IAP Cover Sheet

Incident Name:	Operational Period to be covered by IAP:
Mayflower Pipeline Incident	Period 5 (4/5/2013 07:00 - 4/8/2013 07:00)

Approved by:

FOSC : 4/5/13

SOSC : 04.04-13

LOSC :

RPIC : 4/4/13

Incident Action Plan

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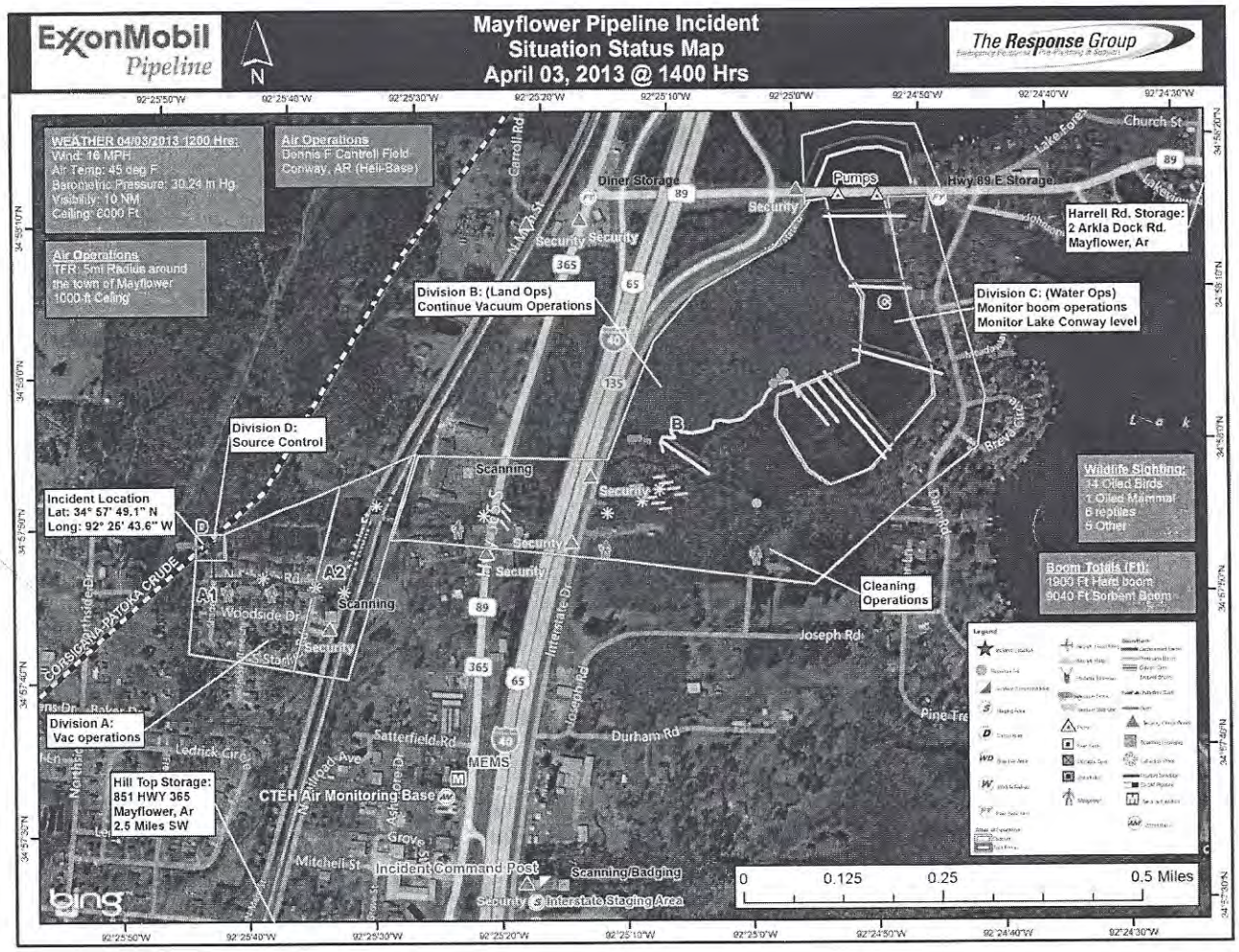
BY: Icy 0748

Sampling and Analysis Plan



Prepared By: Planning	Prepared Date/Time: 4/4/2013 15:15	
IAP Cover Sheet	Printed: 4/4/2013 15:15	

CTEH CENTER FOR TOXICOLOGY AND ENVIRONMENTAL HEALTH, LLC

Sampling and Analysis Plan
Mayflower Pipeline Incident
Mayflower, Arkansas

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(Revised on April 4, 2013)

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Table of Contents

1.0 BACKGROUND

On March 29, 2013, a subsurface pipeline owned by ExxonMobil Pipeline Company (EMPCo) experienced a crude-oil release in Mayflower, Arkansas. The released crude-oil was controlled shortly after the release was discovered. Unified Command (UC) comprised of representatives from County, State, and Federal agencies and the responsible party (RP) was established on March 29, 2013 to manage the incident.

2.0 PURPOSE

This initial Sampling and Analysis Plan (SAP) was prepared on behalf of the Environmental Unit supporting UC, to present the high-level rationale and basis for the collection of samples to evaluate impacts as a result of the release of crude oil during the pipeline release. For the purpose of this SAP, surface water is being considered. Residential sampling, if warranted, will be submitted under a separate cover. Sampling of wastes will be addressed in a separate Waste Management Plan (WMP). Sampling and monitoring of air will be submitted in a separate Air Sampling and Monitoring Plan (ASMP). The specific objectives of the proposed sampling are discussed further in the site-specific sections presented herein; however, the main objectives in general are:

1) Collect a crude oil sample from the pipeline.

2) Collection and analysis of surface water to determine potential impact.

3) Collection and analysis of background samples for comparative purposes.

This SAP will officially be implemented after approval by UC; however, in practice this SAP will be implemented immediately based on the recognized urgency to collect samples. No sampling will occur under severe weather or other environmental conditions, which create unsafe working conditions.

3.0 SOURCE EVALUATION AND SAMPLING METHODOLOGY

3.1. RATIONALE

Source samples will be collected for comparative purposes.

3.2. METHODOLOGY AND ANALYSIS

Source samples will be collected as close to the release (e.g., the pipeline) as possible into laboratory supplied sample containers and submitted to, a NELAC

accredited laboratory and placed on hold. Additional aliquots of the source sample may additionally be collected for archival purposes.

3.3. LOCATION, FREQUENCY, AND DURATION

Source samples will be collected as close to the release as possible while adequate quantities of crude-oil remain. Samples will be collected if the source area can be accessed safely.

4.0 BACKGROUND EVALUATION AND SAMPLING METHODOLOGY

4.1. RATIONALE

Background samples will be collected to develop the range of potential background concentrations for comparative purposes.

4.2. METHODOLOGY AND ANALYSIS

Background samples will be collected directly into laboratory supplied sample containers, appropriate for the media being collected, and submitted to an environmental laboratory for analysis of volatile organic compounds (VOCs) by USEPA method 8260B, polynuclear aromatic hydrocarbons (PAHs) by USEPA method 8270sim, and Metals US EPA 6010 (Preparation Method: EPA 3010).

4.3. LOCATION, FREQUENCY, AND DURATION

A representative background sample will be collected daily from an unaffected and/or upgradient area, to be determined in the field. Background samples may be archived after the first background sample is analyzed.

5.0 SURFACE WATER EVALUATION AND SAMPLING METHODOLOGY

Monitoring and sampling of the surface water will be conducted at approximately 3 locations on Lake Conway north of Highway 89 and 2 locations on Lake Conway south of Highway 89 (see FIGURE 1).

Based on analytical results from March 30, 2013 – April 2, 2013, additional sampling locations will be added to the Northeast of SW1 and Southeast of SW4.

5.1. SURFACE WATER MONITORING

Surface water monitoring will be conducted using a YSI multi-parameter water quality meter, or equivalent. Surface water monitoring will be conducted daily (e.g., concurrent with sample collection) and will include the following parameters:

- Temperature (°C)
- pH (0-14 standard units)
- Conductivity (MicroSiemens/centimeter)
- Dissolved Oxygen (milligrams/liter)
- Turbidity (NTU)

Visual observations will be made at each surface water sampling location and electronically noted using a hand-held data collection device or recorded in a log dedicated to this project in accordance with the incident Data Management Plan (DMP). The location will be record with a handheld GPS device.

The water quality meters in use on this project will be calibrated in accordance with the manufacturer's specifications.

5.2. METHODOLOGY AND ANALYSIS

Surface water samples will be decanted directly into laboratory supplied sample containers and submitted to an environmental laboratory for analysis of volatile organic compounds (VOCs) by USEPA method 8260B, polynuclear aromatic hydrocarbons (PAHs) by USEPA method 8270sim, and Metals (including Nickel and Vanadium US EPA 6010 (Preparation Method: EPA 3010).

5.3. LOCATION, FREQUENCY, AND DURATION

Sample locations are shown on Figure 1. Sampling frequency and duration will continue to be evaluated as analytical results are received.

6.0 SAMPLE HANDLING PROCEDURES

Samples will be placed in laboratory supplied sample containers, appropriate for the intended analysis, labeled with sample identification number, sample depth (for water column sampling), sampler name, sample date, analysis and methodology requested, and time of sample

collection, and immediately placed in a cooler on ice pending laboratory analysis. Samples will be packaged, labeled, retained on ice, and documented in an area which is free of impact and provides for secure storage. Custody seals will be placed on each sample containing cooler, and chain-of-custody procedures will be maintained from the time of sample collection until arrival at the laboratory to protect sample integrity Shipping or transporting of samples to the laboratory will be done within a timeframe such that recommended holding times are met.

7.0 SAMPLE LABELING

Sample containers will be clearly labeled with the following information:

- Unique sample identification;
- Sample Type (discrete or composite; matrix)
- Sample Depth (surface, intermediate, or deep; *water samples only*);
- Sampler name;
- Date/time sample collected; and,
- Analysis to be performed.

8.0 LABORATORY ANALYSES

Samples will be transported to environmental and forensic laboratories. Samples will be submitted for laboratory analysis of crude oil constituents including: VOCs by USEPA method 8260C,PAHs by USEPA method 8270sim, Metals (including Nickel and Vanadium US EPA 6010 (Preparation Method: EPA 3010). . Forensic samples will be placed on hold.

9.0 QUALITY ASSURANCE

Sampling will be carried out in conjunction with a well defined quality assurance (QA) program consistent with the Quality Assurance Project Plan (QAPP) to be prepared for this incident. The goal of the field QA program is to document that samples are collected without the effects of accidental cross- or systematic contamination and refers to the sampling, analysis, and data validation procedures for generating valid and defensible data. To provide QA for the proposed sampling event, the following sampling, analysis, and data validation procedures will be performed:

9.1. Field Calibration

Instruments used in the field as part of this sampling event are anticipated to consist of GPS units, digital cameras, and possibly handheld data collection devices, and are not anticipated to require field calibration. Operators of each piece of equipment are responsible for maintaining (including proper battery charge) and operating this equipment such that it conforms to each respective manufacturer's specifications.

9.2. Field Duplicate Sample

For approximately every 20 samples collected in the field, one field duplicate will be collected and submitted for laboratory analyses to verify the reproducibility of the sampling methods. Field duplicates will be prepared by separately submitting an aliquot from the same sample location to the laboratory for analysis consistent with the proscribed analyses. The submitted duplicate will be submitted such that the laboratory is not aware that it is a duplicate (i.e., the sample ID will not identify it as a "duplicate" for any specific sample location). At least one field duplicate will be collected each day that samples are collected.

9.3. Field Split Samples

Field split samples refer to samples collected by the regulatory agency or its designee from the same sampling location and independently submitted to a different laboratory for analysis. Field split samples may be requested at the discretion of representatives of the regulatory agency or UC.

9.4. Laboratory QA

Laboratory quality control procedures will be conducted in a manner consistent with relevant State and federal regulatory guidance. Deliverables will contain the supporting documentation necessary for data validation. Internal laboratory quality control checks will include method blanks, matrix spikes (and matrix spike duplicates), surrogate samples, calibration standards, and laboratory control standards (LCSs).

9.5. Matrix Spike/Matrix Spike Duplicate Sample

Matrix Spike/Matrix Spike Duplicate (MS/MSD) samples refer to field samples spiked with the analytes of interest prior to being analyzed at the laboratory to gauge the quality of analysis. Approximately one in twenty samples will be analyzed as MS/MSD samples.

9.6. Data Validation

Validation of the data generated by the laboratory performing the analyses will include at a minimum sample holding times, accuracy, precision, contamination of field generated or laboratory method blanks, and surrogate compound recovery. Accuracy will be determined by evaluating LCS and MS recovery. Precision will be determined by evaluating laboratory and field duplicate samples.

10.0 DECONTAMINATION PROCEDURES

Decontamination procedures refer to the steps undertaken to minimize the potential for offsite contamination and cross-contamination between individual sampling locations. Offsite impact potential will be reduced by requiring all objects, including clothing and motorized equipment and vehicles, to be decontaminated prior to leaving the worksite. A decontamination station will be erected and staffed, as needed, to ensure that all objects (e.g., motorized and hand equipment, PPE, etc) leaving the active worksite are cleaned. The decontamination station will be poly or plastic-lined and have a method for water retention and recovery (e.g., vacuum truck, submersible pump to containment tank, gravity drain to sump, etc) and receptacles (i.e., garbage bags) for the collection of soiled PPE.

Prior to collecting any sample for this release the following decontamination procedures will be undertaken: non-disposable sampling equipment such as Kemmerer water sampling devices which come into contact with sampling media will be decontaminated using a bristled brush and a solution comprised of a laboratory grade, non-phosphate detergent (e.g., Alconox or Liquinox) and deionized water. Depending on ancillary activities being conducted for the response to this release, the decontamination of sampling equipment will be conducted over poly sheeting at the sample location occurs or in a nearby designated area. The sampling equipment to be decontaminated will be placed in the first bucket containing the detergent solution and thoroughly washed using a bristled brush. The items will then be transferred to the second 5-gallon bucket containing deionized water for rinsing. Following the initial rinsing, the item will be held over the third 5-gallon bucket while deionized water is carefully decanted over each item. Decontaminated items will be wrapped in clean aluminum foil for transit to the next sampling location.

Nitrile gloves will be worn by sampling personnel and changed between activities at each discrete sample collection location. Previously worn nitrile gloves will be discarded in appropriate waste receptacles with other PPE.

11.0 WASTE DISPOSAL

The method for storage and disposal of investigative derived waste materials will comply with applicable local, state and federal regulations in a manner consistent with the Waste Management Plan (WMP) prepared for this incident.

12.0 DATA ANALYSIS

To assess the potential impact from contact with hydrocarbons resulting from this incident the results of sampling will be reviewed for the presence/absence of hydrocarbon compounds. The results of laboratory analyses will be provided to UC.

13.0 RECORDS MANAGEMENT

Records management refers to the procedures for generating, controlling, and archiving project-specific records and records of field activities. Project records, particularly those that are anticipated to be used as evidentiary data, directly support current or ongoing technical studies and activities, and provide historical evidence needed for later reviews and analyses, will be legible, identifiable, retrievable and protected against damage, deterioration, or loss on a centralized electronic database. Handwritten records will be written in indelible ink. Records will likely include, but are not limited to, the following: bound field notebooks on pre-numbered pages, sample collection forms, personnel qualification and training forms, sample location maps, equipment maintenance and calibration forms, chain-of custody forms, maps and drawings, transportation and disposal documents, reports issued as a result of the work, procedures used, correspondences, and any deviations from the procedural records. Documentation errors will be corrected by drawing a single line through the error so it remains legible and will be initialed by the responsible individual, along with the date of change, and the correction will be written adjacent to the error.

Records will be maintained in accordance with the document retention policy established for this incident.

Revision to Surface Sampling and Analysis Plan (Version 3)

Based on analytical results at locations SW4 and SW1:

SW4 – Inside of boom in Cove (Benzene)
3/30/13 – Not Detected (< 1 ppb)
3/31/13 – Not Detected (< 1 ppb)
4/1/13 – 7 ppb
4/2/13 – 102 ppb

SW1 – Inside of boom in Lake Conway (Benzene)
3/30/13 – Not Detected (< 1 ppb)
3/31/13 – Not Detected (< 1 ppb)
4/1/13 – 7 ppb
4/2/13 – 5.8 ppb

Increasing concentrations at SW4 and SW1 may be related to increased Operations activity (jet boat, mud motor, air boat, etc.) in the area of SW4 and SW1 as well as water level drawdown activities in the Cove (started 3/31/13), using frac pumps (2000 gal/min).

ExxonMobil Pipeline Company proposes to revise the existing Plan to include 2 additional sampling locations (Cove and Lake Conway) and additional water quality compounds (Metals listed in above plan – including Nickel and Vanadium). The two new locations, along with locations SW4 and SW1, will also be sampled at the surface and at depth.

FIGURE 1: Sampling Location map