AP - 16

General

STAGE 1 & 2 WORKPLANS

DATE:

Nov. 2006

PLAINS
ALL AMERICAN
PIPELINE, L.P.

November 8, 2006

Mr. Wayne Price
New Mexico Oil Conservation Division
Environmental Bureau
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Re: Plains All American Pipeline, L.P.
General Stage 1 and Stage 2 Abatement Plan
Various Locations in New Mexico

2006 NOV 9 PM 2:02

Dear Mr. Price:

Pursuant to your verbal request during the meeting between Plains All American Pipeline, L.P. (Plains) and the New Mexico Oil Conservation Division (NMOCD) in August 2006 at your office in Santa Fe, please find attached our General Stage 1 and Stage 2 Abatement Plan in accordance with the requirements of Section 19.15.1.19 of the New Mexico Administrative Code. The purpose of the General Stage1 and Stage 2 Abatement Plan is to provide the NMOCD with general information regarding the responsible party, to outline a comprehensive site investigation program to evaluate soils and groundwater impacts, and to provide details for remedial alternatives for soil remediation, product recovery, and groundwater remediation.

An addendum to this General Plan will be provided to the NMOCD for each specific Plains release site that is subject to the rules and regulations as defined in Section 19.15.1.19 of the New Mexico Administrative Code. The addendum will include the location of the release, landowner information, volume and cause of the release, soil and groundwater delineation information, identification of remedial action goals, recommendations for soil and groundwater remediation, and public notification requirements.

Please review the attached General Plan and should you have any questions or comments concerning the General Plan, please contact me at (713) 646-4657. Once this General Plan is approved by the NMOCD (Santa Fe office), Plains will distribute working copies to the NMOCD District offices and to our consultants.

Sincerely,

Jeffrey P. Dann, P.G.
Sr. Environmental Specialist
Plains All American

Attachment: General Stage 1 and Stage 2 Abatement Plan
File: n:JeffDann/NMOCD-Stage1-2Abatement-ltr

GENERAL STAGE 1 AND STAGE 2 ABATEMENT PLAN PURSUANT TO SECTION 19.15.1.19 OF THE NMAC

PLAINS ALL AMERICAN PIPELINE, L.P.
AND IT'S SUBSIDIARY COMPANIES
PLAINS MARKETING, L.P.
AND
PLAINS PIPELINE, L.P.

Prepared By:
Plains All American Pipeline, L.P.
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November 2006

Jeffrey P. Dann, P.G.
Senior Environmental Specialist

Douglas S. Kennedy
Manager, Remediation and
Special Projects

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1.0 INTRODUCTION AND PURPOSE

Pursuant to a request from the New Mexico Oil Conservation Division (NMOCD), Plains All American Pipeline, L.P. (Plains) is pleased to submit this General Stage 1 and Stage 2 Abatement Plan in accordance with Section 19.15.1.19 of the New Mexico Administrative Code (NMAC) for the assessment and remediation of crude oil releases from facilities (pipelines, tanks, and trucks) owned and operated by Plains. The purpose of the General Stage 1 and Stage 2 Abatement Plan is to provide the NMOCD with general information regarding the responsible party, to outline a comprehensive site investigation program to evaluate the soil and groundwater impacts, and to provide details for several remedial alternatives (soil remediation, product recovery, and groundwater remediation).

An addendum to this General Stage 1 and Stage 2 Abatement Plan will be prepared and submitted to the NMOCD for each specific Plains release site subject to the rules and regulations as defined in Section 19.15.1.19 of the NMAC. The addendum will include the location of the release, landowner, volume and cause of the release, soil and groundwater delineation information, identification of the remedial action goals, recommendations for soil and groundwater remediation, and public notification requirements.

Currently, Plains conducts its comprehensive site investigation program in accordance with the *General Work Plan For Remediation of EOTT Pipeline Spills, Leaks and Releases in New Mexico (*July 2000*).* The document was approved by the NMOCD to provide a consistent remediation program for identified release sites along EOTT Energy Pipeline Limited Partnership's pipelines and associated facilities in New Mexico.

2.0 RESPONSIBLE PARTY

The Responsible Party for the General Stage 1 and Stage 2 Abatement Plan will be:

Plains Marketing, L.P.
3112 West US Highway 82
Lovington, New Mexico 88260
Attn: Ms. Camille Reynolds
Environmental Coordinator

or

Plains Pipeline, L.P.
3112 West Highway 82
Lovington, New Mexico 88260
Attn: Ms. Camille Reynolds
Environmental Coordinator

3.0 NEW MEXICO OIL CONSERVATION DIVISION SOIL CLASSIFICATION

As required by the NMOCD, crude oil release sites are scored based on the severity of the impact and the potential environmental and public health threats, utilizing a standardized ranking system. The ranking system utilizes three criterion scores; the sum of the three scores determines the level of remediation required for site closure.

The first criterion examines the depth to groundwater from the deepest level of soil impact.

- Less than 50 feet results in a criterion score of 20.
- 50 to 99 feet results in a criterion score of 10
- Greater than 100 feet results in a criterion score of zero.

The second criterion examines the distance from the crude release site to the nearest water source.

- Less than 1000 feet from a water source or less than 200 feet from a private domestic water source results in a criterion score of 20
- Greater than 1000 feet from a water source or greater than 200 feet from a private domestic water source results in a criterion score of zero.

The third criterion examines the distance from the crude oil release site to a surface water body.

- Less than 200 horizontal feet results in a criterion score of 20
- 200 to 1000 horizontal feet results in a criterion score of 10
- Greater than 1000 horizontal feet results in a criterion score of zero.

The sum score of the three criterions determines the ranking score as illustrated in the table below.

Constituent	Total ranking score >19	Total ranking score 10 to 19	Total ranking score zero to 9
Benzene (ppm)	10	10	10
*Total BTEX (ppm)	50	50	50
**TPH (ppm)	100	1,000	5,000

* Total Benzene, Toluene, Ethyl-benzene and Xylene
** Total Petroleum Hydrocarbon

In lieu of remediation, the NMOCD may accept an evaluation of risk which demonstrates that the remaining contaminants will not pose a threat to present or foreseeable beneficial use of fresh waters, public health and the environment.

The site specific remediation levels based on this ranking system will be addressed in the site specific addendum to be submitted for each Plains release site subject to the rules and regulations as defined in Section 19.15.1.19 of the NMAC.

4.0 STAGE 1 ABATEMENT PLAN

Stage 1 of the Abatement Plan will be a site investigation that adequately defines the site soil and groundwater conditions. The results of the Stage 1 activities will be presented in a site specific addendum to this plan. The addendum will include a summary of the soil and groundwater investigation activities along with available supporting documentation such as:

- soil boring logs
- monitor well details
- cross-sections
- site location maps
- soil boring and monitor well location maps
- soil and groundwater contaminant concentration maps
- soil and groundwater contaminant concentration tables
- groundwater elevation tables
- product recovery data
- water well survey information
- laboratory data sheets and chain-of-custody forms

For historical sites (greater than one year old) where the site investigation information has previously been submitted to the NMOCD in one or more reports, Plains will reference each of these reports in the addendum. In the event the historical reports do not provide all the information required for the Abatement Plan, Plains will include that additional data. For new sites that are subject to the Abatement Plan requirements, Plains will provide a comprehensive site investigation report as part of the addendum.

5.0 IMPLEMENTATION OF SCHEDULE OF STAGE 1 ACTIVITIES

The implementation of Stage 1 abatement activities will be addressed in the site-specific addendum to the report. Implementation details will be provided in each site-specific addendum report.

6.0 STAGE 2 ABATEMENT PLAN OPTIONS

Stage 2 of the Abatement Plan will include the assessment, development and implementation of abatement options for soil and groundwater at the specific site. The site-specific addendum to this Abatement Plan will select from one or more of the following soil, product recovery and groundwater remediation options based on site-specific conditions, volume and/or depth of impacted soil, volume of Phase Separated Hydrocarbons (PSH) and extent and degree of groundwater impacts. Should other remedial technologies or approaches to soil and groundwater remediation become available or are more applicable to the site-specific conditions encountered, Plains will present such option(s) in the site-specific plan to be developed as an addendum to this General Stage 1 and Stage 2 Abatement Plan.

6.1 Soil Abatement Options

6.1.1 Total Soil Excavation

This soil remediation option utilizes the total excavation of the hydrocarbon impacted soil and the transportation of the impacted soil to a licensed off-site disposal facility. The excavation activities are field evaluated utilizing visual, olfactory observations and Electronic Vapor Detection (EVD) technologies. The sidewalls and floor of the excavation are sampled using standard sampling protocol and submitted for confirmatory Total Petroleum Hydrocarbons

(TPH) analysis. When confirmation analytical results indicate the sidewalls and floor of the excavation are below NMOCD regulatory levels, based on allowable concentrations as discussed in Section 3.0 of this General Stage 1 and Stage 2 Abatement Plan, and after receiving NMOCD approval, the excavation is backfilled with non-impacted soil. After backfilling, the surface is restored to as near original grade as practical and vegetation acceptable to the landowner is established.

6.1.2 Total Soil Excavation and On-Site Blending

This soil remediation option utilizes the total excavation and soil blending techniques of the hydrocarbon impacted soil. The excavated soil is stockpiled on-site along with non-impacted overburden and over-excavated soil. The excavation activities are field evaluated utilizing visual, olfactory observations and EVD technologies. The sidewalls and floor of the excavation are sampled using standard sampling protocol and submitted for TPH analysis. When analytical results indicate the sidewalls and floor of the excavation are below NMOCD regulatory levels, based on allowable concentrations as discussed in Section 3.0 of this General Stage 1 and Stage 2 Abatement Plan, the impacted and non-impacted soils are mechanically blended utilizing construction equipment. The blended soil is sampled and submitted for confirmatory TPH analysis. In cases where initial blending of impacted and non-impacted soil results in TPH concentrations in excess of NMOCD guidelines, additional soil and blending may be necessary. Following NMOCD approval, the blended and remediated soil is placed in the excavation and the surface is restored to as near original grade as practical and vegetation acceptable to the landowner is established.

6.1.3 Total Soil Excavation and On-Site Bioremediation

This soil remediation option includes total excavation and onsite bioremediation of the hydrocarbon impacted soil. The excavated soil is stockpiled on-site along with non-impacted overburden and over excavated soil. The excavation activities are field evaluated utilizing visual, olfactory observations and EVD technologies. The sidewalls and floor of the excavation are sampled using standard sampling protocol and submitted for confirmatory TPH analysis. When confirmation analytical results indicate the sidewalls and floor of the excavation are below NMOCD regulatory levels, based on allowable concentrations as discussed in Section 3.0 of this General Stage 1 and Stage 2 Abatement Plan, the impacted and non-impacted soils are mechanically blended utilizing heavy construction equipment. The soil is placed in an on-site bioremediation plot or soil "cell", in thin layers over a large area to maximize atmospheric and solar exposure. The soil cell may be augmented with nitrogen-based fertilizer and mechanically tilled on a regular basis to further enhance microbial activity in the soil. The soil cell is sampled at regular intervals for TPH concentrations. When laboratory analysis indicates the soil in the soil cell exhibits TPH concentrations below NMOCD regulatory levels, and with NMOCD approval, the soil in the cell is placed in the excavation and the surface is restored to as near original grade as practical and vegetation acceptable to the landowner is established.

6.1.4 Risk-Based Partial Excavation and On-Site Blending

This soil remediation option utilizes a risk-based approach in conjunction with a partial excavation and on-site blending of the excavated soil. The hydrocarbon-impacted soil is excavated to site-specific depth and stockpiled on-site. The excavation activities are field evaluated utilizing visual, olfactory observations and EVD technologies. The sidewalls and floor of the excavation are sampled using standard sampling protocol and submitted for confirmatory TPH analysis. When confirmation analytical results indicate the sidewalls and floor of the excavation are below NMOCD regulatory levels based on allowable concentrations as discussed in Section 3.0 of this General Stage 1 and Stage 2 Abatement Plan or when the NMOCD concurs that impacted soil above regulatory levels may remain in place, the excavation ceases. The stockpiles are sampled and analyzed for TPH and with NMOCD approval, the on-site stockpiled soil is blended and the excavation is backfilled. This strategy is generally utilized when impacted soil is encountered at a depth where excavation of the impacted soil is not technically feasible or practical. The NMOCD may, at its discretion and on a site-specific basis, allow impacted soil above the NMOCD regulatory levels to remain in place and blended soil of a greater TPH concentration to be used as backfill in the excavation. Following the backfilling, the stockpiled soil is placed in the excavation and the surface is restored to as near original grade as practical and vegetation acceptable to the landowner is established.

6.1.5 Risk-Based Partial Excavation, Liner Installation and On-Site Blending

This soil remediation option utilizes a risk based approach in conjunction with a partial excavation, the installation of an impervious polyethylene liner and on-site blending of the excavated soil. The hydrocarbon-impacted soil is excavated to a site-specific depth and stockpiled on-site. The excavation activities are field evaluated utilizing visual, olfactory observations and EVD technologies. The sidewalls and floor of the excavation are sampled using standard sampling protocol and submitted for confirmatory TPH analysis. When confirmation analytical results indicate the sidewalls and floor of the excavation are below NMOCD regulatory levels, based on allowable concentrations as discussed in Section 3.0 of this General Stage 1 and Stage 2 Abatement Plan, or when the NMOCD concurs that impacted soil above regulatory levels may remain in place, the excavation ceases. Following excavation and with NMOCD approval, the floor of the excavation is covered with a six-inch layer of non-impacted sand and a twenty-millimeter thick polyethylene liner, and covered with a six-inch layer of non-impacted cushioning sand. The sand layers act as a protective barrier from sharp objects in the excavation. Monitor and recovery wells located within the excavation are fitted with a protective boot to maintain the impervious qualities of the liner. The liner sheds moisture to the edges of the liner and away from any impacted soil below the liner, limiting the potential for leaching of impacted soil to the groundwater. The hydrocarbon impacted stockpiles are sampled and analyzed for TPH and with NMOCD approval, the on-site stockpiled soil is blended and the excavation is backfilled. This strategy is generally utilized when impacted soil is encountered at a depth and excavation of the impacted soil is not technically feasible or practical. The NMOCD may, at its discretion and on a site-specific basis, allow impacted soil above the NMOCD regulatory levels to remain in place and blended soil of a greater TPH concentration to be used as backfill in the excavation.

Following the backfilling the stockpiled soil is placed in the excavation and the surface is restored to as near original grade as practical and vegetation acceptable to the landowner is established.

6.1.6 Soil Vapor Extraction

This soil remediation option utilizes Soil Vapor Extraction (SVE) technology. SVE technology has been shown to be effective in remediating impacted soil at depths which cannot be excavated due to technical infeasibility or impracticality. This option requires pilot testing on each proposed site, in the vicinity of the highest concentration of Contaminates of Concern (COC), to verify the efficiency and practicality of the technology. SVE technology is most effective on sites where PSH thicknesses are limited or absent. If possible, existing ground water monitoring wells are utilized as extraction wells, however, due to the increased annular capacity required by extraction wells, a site-specific number of four (4)-inch diameter extraction wells are required prior to pilot testing. SVE extraction wells are installed to determine the calculated and measured radius of influence of wells in the substrate. Depending upon results achieved, the expected duration of the pilot testing program maybe approximately 3 to 6 months. Analyses of the pilot testing results are used to design and install a remediation system utilizing the SVE technologies. Details of system operation and maintenance requirements will also be determined from analysis of the pilot testing.

6.2 Phase Separated Hydrocarbon Abatement Options

For sites with documented thicknesses of PSH, one or more of the following techniques will be employed to remove the PSH from the surface of the groundwater.

6.2.1 Passive PSH Recovery

Limited thicknesses of PSH may be recovered from the groundwater interface by utilizing absorbent socks (passive recovery), which are installed in monitor and recovery wells and secured to the surface by a polyethylene retrieval line. The absorbent sock is removed from the monitor or recovery well on a regular basis and the monitor well is visually inspected for any change in PSH thickness. Socks that become saturated with PSH are replaced when required. If an absorbent sock indicates an increasing PSH thickness in the monitor or recovery well, the well will be bailed or pumped as described below.

6.2.2 Manual PSH Recovery

Limited thicknesses of PSH may be recovered from the groundwater interface by utilizing a disposable PVC bailer and a polyethylene retrieval line. The groundwater technician may also use an electrical pump for monitor and recovery wells exhibiting larger thicknesses of PSH. The technician always wears clean, disposable gloves to protect against any cross contamination of wells at the release site. The PSH collected from each well is placed into a polystyrene tank for later re-injection at a Plains truck station or disposal by a licensed vendor. The technician conducting the recovery activities then records the depth to PSH, depth to groundwater, total depth of the monitor or recovery well and the volume of PSH

recovered. This collected data allows the project manager to evaluate the success of the recovery effort. This data is summarized on an annual basis in an Annual Monitoring Report, which is submitted for each groundwater site, to the NMOCD by April 1st of each year.

6.2.3 Automated PSH Recovery

PSH thicknesses exhibited at sites that cannot be efficiently recovered utilizing a PVC bailer or electrical pump, may be placed on an automated PSH recovery system. The automated PSH recovery system utilizes one or more air compressors centrally located within the site. The air compressor(s) supply either a skimmer pump or a total fluid pump located in the monitor or recovery well at the groundwater interface. The skimmer pump utilizes a float which activates the pump, removing any accumulated PSH within the monitor or recovery well. The total fluid pump operates in a similar manner, but may be configured to pump groundwater impacted with dissolved phase hydrocarbons, as well as PSH. The automated system pumps the PSH to a temporary onsite storage tank. The PSH and groundwater in the temporary storage tank are periodically transported to a Plains truck station for reinjection or to licensed water disposal facility.

6.3 Groundwater Abatement Options

For sites with documented groundwater impacts, one or more of the following groundwater remediation techniques will be employed to remediate the impact to groundwater.

6.3.1 Monitored Natural Attenuation / Long Term Groundwater Monitoring

This groundwater remediation option utilizes Monitored Natural Attenuation/Long Term Groundwater Monitoring technology (NA/LT). This technology relies on naturally occurring processes such as dispersion, diffusion, sorption and degradation (either biodegradation or abiotic processes such as hydrolysis), and volatilization to control plume movement and destruction of dissolved phase hydrocarbons in the groundwater. Volatilization and diffusion are relatively unimportant in most non-clay groundwater systems; therefore, the main attenuation processes active are dispersion, sorption, and degradation. Dispersion is subsurface mixing due to groundwater movement and aquifer heterogeneities. Vertical dispersion is not common at sites impacted with light non-aqueous phase liquids such as crude oil so this component may also be disregarded. Sorption is a nondestructive process in which hydrocarbon compounds are sorbed to the aquifer matrix, represented by a retardation factor. Sorption operates as an attenuation process by effectively reducing the mass available to the dissolved phase plume. Biodegradation involves chemical transformation of the hydrocarbon constituents into end products, for instance CO_2, H_2O and salts, by living organisms. Of particular importance in this pathway of attenuation is the determination of whether the impacted area is controlled by either anaerobic or aerobic conditions. Aerobic conditions exist under relatively oxygen rich environments resulting in compounds being formed through the reaction of available oxygen and dissolved phase hydrocarbons transforming into H_2O. Anaerobic conditions are relatively oxygen poor environments and result in transformations into nitrate, ferric iron, sulfate and carbon dioxide products. Geochemical indicators and concentration migration rate calculations will be utilized to

determine if dissolved phase hydrocarbons are susceptible to natural attenuation on a site-specific basis.

6.3.2 In-Situ Submerged Oxygen Curtain (iSOC®)

This groundwater remediation technology utilizes dissolved oxygen to enhance the natural attenuation of hydrocarbons in groundwater. The In-Situ Submerged Oxygen Curtain (iSOC) technology employs a patented injection system which supersaturates the groundwater with low decay dissolved oxygen at concentrations ranging from 40 to 200 parts per million (ppm), depending on aquifer conditions and the depth of injection. The oxygen supersaturation of the groundwater allows for enhanced natural attenuation of hydrocarbons by the indigenous aerobic microbial population. The pure oxygen is injected below the groundwater interface in monitor and/or recovery wells in various aerial configurations depending on site-specific conditions. The radius of influence of individual oxygen supersaturated well depends on the velocity and oxygen demands of the aquifer, but in case studies the typical radius of influence is ten (10) to thirty (30) feet. The point of oxygen injection is generally upgradient of the source of the release, but the point of oxygen injection may be placed at the source of the release or in a down gradient position to inhibit the off-site migration of the dissolved phase plume. This technology is cost effective, low maintenance and easily relocated depending on site-specific conditions.

6.3.3 Air Sparing Technology

This groundwater remediation technology utilizes Air Sparging technologies. Air Sparging remediates the groundwater by stripping or volatilizing the BTEX constituents from the dissolved phase and increases in-situ biodegradation by the addition of oxygen to the impacted groundwater. As BTEX constituents are liberated from the aqueous phase and enter the gas phase, they migrate to the capillary fringe and subsequently the vadose zone. This treatment technique effectively removes BTEX constituents from the saturated and vadose zones and also restricts continued plume migration. A long-term groundwater monitoring program would be conducted to confirm plume stabilization and to monitor dissolved phase BTEX constituents. A single injection well pilot test is conducted to test the applicability of this remedial technology. A skid mounted compressor as well as vadose zone monitor wells are utilized for pilot testing purposes. The following in-situ parameters are monitored during pilot testing: soil gas concentrations of BTEX constituents, soil gas pressure and groundwater level measurements. The following in-situ parameters are monitored after the air injection ceases: dissolved phase BTEX concentration, dissolved oxygen levels, temperature, and Redox potential/pH. Installations of injection wells across areas of effected groundwater are conducted incrementally to optimize the well field configuration. The 2-inch, schedule 40 PVC injection wells penetrate the saturated zone with approximately 5 feet of fully immersed, 0.020-inch slotted pipe. Air compressors are utilized to generate the required air pressure for injection purposes. On the surface, the wells are piped to an activated carbon filtering system for effluent gas treatment prior to atmospheric discharge. A moisture knock out pot is installed down line of the effluent piping manifold to prevent moisture from entering the carbon treatment unit. Air Sparging generally consists of a compressor, pressure regulator, pressure gauges, flow meters, vacuum blower, and component isolation ball valves. In-situ

system operating parameters which are monitored during system operation include: soil gas concentrations of BTEX constituents, injection well pressure and flow rate, weekly oxygen, carbon dioxide, nitrogen and methane concentrations and the pulsing frequency. Data derived from pilot testing is utilized to design the final system configuration.

6.3.4 Pump and Treat Technology

This groundwater remediation option utilizes a pump and treat technology which employs an above ground air stripping system to remove dissolved BTEX constituents from the ground water. Hydraulic conductivity values expected from the loose, unconsolidated sands found in the area should support a relatively expanded range of ground water withdrawal rates. The impacted groundwater is pumped through a water treatment system and as water is pumped from the subsurface it creates a flushing action to move contaminants toward the pumping wells. As the project matures, withdrawal rates are varied in response to shifting contaminant of concern concentration foci in an effort to maximize system utilization. The primary exclusion factors concerning this type of treatment technology are the extended length of system operation time required to achieve site cleanup goals and the large quantities of effluent produced requiring off-site disposal or injection back into the aquifer materials. Aerated effluent water could be injected back into the formation in up gradient locations to enhance aquifer-flushing action. The injected water would also carry oxygen to the subsurface, promoting biodegradation.

6.3.5 Human-Health Based Risk Assessment Technology

This groundwater remediation option utilizes a Human-Health Based Risk Assessment technology. A site-specific approach will be employed to assess the probability of likely human exposure pathways with evaluations of the individual constituents of TPH concentrations present in the soil and BTEX constituents present in the ground water. In order to prevent subsequent unintended or accidental human exposure to petroleum hydrocarbon constituents remaining on-site, the area defined following completion of plume delineation activities is deed restricted for future considerations of development or improvements in the county clerk's office.

7.0 MONITORING PROGRAM

All site monitor wells are gauged and sampled on a quarterly, semi-annual, or annual basis. Each well is monitored for the presence of PSH and depth to groundwater. All groundwater monitor wells, with the exception of those registering a presence of PSH greater than 0.01 foot thick, are purged and sampled for dissolved phase BTEX constituents. Groundwater sampling methodology is described in Section 10.2, Groundwater Sampling of this General Stage 1 and Stage 2 Abatement Plan. Monitor wells with PSH are gauged and pumped down by hand bailing or with an electronic pump on a site-specific schedule. Recovered product is temporarily stored in a polystyrene tank or other suitable storage container until it is reintroduced into the Plains transportation system. The quarterly groundwater monitoring data is compiled and summarized in an Annual Monitoring Report, which is submitted to the NMOCD by April 1st of each year.

8.0 IMPLEMENTATION OF SCHEDULE OF STAGE 2 ACTIVITIES

The implementation of Stage 2 abatement activities will be addressed in the site-specific addendum to the report. Implementation details will be provided in each site specific addendum report.

9.0 PUBLIC NOTIFICATION

Once the NMOCD has indicated the General Stage 1 and Stage 2 Abatement Plan and the site-specific addendum is administratively complete, the following individuals and entities will be notified in writing of the Stage 1 and Stage 2 Abatement Plan.

- Surface owners of record within one (1) mile of the perimeter of the affected area;
- The local County Commissioners;
- Individuals or organizations requiring notification;
- The New Mexico Trustee for the Natural Resources and other pertinent agencies;
- All others as directed by the Director of the New Mexico Energy, Minerals and Natural Resources Department.

Within fifteen (15) days after receiving notice from the NMOCD that the General Stage 1 and Stage 2 Abatement Plan is administratively complete, Plains will issue a public notice in the newspapers with county and statewide circulation (such as Hobbs Daily News Sun, Lovington Leader, and Albuquerque Journal).

The public notice will be developed to include:

- Name and address of the responsible party;
- Location of the proposed abatement;
- Description of the source extent, release volume, and affected media;
- Description of the Stage 1 and Stage 2 Abatement Plan;
- Description of the procedure required by the Director before making a final determination;
- Statement that the Abatement Plan can be viewed at the Division office in Hobbs, New Mexico or electronically from a Division maintained site.
- Statement that the Director will consider the following comments and requests if received within 30 days after publication of the public notice.
    - Written comments on the Abatement Plan
    - For a Stage 2 Abatement plan, written requests for a public hearing that includes reasons why a hearing should be held.
    - Address and telephone number at which interested persons may obtain further information.

10.0 QA/QC PROCEDURES

10.1 Soil Sampling

Samples of subsurface soil are obtained utilizing a split spoon sampler. Representative soil samples are divided into two separate portions using clean, disposable gloves and clean sampling tools. One portion of the soil sample is placed in a disposable sample bag. The bag is labeled and sealed for headspace analysis using a EVD calibrated to a 100-ppm isobutylene standard. Each sample is allowed to volatilize for approximately thirty minutes at ambient temperature prior to conducting the analysis.

The remaining portion of the soil sample is placed in a sterile glass container equipped with a Teflon-lined lid furnished by the analytical laboratory. The container is filled to capacity to limit the amount of headspace present. Each container is labeled and placed on ice in an insulated cooler. Upon selection of samples for analysis, the cooler is sealed for shipment to the laboratory. Proper chain-of-custody documentation is maintained throughout the sampling process.

The *Guidelines for Remediation of Leaks, Spills and Releases* (NMOCD 1993) states that a field soil vapor headspace measurement of 100 ppm may be substituted for a laboratory analysis of the benzene and BTEX concentration limits.

Discrete confirmation soil samples collected from the sidewalls of excavations are collected every fifty (50) linear feet or as directed by the NMOCD. Discrete confirmation soil samples collected from the floor of the excavation are collected for every 250 square feet of excavation floor or as directed by the NMOCD. The discrete confirmation soil samples are divided into two separate portions and processed with the same protocol given to subsurface soil samples as described above.

Discrete confirmation soil samples collected from soil treatment cells (land farms) are collected for every 250 cy of soil in the cell or as directed by the NMOCD. The discrete confirmation soil samples are divided into two separate portions and processed with the same protocol given to subsurface soil samples as described above.

Soil samples are delivered to a certified laboratory for BTEX, and TPH analyses using the methods described below. Soil and ground water samples are analyzed within fourteen days following the collection date.

- BTEX concentrations in accordance with EPA SW 846 Method 8021B, 5030
- TPH concentrations in accordance with EPA SW 846 Method 8015M GRO/DRO.

10.2 Ground Water Sampling

After purging the wells, ground water samples are collected with a disposable Teflon sampler and polyethylene line by personnel wearing clean, disposable gloves.

Ground water samples collected for BTEX analysis are placed in 40 ml glass VOA vials equipped with Teflon lined caps, which are provided by the analytical laboratory. The vials are filled to a positive meniscus, sealed, and visually checked to ensure the absence of air bubbles.

The filled containers are labeled and placed on ice in an insulated cooler. The cooler is sealed for transportation to the analytical laboratory. Proper chain-of-custody documentation is maintained throughout the sampling process.

The ground water samples are analyzed as follows:

- BTEX concentrations in accordance with EPA Method 8021B, 5030

10.3 Decontamination of Equipment

Cleaning of drilling equipment is the responsibility of the drilling company. In general, the cleaning procedures consists of using high-pressure steam to wash the drilling and sampling equipment prior to drilling and prior to starting each hole. Prior to use, the sampling equipment is cleaned with Liqui-Nox® detergent and rinsed with distilled water.

10.4 Laboratory Protocol

The laboratory is responsible for proper QA/QC procedures after signing the chain-of-custody form. These procedures are either transmitted with the laboratory reports or are on file at the laboratory.

11.0 SUMMARY AND CONCLUSIONS

This General Stage 1 and Stage 2 Abatement Plan Pursuant to 19.15.1.19 of the New Mexico Administrative Code is being submitted to the NMOCD to illustrate abatement options available to Plains for soil, PSH and groundwater remediation on Plains release sites located in New Mexico. This document illustrates industry standard remediation options available to date. Future technological advances and/or modifications to the NMAC may require modification of this document and the abatement options it illustrates.

An addendum to this General Abatement Plan will be prepared and submitted to the NMOCD for each specific Plains release site subject to the rules and regulations as defined in Section 19.15.1.19 of the NMAC. The addendum will include the location of the release, landowner, volume and cause of the release, soil and groundwater delineation information, and identification of the remedial action goals, recommendations for soil and groundwater remediation, a schedule for the implementation of abatement activities and public notification requirements.

12.0 DISTRIBUTION

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