

**Final
Addendum # 1 to the
Final Sampling and Analysis Plan
(Field Sampling Plan/Quality Assurance Project Plan)
Basewide Groundwater Monitoring
Naval Fuel Depot Point Molate,
Richmond, California**

Prepared for:

**Base Realignment and Closure
Program Management Office West
1455 Frazee Road, Suite 900
San Diego, California 92108**



Prepared by:

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1350 Arnold Drive, Suite 202
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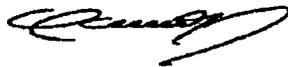
Prepared under:

**Naval Facilities Engineering Command
Contract Number N68711-04-D-1110
Contract Task Order 0001**

December 07, 2006

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Basewide Groundwater Monitoring
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Richmond, California**

Contract No. N68711-04-D-1110
Navy Delivery No. 0001



Prepared

by: _____
Gordon Brown and Dr. Oscar Correa
Jonas and Associates, Inc.
Environmental Scientist

11/30/06
Date

ES Approved by: 
Randa E. Chichakli, P.E.
CDM Federal Programs Corporation
Quality Assurance Coordinator

11/30/06
Date

Approved by: 
Narciso A. Ancoj
NAVFAC Southwest
Quality Assurance Officer

12/4/2006
Date

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**TRANSMITTAL
MEMORANDUM**

Date: January 9, 2007

From: John Kowalczyk
LRPM
Point Molate
BRAC PMO Office

To: Diane Silva (Code EVR.DS)
Records Manager

Phone: (619) 532-0972

Phone: (619) 532-3676

FAX: ()

Subject: Naval Fuel Depot Point Molate -- Document For Administrative Record
and Information Repositories

Enclosed are three copies of a document for NFD Point Molate, Richmond, California. One copy is
for the Administrative Record and two are for the Information Repositories.

Please call me at 532-0972 if any questions.

Required Action: File to NFD Point Molate AR and IRs.



Environmental Consultants & General A Contractors

1350 Arnold Drive,
Suite 202,
Martinez, CA 94553
Tel (925) 374-0020
Fax (925) 374-0021

07 December 2006
PM-DLV-0001-0021

Mr. John Kowalczyk
Remedial Project Manager
1455 Frazee Road
Suite 900
San Diego, CA 92108

Dear Mr. Kowalczyk:

Subject: Navy Contract N68711-04-D-1110, Delivery Order #001
2006 Final Addendum #1 to the Final Sampling and Analysis Plan (Field
Sampling Plan/Quality Assurance Project Plan) Basewide Groundwater
Monitoring Naval Fuel Depot Point Molate, Richmond, California.

Enclosed please find four (4) copies of the document noted in the subject heading above.

If you have any questions or require additional information, please call Oscar Correa at (925) 374-0020.

Sincerely,

Oscar Correa
Jonas and Associates Inc.
Environmental Scientist

C: D. Evans (BRAC PMO) w/o enclosure
Jonathan Bush, CDM w/o enclosure
Romana Jonas, w/o enclosure
File

N30519_000474
NFD POINT MOLATE
SSIC NO. 5090.3

FINAL SAMPLING AND ANALYSIS PLAN
(FIELD SAMPLING PLAN/QUALITY ASSURANCE PROJECT PLAN)
IS APPENDIX A OF:

FINAL
WORK PLAN FOR BASEWIDE GROUNDWATER MONITORING
DATED 27 APRIL 2006

THIS RECORD IS ENTERED IN THE DATABASE AND FILED AS

RECORD NO. N30519_000457

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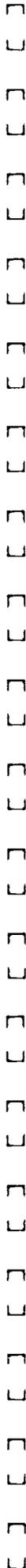
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Acronyms and Abbreviations

| | |
|--------|---|
| CDM | CDM Federal Programs Corporation |
| EPA | Environmental Protection Agency |
| IR/IRP | Installation Restoration/Installation Restoration Program |
| Jonas | Jonas and Associates Inc. |
| MDL | Method Detection Limit |
| MRL | Method Reporting Limit |
| NAVFAC | Naval Facilities Engineering Command |
| RPM | Navy Remedial Project Manager |
| RWQCB | Regional Water Quality Control Board |
| SAP | Sampling and Analysis Plan |
| TPH-e | Total Petroleum Hydrocarbon extractable(s) |

Section 1

Introduction and Basis for Addendum # 1

Jonas and Associates Inc. (Jonas) was tasked by Naval Facilities Engineering Command (NAVFAC) to develop this Addendum #1 to the Final Sampling and Analysis Plan (Field Sampling Plan/Quality Assurance Project Plan) for Basewide Groundwater Monitoring at Naval Fuel Depot Point Molate (CDM Federal Programs Corporation [CDM] 2006). (The base and Installation Restoration [IR] Site locations are illustrated on Figures 2-1 and 2-2 in the final sampling and analysis plan [SAP]).

This Addendum # 1 was prepared to accommodate the testing of 11 groundwater samples from IR Site 3 (Table 3-1 from the final SAP) using a California Regional Water Quality Control Board (RWQCB) San Francisco Bay Region-approved "Silica Gel Cleanup" methodology to evaluate whether its use could help mitigate the effects of interferences to the extractable Total Petroleum Hydrocarbon (TPH) analysis. The mitigation of these interferences to the IR Site 3 groundwater samples will be evaluated so that site-specific decisions can be made based on analytical data that represents dissolved petroleum.

SAP Addendum # 1 will be used in conjunction with the original SAP developed in April 2006 (CDM 2006). Table 1 presents the list of IR Site 3 wells currently identified in the final SAP, the proposed IR Site 3 wells for the 2006 dry season monitoring event, and alternate wells for the 2006 dry season monitoring event. Table 2 presents a summary of the changes that were made from the Final SAP to the SAP addendum. Figure 1 is a revised organizational chart.

The overall quality of tasks performed for this Addendum # 1 will be assured by conformance to protocols established for sample collection, analytical procedures, and data management. These protocols were originally presented in the final SAP (CDM 2006). Proposed modifications do not change the method detection limits (MDL) and target method reporting limits (MRL) presented in the final SAP.

1.1 Purpose of the Sampling and Analysis Plan Addendum # 1

TPH have been reported in groundwater at Point Molate. U.S. Environmental Protection Agency (EPA) Method 8015M is subject to positive interferences due to soluble non-petroleum hydrocarbons and other non-dissolved petroleum constituents commonly associated with turbidity. For extractable-range TPH, these types of interferences can be reduced by the analytical laboratory

performing silica gel cleanup and filtration of the samples prior to analysis. These types of interferences and the recommended preventative measures are discussed in a February 1999 memorandum from the RWQCB San Francisco Bay Region (RWQCB, 1999). The object of the proposed testing using the RWQCB methodology is to evaluate its use at IR Site 3 and potentially basewide at Point Molate.

To reduce affects of turbidity by letting suspended solids settle, the analytical laboratory will first refrigerate the groundwater samples for approximately three days prior to being processed. The samples will then be filtered using 0.7 micron glass filters (also to reduce affects of turbidity). Silica gel clean-up will then be applied to all IR Site 3 TPH-extractable (TPH-e) samples (to reduce the affects of soluble non-petroleum organic hydrocarbons) and then samples will be analyzed. As indicated in Tables 1 and 2, an additional liter of sample (for a total of four, 1-liter amber bottles of sample) will be submitted for extractable-range TPH to assure sufficient sample volume for performing preparation and analysis.

The results of the Silica Gel Cleanup tests and attendant chromatograms from IR Site 3 wells will be incorporated into the Basewide Groundwater Monitoring Report. While the report will contain the data, no analysis or evaluation of the viability of the chromatograms will be submitted in the report.

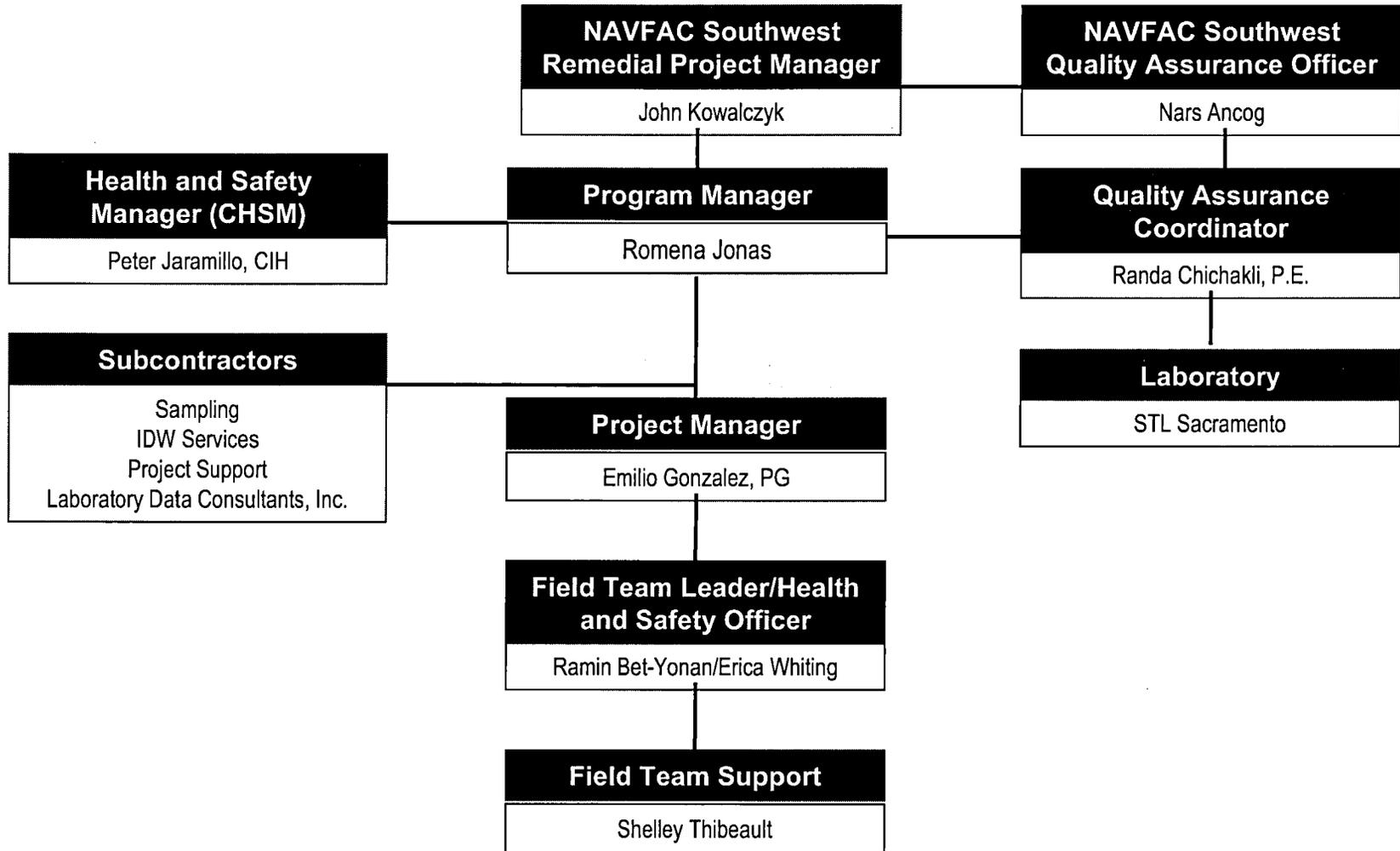
TABLE 1 Proposed Wells for Silica Gel Preparation For Dry Season 2006 Sampling Event

| IR Site 3 Analyses Proposed for Dry Season 2006 Event | | | | | | | | |
|---|---|-----------------|--|--------------|----------------|-------------------------|----------------------|---------------|
| | Primary IR Site 3 Wells to Sample for Dry Season 2006 Event | Number of wells | TPH - w/ silica gel prep and Lab Filtered* (8015M) | VOCs (8260B) | PAHs (8270SIM) | Filtered Metals (6010B) | Total Metals (6010B) | Chromatograms |
| 1 | MW11-27R | 11 | • | • | • | • | | • |
| 2 | MW11-92 | | • | • | • | • | | • |
| 3 | MW11-104 | | • | • | • | • | | • |
| 4 | MW11-105 | | • | • | • | • | | • |
| 5 | MW11-107 | | • | • | • | • | | • |
| 6 | MW11-118 | | • | • | • | • | | • |
| 7 | MW11-100A (current program) | | • | • | • | • | | • |
| 8 | MW11-44 (current Program) | | • | • | • | • | | • |
| 9 | MW16+25 (in extraction trench) | | • | • | • | • | | • |
| 10 | MW13+27 (in extraction trench) | | • | • | • | • | | • |
| 11 | MW11-06 (Shoreline Area) ¹ | | • | • | • | | | • |
| | Total | | 11 | 11 | 11 | 10 | 0 | 11 |
| Alternate IR Site 3 Wells for Dry Season 2006 Event if Primary Wells Listed Above Cannot Be Sampled (in order of priority) | | | | | | | | |
| 1 | MW11-12 | | If sampled | If sampled | If sampled | If sampled | | If sampled |
| 2 | MW11-94 (current program) | | If sampled | If sampled | If sampled | If sampled | | If sampled |
| 3 | MW11-103 | | If sampled | If sampled | If sampled | If sampled | | If sampled |
| 4 | MW11-106 | | If sampled | If sampled | If sampled | If sampled | | If sampled |
| 5 | MW-4 (extraction trench) | | If sampled | If sampled | If sampled | If sampled | | If sampled |
| 6 | MW11-53 | | If sampled | If sampled | If sampled | If sampled | | If sampled |
| 7 | MW11-102A (current program) | | If sampled | If sampled | If sampled | If sampled | | If sampled |
| *ADDITIONAL SAMPLE VOLUME SHOULD BE COLLECTED FOR TPH -W/SILICA GEL PREP & LAB FILTERED: FOUR 1-LITER AMBER GLASS | | | | | | | | |

Note 1. Well MW11-06 is currently sampled as part of the Shoreline Area, not an IR Site 3 monitoring well. The sample from MW11-06 will also be analyzed for TPH with the silica gel preparation and filtered by the laboratory prior to extraction. In addition, MW11-06 will be analyzed for PAHs and VOCs as previously planned.

Section to be modified in SAP: Section 3.1

| <p>1 Modification of listed wells to be sampled at IR Site 3</p> <p>Original SAP:</p> <table border="1"> <thead> <tr> <th colspan="9">IR Site 3 Wells and Analyses in Approved Sap (April 27, 2006)</th> </tr> <tr> <th>IR Site 3 Wells Listed in the SAP</th> <th>TPH- (Diesel/Bunker Fuel/JP-5/ Motor Oil) (8015M)</th> <th>TPH- w/silica gel prep (8015M)</th> <th>TPH- w/ silica gel prep & Lab Filtered (8015M)</th> <th>VOCs (8260B)</th> <th>PAHs (8270SIM)</th> <th>Filtered Metals (6010B)</th> <th>Total Metals (6010B)</th> <th>Chromatograms</th> </tr> </thead> <tbody> <tr><td>1 MW11-31</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>2 MW11-32</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>3 MW11-37</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>4 MW11-38</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>5 MW11-44</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>6 MW11-94</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>7 MW11-100A</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>8 MW11-102A</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>9 MW11-115A</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>10 MW11-117A</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> </tbody> </table> <p>Rationale: The IR program was in need of interim monitoring of Site 3 wells. The addendum focuses on the deletion of wells to allow for the inclusion of Site 3 wells. The proposed change is aimed to minimize the effects of interferences to the extractable TPH analysis.</p> | IR Site 3 Wells and Analyses in Approved Sap (April 27, 2006) | | | | | | | | | IR Site 3 Wells Listed in the SAP | TPH- (Diesel/Bunker Fuel/JP-5/ Motor Oil) (8015M) | TPH- w/silica gel prep (8015M) | TPH- w/ silica gel prep & Lab Filtered (8015M) | VOCs (8260B) | PAHs (8270SIM) | Filtered Metals (6010B) | Total Metals (6010B) | Chromatograms | 1 MW11-31 | • | • | • | • | • | • | • | • | 2 MW11-32 | • | • | • | • | • | • | • | • | 3 MW11-37 | • | • | • | • | • | • | • | • | 4 MW11-38 | • | • | • | • | • | • | • | • | 5 MW11-44 | • | • | • | • | • | • | • | • | 6 MW11-94 | • | • | • | • | • | • | • | • | 7 MW11-100A | • | • | • | • | • | • | • | • | 8 MW11-102A | • | • | • | • | • | • | • | • | 9 MW11-115A | • | • | • | • | • | • | • | • | 10 MW11-117A | • | • | • | • | • | • | • | • | <p>Addendum:</p> <table border="1"> <thead> <tr> <th></th> <th>Primary IR Site 3 Wells to Sample for Dry Season 2006 Event</th> <th>Number of wells</th> <th>TPH - w/ silica gel prep and Lab Filtered* (8015M)</th> <th>VOCs (8260B)</th> <th>PAHs (8270SIM)</th> <th>Filtered Metals (6010B)</th> <th>Total Metals (6010B)</th> <th>Chromatograms</th> </tr> </thead> <tbody> <tr><td>1</td><td>MW11-27R</td><td>11</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>2</td><td>MW11-92</td><td></td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>3</td><td>MW11-104</td><td></td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>4</td><td>MW11-105</td><td></td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>5</td><td>MW11-107</td><td></td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>6</td><td>MW11-118</td><td></td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>7</td><td>MW11-100A (current program)</td><td></td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>8</td><td>MW11-44 (current Program)</td><td></td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>9</td><td>MW16+25 (in extraction trench)</td><td></td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>10</td><td>MW13+27 (in extraction trench)</td><td></td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>11</td><td>MW11-06 (Shoreline Area)¹</td><td></td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td><td>•</td></tr> <tr><td>Total</td><td></td><td></td><td>11</td><td>11</td><td>11</td><td>10</td><td>0</td><td>10</td></tr> </tbody> </table> | | Primary IR Site 3 Wells to Sample for Dry Season 2006 Event | Number of wells | TPH - w/ silica gel prep and Lab Filtered* (8015M) | VOCs (8260B) | PAHs (8270SIM) | Filtered Metals (6010B) | Total Metals (6010B) | Chromatograms | 1 | MW11-27R | 11 | • | • | • | • | • | • | 2 | MW11-92 | | • | • | • | • | • | • | 3 | MW11-104 | | • | • | • | • | • | • | 4 | MW11-105 | | • | • | • | • | • | • | 5 | MW11-107 | | • | • | • | • | • | • | 6 | MW11-118 | | • | • | • | • | • | • | 7 | MW11-100A (current program) | | • | • | • | • | • | • | 8 | MW11-44 (current Program) | | • | • | • | • | • | • | 9 | MW16+25 (in extraction trench) | | • | • | • | • | • | • | 10 | MW13+27 (in extraction trench) | | • | • | • | • | • | • | 11 | MW11-06 (Shoreline Area) ¹ | | • | • | • | • | • | • | Total | | | 11 | 11 | 11 | 10 | 0 | 10 |
|---|--|--|--|--------------|----------------|-------------------------|----------------------|---------------|--|-----------------------------------|---|--------------------------------|--|--------------|----------------|-------------------------|----------------------|---------------|---------------------------|---|------------|------------|------------|------------|------------|---|----------|-----------|------------|------------|------------|------------|------------|---|----------|---|------------|------------|------------|------------|------------|---|--------------------------|---|------------|------------|------------|------------|------------|---|---------|---|------------|------------|------------|------------|------------|---|-----------------------------|---|------------|------------|------------|------------|------------|---|---|---|---|---|---|---|-------------|---|---|---|---|---|---|---|---|-------------|---|---|---|---|---|---|---|---|-------------|---|---|---|---|---|---|---|---|--------------|---|---|---|---|---|---|---|---|--|--|---|-----------------|--|--------------|----------------|-------------------------|----------------------|---------------|---|----------|----|---|---|---|---|---|---|---|---------|--|---|---|---|---|---|---|---|----------|--|---|---|---|---|---|---|---|----------|--|---|---|---|---|---|---|---|----------|--|---|---|---|---|---|---|---|----------|--|---|---|---|---|---|---|---|-----------------------------|--|---|---|---|---|---|---|---|---------------------------|--|---|---|---|---|---|---|---|--------------------------------|--|---|---|---|---|---|---|----|--------------------------------|--|---|---|---|---|---|---|----|---------------------------------------|--|---|---|---|---|---|---|-------|--|--|----|----|----|----|---|----|
| IR Site 3 Wells and Analyses in Approved Sap (April 27, 2006) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 1 MW11-31 | • | • | • | • | • | • | • | • | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 MW11-32 | • | • | • | • | • | • | • | • | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 MW11-37 | • | • | • | • | • | • | • | • | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 MW11-38 | • | • | • | • | • | • | • | • | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 MW11-44 | • | • | • | • | • | • | • | • | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 MW11-94 | • | • | • | • | • | • | • | • | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 MW11-100A | • | • | • | • | • | • | • | • | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 9 MW11-115A | • | • | • | • | • | • | • | • | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 MW11-117A | • | • | • | • | • | • | • | • | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Primary IR Site 3 Wells to Sample for Dry Season 2006 Event | Number of wells | TPH - w/ silica gel prep and Lab Filtered* (8015M) | VOCs (8260B) | PAHs (8270SIM) | Filtered Metals (6010B) | Total Metals (6010B) | Chromatograms | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | MW11-27R | 11 | • | • | • | • | • | • | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | MW11-92 | | • | • | • | • | • | • | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | MW11-104 | | • | • | • | • | • | • | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | MW11-105 | | • | • | • | • | • | • | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | MW11-107 | | • | • | • | • | • | • | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | MW11-118 | | • | • | • | • | • | • | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | MW11-100A (current program) | | • | • | • | • | • | • | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | MW11-44 (current Program) | | • | • | • | • | • | • | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | MW16+25 (in extraction trench) | | • | • | • | • | • | • | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | MW13+27 (in extraction trench) | | • | • | • | • | • | • | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | MW11-06 (Shoreline Area) ¹ | | • | • | • | • | • | • | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| <p>2 Analytical Changes</p> <p>Original SAP: See table above</p> <p>Rationale: Method 8015M for TPH has been known to cause positive interferences due to soluble and in-soluble petroleum constituents. The interferences can be minimize by performing a silica gel cleanup and filtration of the samples before analysis. The proposed modification do not change the method detection limits (MDLs) and the target reporting limits (MRLs) presented in the final SAP.</p> | <p>Addendum: See Table above</p> <p>Note 1. Well MW11-06 is currently sampled as part of the Shoreline Area. The sample from MW11-06 will also be analyzed for TPH with the silica gel preparation and filtered by the lab prior to extraction; therefore, making it the 11th well. In addition, MW11-06 will be analyzed for PAHs and VOCs as previously planned.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>3 Alternative Wells</p> <p>Original SAP: No alternative wells in the original SAP</p> <p>Rationale: In the event that some of the proposed wells are either dry, have insufficient amount of water, or product is detected, an alternative well will be selected for sampling.</p> | <p>Addendum:</p> <table border="1"> <thead> <tr> <th colspan="8">Alternate IR Site 3 Wells for Dry Season 2006 Event if Primary Wells Listed Above Cannot Be Sampled (in order of priority)</th> </tr> </thead> <tbody> <tr><td>1</td><td>MW11-12</td><td></td><td>If sampled</td><td>If sampled</td><td>If sampled</td><td>If sampled</td><td>If sampled</td></tr> <tr><td>2</td><td>MW11-94 (current program)</td><td></td><td>If sampled</td><td>If sampled</td><td>If sampled</td><td>If sampled</td><td>If sampled</td></tr> <tr><td>3</td><td>MW11-103</td><td></td><td>If sampled</td><td>If sampled</td><td>If sampled</td><td>If sampled</td><td>If sampled</td></tr> <tr><td>4</td><td>MW11-106</td><td></td><td>If sampled</td><td>If sampled</td><td>If sampled</td><td>If sampled</td><td>If sampled</td></tr> <tr><td>5</td><td>MW-4 (extraction trench)</td><td></td><td>If sampled</td><td>If sampled</td><td>If sampled</td><td>If sampled</td><td>If sampled</td></tr> <tr><td>6</td><td>MW11-53</td><td></td><td>If sampled</td><td>If sampled</td><td>If sampled</td><td>If sampled</td><td>If sampled</td></tr> <tr><td>7</td><td>MW11-102A (current program)</td><td></td><td>If sampled</td><td>If sampled</td><td>If sampled</td><td>If sampled</td><td>If sampled</td></tr> </tbody> </table> <p><small>*ADDITIONAL SAMPLE VOLUME SHOULD BE COLLECTED FOR TPH -WSILICA GEL PREP & LAB FILTERED: FOUR 1-LITER AMBER GLASS</small></p> | Alternate IR Site 3 Wells for Dry Season 2006 Event if Primary Wells Listed Above Cannot Be Sampled (in order of priority) | | | | | | | | 1 | MW11-12 | | If sampled | If sampled | If sampled | If sampled | If sampled | 2 | MW11-94 (current program) | | If sampled | 3 | MW11-103 | | If sampled | 4 | MW11-106 | | If sampled | 5 | MW-4 (extraction trench) | | If sampled | 6 | MW11-53 | | If sampled | 7 | MW11-102A (current program) | | If sampled | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Alternate IR Site 3 Wells for Dry Season 2006 Event if Primary Wells Listed Above Cannot Be Sampled (in order of priority) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | MW11-12 | | If sampled | If sampled | If sampled | If sampled | If sampled | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | MW11-94 (current program) | | If sampled | If sampled | If sampled | If sampled | If sampled | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | MW11-103 | | If sampled | If sampled | If sampled | If sampled | If sampled | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | MW11-106 | | If sampled | If sampled | If sampled | If sampled | If sampled | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | MW-4 (extraction trench) | | If sampled | If sampled | If sampled | If sampled | If sampled | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | MW11-53 | | If sampled | If sampled | If sampled | If sampled | If sampled | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | MW11-102A (current program) | | If sampled | If sampled | If sampled | If sampled | If sampled | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



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| Prepared by: Erica Whiting  | Date: 11/27/06 FN: SAP Project No.: 6228-001 | PROJECT ORGANIZATION CHART Sampling and Analysis Plan for Basewide Groundwater Monitoring NFD Point Molate Richmond, California | Figure 1 NFD Point Molate Richmond, California |
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Section 2

References

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