to the benefits to be obtained from these reports.

8. **Electronic Reporting:** All SMRs submitted pursuant to this SMP shall be submitted as electronic files in PDF format. The Board has implemented a document imaging system, which is ultimately intended to reduce the need for printed report storage space and streamline the public file review process. Documents in the imaging system may be viewed, and print copies made, by the public, during file reviews conducted at the Board's office. PDF files can be created by converting the original electronic file format (e.g., Microsoft Word) and/or by scanning printed text, figures and tables.

   Upon request by Board staff, monitoring results, including water level measurements, sample analytical results, coordinates, elevations, etc., shall be provided electronically in Microsoft Excel® or similar spreadsheet format. This format facilitates data computations and/or plotting that Board staff may undertake during their review. Data tables submitted in electronic spreadsheet format will not be included in the case file for public review as long as a PDF version is included.

   All electronic files shall be submitted via the Board's Geotracker website (http://geotracker.waterboards.ca.gov). Files may additionally be sent via email (only if the file size is less than 3 MB) or on CD. CD submittals may be included with a print report. Email notification should be provided to Board staff whenever a file is uploaded to Geotracker.

9. **Maintenance of Written Records:** The Discharger shall maintain information required pursuant to this SMP for at least five years. The five-year period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Board.

Attachments: Table SMP-1
Figure SMP-1

Table SMP-1
Shell South San Francisco Terminal, Self-Monitoring Program

	Well Construction Details				Monitoring Parameters and Frequency						
Well ID	date installed	well depth	well elevation	screen interval	Water Level	TPH-g[1]	TPH-d[2]	BTEX[3]	MtBE[4]	TBA[5]	Field[6]
		fbgs	ft, MSL	fbgs							
GROUNDWATER											
MW-1	Dec-85	30	10.69	27	Q	Q	Q	Q	Q	Q	Q
MW-2A	Mar-88	20.2	9.75	15.1	Q	Q	Q	Q	Q	Q	Q
MW-3A	Mar-88	20.2	9.49	15.1	Q	SA-2,4	SA-2,4	SA-2,4	SA-2,4	SA-2,4	SA-2,4
MW-4	Dec-85	20	9.39	17	Q	A-4	A-4	A-4	A-4	--	A-4
RW-6	Dec-85	13	9.86	13	Q	SA-2,4	SA-2,4	SA-2,4	SA-2,4	SA-2,4	SA-2,4
MW-7A	Mar-88	20.4	10.31	15.1	Q	Q	Q	SA-2,4	SA-2,4	SA-2,4	SA-2,4
MW-8A	Mar-88	20.2	10.09	15.1	Q	A-4	A-4	A-4	A-4	--	A-4
RW-9	Dec-85	20	14.21	17	Q	A-4	A-4	A-4	A-4	--	A-4
MW-10	Dec-85	20	13.49	17	Q	A-4	A-4	A-4	A-4	--	A-4
MW-11	Dec-85	15	13.53	13	TO BE						
MW-12	Dec-85	20	13.81	17	ABANDONED						
MW-13	Dec-85	20	13.93	17	Q	Q	Q	Q	SA-2,4	--	SA-2,4
MW-14	Dec-85	20	13.78	17	Q	A-4	A-4	A-4	A-4	--	A-4
MW-15	Dec-85	20	13.37	17	Q	SA-2,4	SA-2,4	SA-2,4	SA-2,4	--	SA-2,4
MW-16	Aug-86	16.5	10.69	14.5	Q	A-4	A-4	A-4	SA-2,4	SA-2,4	A-4
RW-17	Aug-86	16.5	8.40	14.5	Q	A-4	SA-2,4	A-4	A-4	A-4	A-4
RW-18	Aug-86	16.5	9.87	14.5	Q	Q	Q	Q	A-4	--	A-4
RW-19	Aug-86	16.5	9.80	16.5	Q	Q	Q	Q	Q	Q	Q
MW-20	Mar-87	19.5	10.68	16.5	Q	SA-2,4	A-4	A-4	SA-2,4	SA-2,4	A-4
MW-21	Mar-87	21.8	11.03	16.8	Q	SA-2,4	SA-2,4	A-4	SA-2,4	SA-2,4	A-4
MW-22	Mar-88	20.4	12.25	15.1	Q	A-4	A-4	A-4	SA-2,4	SA-2,4	SA-2,4
MW-23	--	--	12.55	--	Q	A-4	A-4	A-4	A-4	--	A-4
MW-24	--	--	13.46	--	Q	A-4	A-4	A-4	A-4	--	A-4
MW-25	--	--	11.77	--	Q	A-4	A-4	A-4	SA-2,4	SA-2,4	A-4
MW-26	Aug-90	25.5	10.91	20	Q	A-4	A-4	A-4	SA-2,4	SA-2,4	A-4
MW-27	Aug-90	25.5	11.53	20	Q	SA-2,4	A-4	A-4	SA-2,4	SA-2,4	SA-2,4
MW-28	Dec-99	25	10.69	20	Q	SA-2,4	SA-2,4	SA-2,4	SA-2,4	SA-2,4	SA-2,4
MW-29	Dec-99	24	9.84	20	Q	Q	Q	Q	Q	Q	Q
MW-30	Nov-00	25	11.53	20	Q	A-4	A-4	A-4	SA-2,4	--	A-4
MW-31	Nov-00	25	11.40	20	Q	SA-2,4	SA-2,4	SA-2,4	SA-2,4	SA-2,4	A-4
STORM WATER											
Terminal Yard											TA
Tank Farm											TA

Footnotes:

[1] Total Petroleum Hydrocarbons as Gasoline by EPA Method 8015B.

[2] Total Petroleum Hydrocarbons as Diesel by EPA Method 8015B.

[3] Benzene, Toluene, Ethylbenzene, and total Xylenes (BTEX) by EPA Method 8260B.

[4] Methyl Tert Butyl Ether, by EPA Method 8260B.

[5] Tert Butyl Ether, by EPA Method 8260B.

[6] Field parameters including pH, conductivity, temperature, turbidity, and dissolved oxygen (DO)

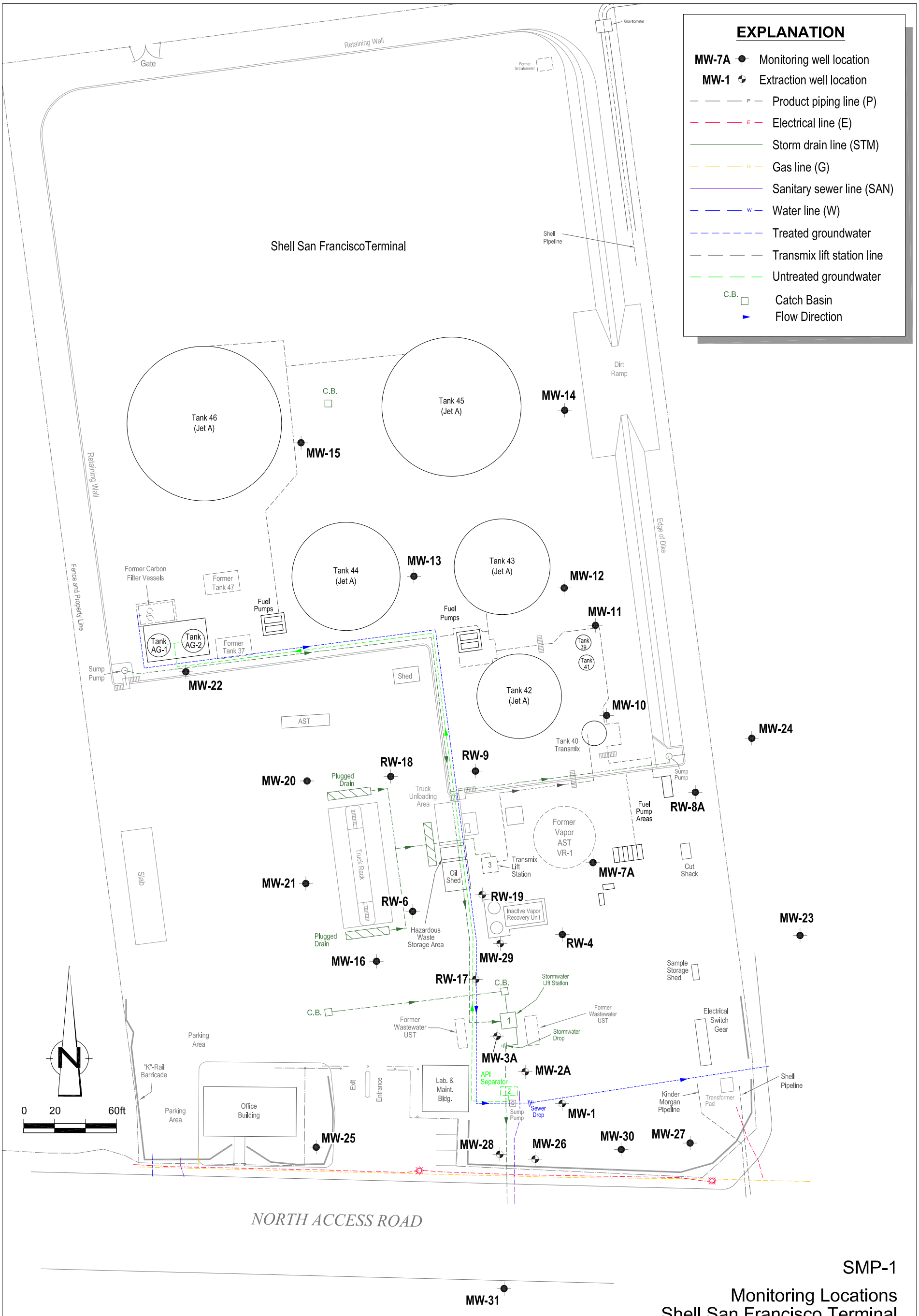
KEY

Q = quarterly monitoring according to the following schedule:
1st quarter = Jan thru Mar
2nd quarter = Apr thru Jun
3rd quarter = Jul thru Sep
4th quarter = Oct thru Dec

SA-2,4 = semi-annual monitoring during second and fourth quarters

A-4 = annual monitoring during fourth quarter

TA = Twice annually during the wet season. Storm water sampling should be conducted during the first storm event of the wet season, which produces runoff, and during one other storm event during the same wet season.



SMP-1

Monitoring Locations
Shell San Francisco Terminal
135 North Access Road
South San Francisco, California

I:\Shell\6-chars\2417--\241730-South San Francisco 135 N Access\241730-FIGURES\241730 SITE PLAN.DWG (09/04/2012)