3R - 69

GENERAL CORRESPONDENCE

YEAR(S):

2000 - 1997

Olson, William
From: Gregg Wurtz [SMTP:gwurtz@br-inc.com]
Sent: Thursday, September 14, 2000 1:20 PM
To: Foust, Denny; Olson, William
Subject: Burlington Resources Hampton 4M update

Mr. Olson,

The following is a preliminary update of the recent activities at the Hampton 4M location. In addition, I have included electronic pictures of the excavation in a jpg format.

Excavation

Approximately 50, 000 cu. yds. of soils/rock were removed in five days. The total depth of the excavation was approximately 30 feet and represents a 70 by 70 foot area in the southeast corner of the location.

Geology

The material excavated included a sandy loam to a depth of 3 feet progressing to a competent fine grained sandstone from 3 to 20 feet then transitioning to a poorly cemented slightly moist fine grained sandstone from 20 to 25 feet underlain by 5 feet of a dry confining aquatard layer of mud/siltstone. Clean over burden was stock piled on location.

Hydrology

The ground water table was encountered at approximately 20 feet with saturated soils observed at 25 feet laying directly on top of the aquatard layer. A minor amount (i.e., less than 8 inches) of standing water is present in the excavation. The extent of ground water was confined vertically by the aquatard layer observed at 25 feet.

Impacted Soil

Two discontinuous lenses of discolored soils approximately 1 foot thick were observed, one lense at approx. 20 feet and the other at 25 feet. The vertical extent of impacted soils and ground water was 25 feet, confined by the aquatard layer.

Backfill

BR plans to leave the excavation open to allow for removal of any potential product that may migrate toward the excavation as well as volatilization of the soils exposed. The excavation is secured by a fence to control public and wildlife access. The excavated soils are being landfarmed at an adjacent abandoned well site within the lease. Thses soils will be landfarmed and may be used for backfill if approved to be suitable by OCD.

The excavation will be treated with a bioremediation enhancer to stimulate the growth and activity of the naturally occurring microorganisms that will degrade the compounds of interest. Following this treatment the excavation will be backfilled to the approximate original contour of the location.

Insitu remediation and monitoring

BR believes that the impacted soils in this area been removed to the extent practical. BR proposes an insitu passive remediation approach in the future to minimize the concentrations of the compounds of interest in the ground water and soils. In addition, ground water monitoring will be performed to assess the ground water movement and quality.

If you have any further questions regarding this project or would like a

field visit please contact me at the numbers provided. Thank you

J. Gregg Wurtz
Sr. Environmental Rep.
San Juan Division
505-326-9537
Cell-320-2653
gwurtz@br-inc.com

Original text

From: Louis Edward Hasely@OPRenv@FAR, on 8/21/00 4:36 PM:

Mr. Bill Olson - As requested in your July 5, 2000 letter, the purpose of this Email is to notify you that Burlington Resources plans to attempt excavation in the extreme southeast corner of the Hampton 4M location on August 30, 2000. This work was proposed in BR's letter dated April 12, 2000 and was approved in your letter dated July 5, 2000.

If you have any questions or need additional information, please contact me via Email or at (505) 326-9841.

Ed Hasely
Environmental, Health & Safety
(505) 326-9841
Email: lhasely@br-inc.com

J. Gregg Wurtz
Sr. Environmental Rep.
San Juan Division
505-326-9537
Cell-320-2653
gwurtz@br-inc.com


MVC-002F.JPG


MVC-003F.JPG


MVC-005F.JPG

Olson, William
From: Louis Edward Hasely [SMTP:lhasely@br-inc.com]
Sent: Monday, August 21, 2000 4:36 PM
To: Olson, William
Cc: Foust, Denny; Bruce Gantner; Gregg Wurtz; Steve Florez
Subject: Hampton 4M

Mr. Bill Olson - As requested in your July 5, 2000 letter, the purpose of this Email is to notify you that Burlington Resources plans to attempt excavation in the extreme southeast corner of the Hampton 4M location on August 30, 2000. This work was proposed in BR's letter dated April 12, 2000 and was approved in your letter dated July 5, 2000.

If you have any questions or need additional information, please contact me via Email or at (505) 326-9841.

Ed Hasely
Environmental, Health & Safety
(505) 326-9841
Email: lhasely@br-inc.com

mob.le 320-1803

BURLINGTON RESOURCES

SAN JUAN DIVISION

April 12, 2000

Certified: P 358 636 051

Bill Olson
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

RE: Hampton 4M - Ground water Impact
Proposed Remediation Plan

Dear Mr. Olson:

As required by Oil Conservation Commission Order No. R-11134-A, dated March 24, 2000, Burlington Resources (BR) is submitting a remediation plan for the Hampton 4M location.

Potential Source Removal

As discussed in BR's letter dated February 10, 2000, BR is proposing to excavate to ground water in the southeast corner of the Hampton 4M location. Although previous work in this area (December 1997 and December 1998) did not reveal any remaining impacted soil, MW-14 has shown a level of free phase hydrocarbons since installation in October 1999. This excavation work will be completed with the use of a trackhoe, which should allow BR to excavate vertically in the extreme southeast corner of location. Removal of the potential source should allow for natural attenuation of the remaining contaminants in the ground water.

BR is also proposing to coordinate and work with Public Service of New Mexico (PNM) to remove potential source material near the seep located to the northwest of the well location.

Clean overburden soil will be stockpiled on location. Hydrocarbon impacted soil will be landfarmed on location or separate BR locations on the same lease.

Monitoring well (MW-14) will have to be removed during the excavation process. Once excavation and backfilling work is complete, a replacement ground water monitoring well will be installed in the vicinity of the existing MW-14.

Contamination Extent

As detailed in previous reports, BR has installed a downgradient ground water monitoring well (MW-11) over 1000 feet north of the Hampton 4M well location. Ground water collected from this monitoring well has always tested below New Mexico Water Quality Control Commission ground water standards since being installed in November 1998; therefore, the downgradient extent of the contaminant plume has been defined.

BR also attempted two additional ground water monitoring wells to help define the lateral extent of the contaminant plume. Both attempted wells encountered "auger refusal" prior to contacting ground water. The auger refusal encountered on the two downgradient offsite well attempts supports the theory that the ground water is located in a relatively narrow band generally following the surface drainage.

Future Monitoring

BR and PNM plan to continue the quarterly monitoring of the ground water monitoring wells associated with the Hampton 4M well location. Information obtained from the continued monitoring will determine if source removal work in conjunction with natural attenuation is adequate or if additional active remediation is required at this site.

If you have questions or if additional information is needed, please contact me at (505) 326-9841.

Sincerely,

Ed Hasely
Sr. Staff Environmental Representative

cc: Denny Foust - NMOCD Aztec
Maureen Gannon - PNM Albuquerque
Paul Rosasco - EMSI Denver
Steve Florez - BR
Bruce Gantner - BR
John Bemis - BR
Hampton 4M File
Correspondence

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION COMMISSION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION FOR THE PURPOSE OF CONSIDERING:

De Novo
Case No. 12033
Order No. R-11134-A

APPLICATION OF PUBLIC SERVICE COMPANY OF NEW MEXICO FOR REVIEW OF OIL CONSERVATION DIVISION DIRECTIVE DATED MARCH 13, 1998, DIRECTING APPLICANT TO PERFORM ADDITIONAL REMEDIATION FOR HYDROCARBON CONTAMINATION, SAN JUAN COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

This case came on for hearing on August 26 and 27, 1999, at Santa Fe, New Mexico, before the New Mexico Oil Conservation Commission ("Commission").

NOW, on this 24th day of March, 2000, the Commission, a quorum being present, having considered the record of the hearing:

FINDS THAT:

(1) Due public notice has been given and the Commission has jurisdiction of this case and its subject matter.

(2) The applicant, Public Service Company of New Mexico ("PNM"), seeks an order from the Commission rescinding the March 13, 1998 Oil Conservation Division ("Division") directive ("Division Directive") to PNM requiring PNM to perform additional remediation for hydrocarbon contamination in the area of the Burlington Resources Oil & Gas Company ("Burlington") Hampton No. 4 M Well ("Hampton Well") located in Unit Letter N, Section 13, Township 30 North, Range 11 West, NMPM, San Juan County, New Mexico, and a determination by the Commission that PNM is not a responsible person pursuant to 19 NMAC 15.A.19 for purposes of further investigation and remediation of contamination at this location.

(3) Burlington appeared at the hearing and presented evidence in opposition to the application of PNM. Burlington admits that it is a responsible person for contamination at the Hampton Well site but contends that PNM is also a responsible person for contamination at this site.

(4) The Division's Environmental Bureau ("Bureau") appeared at the hearing and presented evidence in support of the Division Directive.

(5) In 1984, Burlington's predecessors Meridian Oil Company and/or Southland Royalty Company drilled and completed the Hampton Well. Burlington operates well equipment located in the southern-most portion of the Hampton Well site.

(6) Production from the Hampton Well has been sold pursuant to an agreement dated March 1, 1990, between Southland Royalty Company and Gas Company of New Mexico. PNM, successor to Gas Company of New Mexico, purchased natural gas produced from the Hampton Well pursuant to this agreement.

(7) PNM installed and operated dehydration equipment in the northern-most portion of the Hampton Well site until Williams Field Services purchased the equipment on June 30, 1995. The purpose of the dehydration equipment is to remove liquids from the gas stream produced from the Hampton Well. For more than 12 years PNM discharged the liquids, including liquid hydrocarbons, into an unlined disposal pit.

(8) During a site assessment of the Hampton Well site conducted on April 23, 1996, PNM discovered potential hydrocarbon contamination at PNM's pit. PNM began closure activities at PNM's pit in April 1996, pursuant to a Bureau-approved pit closure plan.

(9) On December 16, 1996, PNM performed a soil boring at PNM's former pit that encountered hydrocarbon groundwater contamination.

(10) On January 13, 1997, PNM notified the Bureau in writing of hydrocarbon groundwater contamination at PNM's former pit.

(11) On January 31, 1997, PNM installed two monitor wells upgradient from PNM's former pit. One of the wells, located adjacent to Burlington's equipment, encountered hydrocarbon groundwater contamination.

(12) On April 14, 1997, Burlington discovered a hydrocarbon seep along the northwestern edge of the Hampton Well site adjacent to PNM's former pit. Burlington notified both the Bureau and PNM about the seep.

(13) On April 17, 1997, Burlington conducted excavations around the northwest perimeter of the site and constructed a collection trench.

(14) On April 30, 1997, Burlington began excavation in the area of Burlington's former pit located in the southeastern portion of the Hampton Well site. Burlington drilled soil borings and monitor wells at the excavation that encountered hydrocarbon groundwater contamination.

(15) On August 1,1997, the Bureau wrote to PNM and Burlington concerning the contamination at the Hampton Well site. Burlington was directed to submit a Soil and Groundwater Investigation Work Plan for the portion of the site upgradient of the PNM disposal pit, and PNM was directed to address the contamination downgradient of its pit.

(16) PNM installed a free-phase hydrocarbon recovery well system adjacent to PNM's former pit in November 1997, and initiated recovery of free-phase hydrocarbons from the groundwater in January 1998.

(17) On February 23, 1998, Mr. J. Burton Everett, the owner of the property immediately downgradient of the Hampton Well site, wrote the Division stating his concern about the migration of hydrocarbon contamination onto his property.

(18) On March 13, 1998, the Bureau wrote to PNM and directed PNM to remove, within 30 days, the remaining source areas with free-phase hydrocarbons in the vicinity of and immediately downgradient of PNM's former pit.

(19) In April 1998, PNM appealed the Division Directive and sought a stay of the directive pending a decision on its appeal. The Division denied PNM's request for stay on August 20, 1998.

(20) In April and May 1998, free product was discovered upgradient from the dehydration pit, and Burlington installed two additional monitor wells at the site.

(21) On September 1, 1998, the Bureau wrote PNM and Burlington and requested that they work together to remediate the Hampton Well site. The letter directed PNM and Burlington to conduct additional investigation and to determine the complete downgradient extent of hydrocarbon contamination at the Hampton Well site.

(22) Burlington set up meetings with PNM to discuss additional investigation and remediation at the Hampton Well site. No agreement was reached for a cooperative effort to address the contamination.

(23) On October 28, 1998, Burlington submitted a response to the Bureau's letter of September 1, 1998. Burlington stated that if PNM did not begin remediation of PNM's former pit by October 30, 1998, then Burlington would begin remediating the entire Hampton Well site, starting at PNM's former pit and working south towards Burlington's former pit.

(24) PNM continued recovery of free phase hydrocarbons until early November 1998, when Burlington's remediation activities resulted in the removal of PNM's free phase hydrocarbon recovery well system.

(25) PNM's appeal of the Division Directive was heard at a Division examiner hearing in November 1998. The Division entered Order No. R-11134, and PNM appealed to the Commission.

(26) At the time of the Commission *de novo* hearing, neither PNM nor Burlington had completed remediation activities at the Hampton Well site. Groundwater contamination remains at the Hampton Well site, and a plume of contamination extends approximately 1000 feet downgradient from the site.

(27) The evidence indicates that soil and groundwater contamination at the Hampton Well site is a result of hydrocarbon releases at the facilities of both PNM and Burlington, and not from off-site sources.

(28) The evidence also indicates that the groundwater gradient is from southeast to northwest.

(29) The evidence further indicates that PNM's facilities are located downgradient from Burlington's facilities and that groundwater contamination from Burlington's facilities has moved downgradient and commingled with groundwater contamination from PNM's facilities.

(30) The evidence failed to indicate that PNM or Burlington had removed all soil and ground water contamination that resulted from releases from their former pits.

(31) Burlington should be the responsible party for any contamination remaining south and upgradient of the PNM disposal pit and equipment.

(32) PNM should be the responsible party for any soil contamination below its pit.

(33) PNM and Burlington should share the responsibility of remediating any groundwater or soil contamination, other than any soil contamination below the PNM pit, remaining north and downgradient of the property for which Burlington is responsible pursuant to paragraph 31, above.

(34) Both PNM and Burlington should submit remediation plans to the Bureau, for approval, within 30 days of the date of this order. At a minimum, the remediation plans should contain plans to determine the lateral extent of contamination, to remove remaining sources of contamination, to control the downgradient migration of the plume of groundwater contamination, and to remediate the remaining contaminants.

(35) PNM should have the oversight and reporting responsibilities for ground water remediation in the area north and downgradient of the property for which Burlington is responsible pursuant to paragraph 31, above.

(36) Contamination at the Hampton Well site is a threat to public health and safety and the environment. Both PNM and Burlington should begin remedial activities within 10 days of Bureau approval of the remediation plans.

(37) The application of PNM should be denied.

IT IS THEREFORE ORDERED THAT:

(1) The application of the Public Service Company of New Mexico ("PNM") for an order rescinding the Division directive to PNM dated March 13, 1998 requiring it to perform additional remediation for hydrocarbon contamination in the area of the Burlington Resources Oil & Gas Company Hampton No. 4-M Well located in Unit N, Section 13, Township 30 North, Range 11 West, NMPM, San Juan County, New Mexico, and a determination by the Division that PNM is not a responsible person for purposes of further investigation and remediation of contamination at this location is hereby denied.

(2) Burlington shall be the responsible party for any contamination remaining south and upgradient of the PNM disposal pit and equipment.

(3) PNM shall be the responsible party for any soil contamination remaining below its pit.

(4) PNM and Burlington shall share the responsibility of remediation for any groundwater or soil contamination, other than any soil contamination below the PNM pit, remaining north and downgradient of the property for which Burlington is responsible pursuant to ordering paragraph 2, above.

(5) Both PNM and Burlington shall submit remediation plans to the Bureau, for approval, within 30 days of the date of this order. At a minimum, the remediation plans must contain plans to determine the lateral extent of contamination, to remove remaining sources of contamination, to control the downgradient migration of the plume of groundwater contamination, and to remediate the remaining contaminants.

(6) Both PNM and Burlington shall begin remedial activities within 10 days of Bureau approval of the remediation plans.

(7) PNM shall have the oversight and reporting responsibilities for groundwater remediation in the area north and downgradient of the property for which Burlington is responsible pursuant to ordering paragraph 2, above.

(8) Jurisdiction is hereby retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JAMI BAILEY, Member

ROBERT LEE, Member

LORI WROTENBERY, Chairman

S E A L

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JAMI BAILEY, Member

ROBERT LEE, Member

LORI WROTENBERY, Chairman

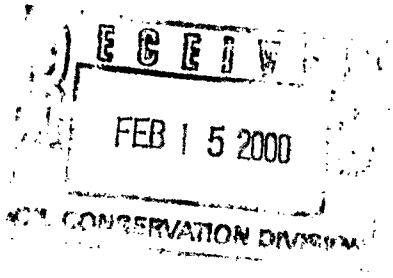
S E A L

BURLINGTON RESOURCES

SAN JUAN DIVISION

February 10, 2000

Certified: Z 186 732 869



Bill Olson
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

RE: Hampton 4M - Groundwater Contamination
Proposed Remediation Plan

Dear Mr. Olson:

As we discussed recently, Burlington Resources (BR) is proposing to excavate to groundwater in the southeast corner of the Hampton 4M location. Although previous work in this area did not reveal any remaining impacted soil, MW-14 has shown a level of free phase hydrocarbons since being installed in October 1999.

This excavation work will be completed with the use of a trackhoe, which should allow BR to excavate vertically in the extreme southeast corner of location. We are hopeful that a properly equipped trackhoe will be able to excavate any impacted soils down to groundwater depth, and further if necessary.

BR is also proposing to remove impacted soil near the seep located to the northwest of the well location.

Clean overburden soil will be stockpiled on location. Hydrocarbon impacted soil will be landfarmed on location or separate BR locations on the same lease.

Monitoring well (MW-14) will have to be removed during the excavation process. Once excavation and backfilling work is complete, a replacement groundwater monitoring well will be installed in the vicinity of the existing MW-14.

If you have questions or if additional information is needed, please contact me at (505) 326-9841.

Sincerely,

Ed Hasely
Sr. Staff Environmental Representative

3535 East 30th St., 87402-8801, P.O. Box 4289, Farmington, New Mexico 87499-4289, Telephone 505-326-9700, Fax 505-326-9833

cc: Denny Foust - NMOCD Aztec
Maureen Gannon - PNM Albuquerque
Paul Rosasco - EMSI Denver
Steve Florez - BR
Bruce Gantner - BR
John Bemis - BR
Hampton 4M File
Correspondence

S: / grndwatr/facility/hampton/0001ocd.doc

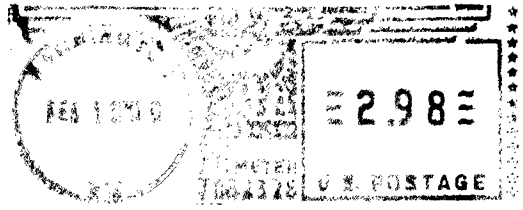
CERTIFIED

BURLINGTON RESOURCES

San Juan Division
3535 East 30th St., P.O. Box 4289
Farmington, New Mexico 87499-4289

Z 186 732 869

MAIL



BR-0035 (7-96)

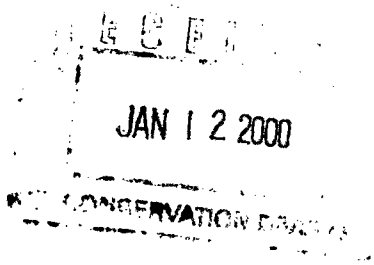
RETURN RECEIPT REQUESTED

Bill Olson
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

BURLINGTON RESOURCES

SAN JUAN DIVISION

January 11, 2000



Bill Olson
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

RE: Hampton 4M - Groundwater Contamination
Unit Letter N, Section 13, Township 30N, Range 11W

Dear Mr. Olson:

This letter is submitted to provide you with the drilling logs from the two attempted downgradient monitoring well at the subject location. Both attempted wells hit "auger refusal" prior to contacting any groundwater. Also attached is a copy of the survey report for the MW-14, MW-15, and MW-16, plus the two attempted downgradient wells.

If you have questions or if additional information is needed, please contact me at (505) 326-9841.

Sincerely,

Ed Hasely
Sr. Staff Environmental Representative

Enclosures: Attachment #1: Drilling Logs - Two Downgradient Attempts
Attachment #2: Survey Report

cc: Denny Foust - NMOCD Aztec
Maureen Gannon - PNM Albuquerque
Paul Rosasco - EMSI Denver
Steve Florez - BR (w/o attachment)
Ken Raybon - BR (w/o attachment)
Bruce Gantner - BR (w/o attachment)
John Bemis - BR (w/o attachment)
Hampton 4M File
Correspondence

3535 East 30th St., 87402-8801, P.O. Box 4289, Farmington, New Mexico 87499-4289, Telephone 505-326-9700, Fax 505-326-9833

ATTACHMENT #1

Drilling Logs for Two Downgradient Monitoring Well Attempts

RECORD OF SUBSURFACE I 'LORATION

Borehole # 1
Well #
Page 1 of 2

PHILIP SERVICES CORP.
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Project Number 62000086 Phase: 35
Project Name: BR Drilling
Project Location: Hampton (West)

Elevation:
Borehole Location: Hampton
GWL Depth: NO GW encountered
Drilled By: K. Padilla
Well Logged By: ~~S. Pope~~ C Irby
Date Started: 12-3-99 9:21 am
Date Completed: 11:30 am

Drilling Method: 4 1/4 ID HSA
Air Monitoring Method: PID

Depth (Feet)	Sample Number	Sample Interval	Sample Type & Recover (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: PPM BZ	BH	S	Drilling Conditions & Blow Counts
0				All percentages by volume are estimated W/O sieve test						SS=PID=split spoon HS=PID=Head space (PPM)
5	18"			Tan VF-F Grn Snd w/sm clay <20%						SS=0 HS=0
10	6"			Drk Gry/Grn clay w <5% vFSnd, Caliche /Anydrite along vertical Fractures very Firm/Dry						SS=0 HS=0
15	18"			AAB Firm						SS=0 HS=0
20	12"			AAB						SS=0 HS=0
25	18"			Grayish Grn Sandy clay Sand is very Fine grain <20%						SS=0 HS=0
30				Grayish Grn AAB grading down into Gray/red mottled w/increase of sand. Sand VF-F Grn <30-40%.						SS=0 HS=0
35				Gray/reddish mottled clay w/sm F Grained Sand <10%						SS=0 HS=0
40										

Comments:

Geologist Signature Cecil Irby

RECORD OF SUBSURFACE EXPLORATION

Borehole # 1
Well #
Page 1 of 2

PHILIP SERVICES CORP.
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Project Number: Phase:
Project Name: BR Drilling
Project Location: Hampton (West)

Elevation:
Borehole Location:
GWL Depth: NO GW
Drilled By: K. Padilla
Well Logged By: ~~S. Pope~~ CJrby
Date Started:
Date Completed:

Drilling Method: 4 1/4 ID HSA
Air Monitoring Method: PID

Depth (Feet)	Sample Number	Sample Interval	Sample Type & Recover (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: PPM BZ	BH	S	Drilling Conditions & Blow Counts
40				Hrd dry Gray/Brwn/Reddish mottled Clay w<10% VFG QTz Sand.						SS=0 HS=0
45				HARD Dry Gray Clay. w<20% sand.						SS=0 HS=0
50				Gray/Blk Dry Flaky-Friable Clay w<5% sand						SS=0 HS=0
55				NO samples/per Ed Haseley						
60										
~~25~~ 65				Blue SS? Auger refusal. V. Hrd Drilling 11:44						
30										
35										
40										

Comments:

Geologist Signature Cecil Fy

RECORD OF SUBSURFACE E 'LORATION

Borehole # 2
Well #
Page 1 of 1

PHILIP SERVICES CORP.
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Project Number: 62800086 Phase:
Project Name: BR Drilling
Project Location: Hampton (East)

Elevation:
Borehole Location:
GWL Depth: No GW encountered
Drilled By: K. Padilla
Well Logged By: S. Pope
Date Started: 12-3-99 12:45
Date Completed: 1 1:15

Drilling Method: 4 1/4 ID HSA
Air Monitoring Method: PID

Depth (Feet)	Sample Number	Sample Interval	Sample Type & Recover (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: PPM BZ	BH	S	Drilling Conditions & Blow Counts
0										
5	6"		Tan	Sandstone - VF - Med grn semi consolidated auger refusal @ 6' Cuttings indicate we hit Blue SS v/hard						SS= 0 HS= 6
10										
15										
20										
25										
30										
35										
40										

Comments:

Geologist Signature Cecil Ff

ATTACHMENT #2

Survey
MW-14, 15, 16 and Two MW Attempts

BRO&G GROUND WATER TEST WELLS
December 13, 1999
For: Ed Hasely

Project name : D:\TSOffice\Projects\P N M\PNM HAMPTON
Description : USFeet Template
Coordinate System : Not selected
Zone : Not selected
Datum : Not selected
Date printed : 12/13/99 3:29:10 PM

Coordinate units: US survey feet
Elevation units: US survey feet

Point listing

Name	Northing	Easting	Elevation		Feature code
1014	271.316	573.677	6126.728		MW 14
1015	296.500	491.020	6123.105		MW 15
1016	473.542	584.627	6115.200		MW16
1017	1110.888	188.713	6054.050	(west)	ATTEMPT 17 → Down ROW
1018	1321.420	406.897	6049.569	(East)	ATTEMPT 18

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

January 5, 2000

CERTIFIED MAIL
RETURN RECEIPT NO. Z-559-572-893

Mr. Ed Hasely
Burlington Resources
P.O. Box 4289
Farmington, New Mexico 87499-4289

RE: GROUND WATER CONTAMINATION
HAMPTON 4M WELL SITE

Dear Mr. Hasely:

The New Mexico Oil Conservation Division (OCD) has reviewed Burlington Resources' (BR) November 2, 1999 "HAMPTON 4M – GROUNDWATER CONTAMINATION, UNIT LETTER N, SECTION 13, TOWNSHIP 30N, RANGE 11W" and October 28, 1999 "HAMPTON 4M – GROUNDWATER CONTAMINATION, UNIT LETTER N, SECTION 13, TOWNSHIP 30N, RANGE 11W". These documents contain the results of BR's recent investigations of ground water contamination at BR's Hampton 4M well site near Aztec, New Mexico.

The investigation actions taken to date are satisfactory. However, the above referenced documents do not contain a plan for additional remedial actions at the site. The OCD requires that BR submit a work plan to the OCD to address remediation of remaining contamination related to BR's activities. The work plan will be submitted to the OCD Santa Fe Office by February 29, 2000 with a copy provided to the OCD Aztec District Office.

If you have any questions, please call me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrologist
Environmental Bureau

xc: Denny Foust, OCD Aztec District Office
Maureen Gannon, PNM

OCD
CASE SUMMARY
HAMPTON 4M WELL SITE
(September – November 1999)

9/8/99 - Onsite meeting between OCD, PNM and Burlington to give both parties direction on additional site investigation actions. The OCD required that:

- Burlington install 3 additional ground water monitoring wells upgradient of PNM's former dehydration pit to further delineate potential upgradient sources of free phase products.
- Both PNM and Burlington install 2 additional ground water monitor wells to determine the lateral extent of contamination downgradient of the well pad.
- PNM and Burlington provide a report on the investigations to the OCD by the end of October.

10/28/99 - Burlington submits a report containing information on:

- Burlington's installation of 3 additional ground water monitoring wells upgradient of PNM's former dehydration pit to further delineate potential Burlington sources of free phase products.
- PNM's ground water quality sampling results of all site monitor wells and Burlington's split samples on the new monitor wells.
- Burlington's progress on installation of the 2 monitor wells downgradient of the well pad. Burlington states that they were working to gain access to install the 2 downgradient monitor wells but that they had not yet gained access to those private properties.

10/29/99 - PNM submits a report containing PNM's ground water quality sampling results of all site monitor wells and Burlington's split samples on the new monitor wells.

11/2/99 - Burlington submits a supplemental report containing the results of soil sampling during the installation of the 3 additional ground water monitoring wells upgradient of PNM's former dehydration pit.

Plan of action

OCD expects to respond to the recent reports and require additional remedial actions by the middle of December.

BURLINGTON RESOURCES

SAN JUAN DIVISION

November 2, 1999

Certified: P 023 847 811

Bill Olson
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

RE: Hampton 4M - Groundwater Contamination
Unit Letter N, Section 13, Township 30N, Range 11W

Dear Mr. Olson:

This letter is submitted to provide you with the most recent laboratory information associated with the installation of the three groundwater monitoring wells at the subject location. Attached is a copy of the laboratory reports of soil samples collected during the drilling of the monitoring wells.

Two soil samples were collected from MW-14, one from a depth of 15 feet level and one from a depth of 27 feet. One sample was collected from both MW-15 and MW-16. The samples correspond to the depths and descriptions on the field boring logs for the respective wells that were previously submitted.

If you have questions or if additional information is needed, please contact me at (505) 326-9841.

Sincerely,

Ed Hasely
Sr. Staff Environmental Representative

Enclosures: Attachment #1: Analytical Results of Soil Sampling MW-14, MW-15, MW-16

cc: Denny Foust - NMOCD Aztec
Maureen Gannon - PNM Albuquerque
Paul Rosasco - EMSI Denver
Steve Florez - BR (w/o attachment)
Ken Raybon - BR (w/o attachment)
Bruce Gantner - BR (w/o attachment)
John Bemis - BR (w/o attachment)
Hampton 4M File
Correspondence

ATTACHMENT #1

Analytical Results of Soil Sampling
MW-14, MW-15, MW-16

PHILIP ENVIRONMENTAL

LETTER OF TRANSMITTAL

4000 Monroe Road
Farmington, NM 87401
505/326-2262
505/326-2388 (FAX)

To ED HASELY

Date 10/29/99

Project BR WELL INSTALLATION

Project No. 62800086

1. ( ) FOR REVIEW & COMMENT
2. ( ) FOR APPROVAL
3. ( ) AS REQUESTED
4. (X) FOR YOUR USE
5. ( )

Enclosed (X) / Under separate cover ( )

NO. OF COPIES	DESCRIPTION
1	SPLIT SPOON ANALYTICAL RESULTS FOR THE HAMPTON & TAYLOR

REMARKS: PLEASE CALL IF YOU HAVE ANY QUESTIONS READING THE RESULTS. THEY ARE LABELED AS FOLLOWS:

THE NAME OF THE LOCATION FOLLOWED BY THE MONITOR WELL NO. THE DASH NO. IS THE SPLIT SPOON SAMPLE NO. AND THE LAST NO. IS THE DEPTH AT WHICH THE SAMPLE WAS COLLECTED.

COPIES FORWARDED TO:

FROM ROBERT THOMPSON

TITLE PROJECT MANAGER

PE-155 (4/95)

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

CLIENT	: PHILIP ENVIRONMENTAL	PINNACLE ID	: 910053
PROJECT #	: 62800086	DATE RECEIVED	: 10/15/99
PROJECT NAME	: BURLINGTON DRILLING	REPORT DATE	: 10/22/99

PIN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	HAMPTON MW 14-3 15'	NON-AQ	10/13/99
02	HAMPTON MW 14-6 27'	NON-AQ	10/13/99
03	HAMPTON MW 15-2 10'	NON-AQ	10/13/99
04	HAMPTON MW 16-3 15'	NON-AQ	10/13/99
05	TAYLOR MW 3-2 10'	NON-AQ	10/14/99

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED / 8015 GRO
CLIENT : PHILIP ENVIRONMENTAL
PINNACLE I.D.: 910053
PROJECT # : 62800086
PROJECT NAME : BURLINGTON DRILLING

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	HAMPTON MW 14-3 15'	NON-AQ	10/13/99	10/19/99	10/20/99	1
02	HAMPTON MW 14-6 27'	NON-AQ	10/13/99	10/19/99	10/20/99	1
03	HAMPTON MW 15-2 10'	NON-AQ	10/13/99	10/19/99	10/20/99	1

PARAMETER	DET. LIMIT	UNITS	*HAMPTON MW* 14-3 15'	*HAMPTON MW* 14-6 27'	*HAMPTON MW* 15-2 10'
BENZENE	0.025	**MG/KG**	**0.046**	**0.040**	< 0.025
TOLUENE	0.025	**MG/KG**	**0.70**	**0.080**	< 0.025
ETHYLBENZENE	0.025	**MG/KG**	**0.30**	< 0.025	< 0.025
TOTAL XYLENES	0.025	**MG/KG**	**4.8**	**0.086**	< 0.025

SURROGATE:				
BROMOFLUOROBENZENE (%)		121*	86	88
SURROGATE LIMITS	(65 - 120)			

CHEMIST NOTES:
* SURROGATE RECOVERY HIGH DUE TO MATRIX INTERFERENCE.

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED / 8015 GRO
CLIENT : PHILIP ENVIRONMENTAL PINNACLE I.D.: 910053
PROJECT # : 62800086
PROJECT NAME : BURLINGTON DRILLING

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	HAMPTON MW 16-3 15'	NON-AQ	10/13/99	10/19/99	10/20/99	1
05	TAYLOR MW 3-2 10'	NON-AQ	10/14/99	10/19/99	10/20/99	1

PARAMETER	DET. LIMIT	UNITS	HAMPTON MW 16-3 15'	TAYLOR MW 3-2 10'
BENZENE	0.025	MG/KG	< 0.025	< 0.025
TOLUENE	0.025	MG/KG	< 0.025	< 0.025
ETHYLBENZENE	0.025	MG/KG	< 0.025	< 0.025
TOTAL XYLENES	0.025	MG/KG	< 0.025	< 0.025

SURROGATE:
BROMOFLUOROBENZENE (%) 97 78
SURROGATE LIMITS (65 - 120)

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED / 8015 GRO		
BLANK I.D.	: 101999	PINNACLE I.D.	: 910053
CLIENT	: PHILIP ENVIRONMENTAL	DATE EXTRACTED	: 10/19/99
PROJECT #	: 62800086	DATE ANALYZED	: 10/20/99
PROJECT NAME	: BURLINGTON DRILLING	SAMPLE MATRIX	: NON-AQ

PARAMETER	UNITS	
BENZENE	MG/KG	<0.025
TOLUENE	MG/KG	<0.025
ETHYLBENZENE	MG/KG	<0.025
TOTAL XYLENES	MG/KG	<0.025
SURROGATE:		
BROMOFLUOROBENZENE (%)		103
SURROGATE LIMITS	(80 - 120)	

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

TEST	: EPA 8021 MODIFIED / 8015 GRO		
MSMSD #	: 910053-03	PINNACLE I.D.	: 910053
CLIENT	: PHILIP ENVIRONMENTAL	DATE EXTRACTED	: 10/19/99
PROJECT #	: 62800086	DATE ANALYZED	: 10/20/99
PROJECT NAME	: BURLINGTON DRILLING	SAMPLE MATRIX	: NON-AQ
		UNITS	: MG/KG

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
BENZENE	<0.025	1.00	0.89	89	0.87	87	2	(68 - 120)	20
TOLUENE	<0.025	1.00	0.88	88	0.86	86	2	(64 - 120)	20
ETHYLBENZENE	<0.025	1.00	0.86	86	0.84	84	2	(49 - 127)	20
TOTAL XYLENES	<0.025	3.00	2.66	89	2.60	87	2	(58 - 120)	20

CHEMIST NOTES:
N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8015 MODIFIED (DIRECT INJECT)
CLIENT : PHILIP ENVIRONMENTAL PINNACLE I.D.: 910053
PROJECT # : 62800086
PROJECT NAME : BURLINGTON DRILLING

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	HAMPTON MW 14-3 15'	NON-AQ	10/13/99	10/21/99	10/21/99	1
02	HAMPTON MW 14-6 27'	NON-AQ	10/13/99	10/21/99	10/21/99	1
03	HAMPTON MW 15-2 10'	NON-AQ	10/13/99	10/21/99	10/21/99	1

PARAMETER	DET. LIMIT	UNITS	HAMPTON MW 14-3 15'	HAMPTON MW 14-6 27'	HAMPTON MW 15-2 10'
FUEL HYDROCARBONS, C6-C10	10	**MG/KG**	**57**	< 10	< 10
FUEL HYDROCARBONS, C10-C22	5.0	**MG/KG**	**44**	< 5.0	< 5.0
FUEL HYDROCARBONS, C22-C36	5.0	MG/KG	< 5.0	< 5.0	< 5.0
CALCULATED SUM:			**101.0**		
SURROGATE:					
O-TERPHENYL (%)			90	91	91
SURROGATE LIMITS	(66 - 151)				

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8015 MODIFIED (DIRECT INJECT)
CLIENT : PHILIP ENVIRONMENTAL PINNACLE I.D.: 910053
PROJECT # : 62800086
PROJECT NAME : BURLINGTON DRILLING

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	HAMPTON MW 16-3 15'	NON-AQ	10/13/99	10/21/99	10/21/99	1
05	TAYLOR MW 3-2 10'	NON-AQ	10/14/99	10/21/99	10/21/99	1

PARAMETER	DET. LIMIT	UNITS	HAMPTON MW 16-3 15'	TAYLOR MW 3-2 10'
FUEL HYDROCARBONS, C6-C10	10	MG/KG	< 10	< 10
FUEL HYDROCARBONS, C10-C22	5.0	MG/KG	< 5.0	< 5.0
FUEL HYDROCARBONS, C22-C36	5.0	MG/KG	< 5.0	< 5.0
CALCULATED SUM:				
SURROGATE:				
O-TERPHENYL (%)			91	92
SURROGATE LIMITS	(66 - 151)			

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8015 MODIFIED (DIRECT INJECT)		
BLANK I.D.	: 102199	PINNACLE I.D.	: 910053
CLIENT	: PHILIP ENVIRONMENTAL	DATE EXTRACTED	: 10/21/99
PROJECT #	: 62800086	DATE ANALYZED	: 10/21/99
PROJECT NAME	: BURLINGTON DRILLING	SAMPLE MATRIX	: NON-AQ

PARAMETER	UNITS	
FUEL HYDROCARBONS	MG/KG	< 10
HYDROCARBON RANGE		< 5.0
HYDROCARBONS QUANTITATED USING		< 5.0
SURROGATE:		
O-TERPHENYL (%)		92
SURROGATE LIMITS (80 - 151)		

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

TEST	: EPA 8015 MODIFIED (DIRECT INJECT)		
MSMSD #	: 910053-04	PINNACLE I.D.	: 910053
CLIENT	: PHILIP ENVIRONMENTAL	DATE EXTRACTED	: 10/21/99
PROJECT #	: 62800086	DATE ANALYZED	: 10/21/99
PROJECT NAME	: BURLINGTON DRILLING	SAMPLE MATRIX	: NON-AQ
		UNITS	: MG/KG

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
FUEL HYDROCARBONS	<5.0	100	95	95	97	97	2	(56 - 148)	20

CHEMIST NOTES:
N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

PHILIP ENVIRONMENTAL

Chain of Custody Record

4000 Monroe Road
Farmington, NM 87401
(505) 326-2262 Phone
(505) 326-2388 FAX

910053

COC Serial No. C 2366

Project Name: BURLINGTON DRILLING
Project Number: 6280008k Phase . Task: 35
Samplers: Cathy Cullicott
Laboratory: Name: PINNACLE
Location: ALBUQUERQUE

Sample Number (and depth)	Date	Time	Matrix	Total Number of Bottles	Type of Analysis and Bottle: TPH	BTEX	Comments
HAMPTON MW14-3 15'	10/13/99	9:45am	SOIL	1	X	X	-01
HAMPTON MW14-6 27'	10/13/99	9:50am	SOIL	1	X	X	-02
HAMPTON MW15-2 10'	10/13/99	12pm	SOIL	1	X	X	-03
HAMPTON MW Ho-3 15'	10/13/99	3:10pm	SOIL	1	X	X	-04
TAYLOR MW3-2 10'	10/14/99	12p.m	SOIL	1	X	X	-05

Relinquished by:

Signature	Date	Time
Cathy Cullicott	10/14/99	4pm
[illegible]	10/15/99	11 am

Received By:

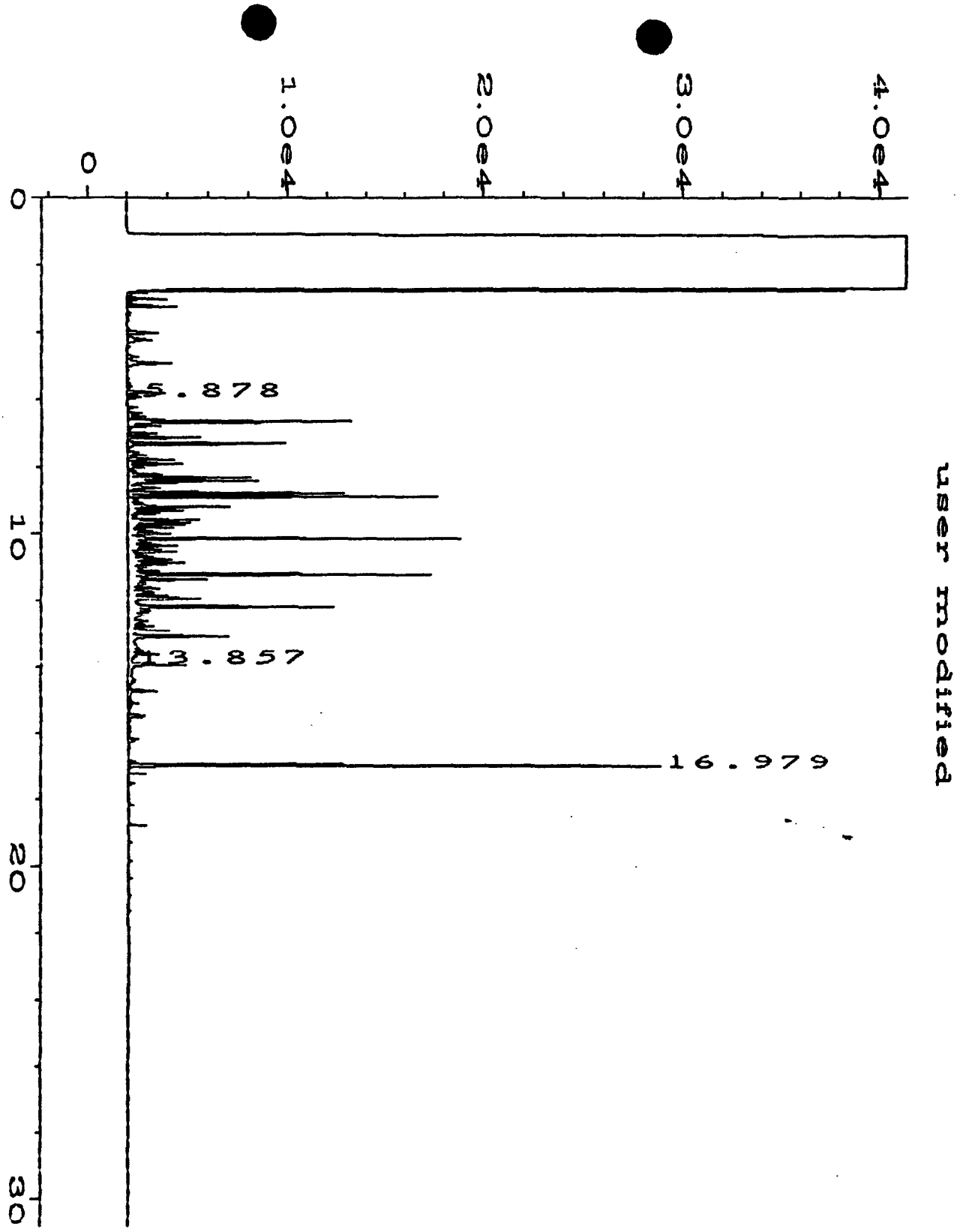
Signature	Date	Time

Samples Iced: ☒ Yes ☐ No 4.8°C Carrier: GREYHOUND Airbill No. GL1606656310

Preservatives (ONLY for Water Samples)
- ☐ Cyanide ..... Sodium hyroxide (NaOH)
- ☐ Volatile Organic Analysis ..... Hydrochloric acid (HCl)
- ☐ Metals ..... Nitric acid (HNO_3)
- ☐ TPH (418.1) ..... Sulfuric acid (H_2SO_4)
- ☐ Other (Specify) _____
- ☐ Other (Specify) _____

Shipping and Lab Notes:

PE-176 4/93



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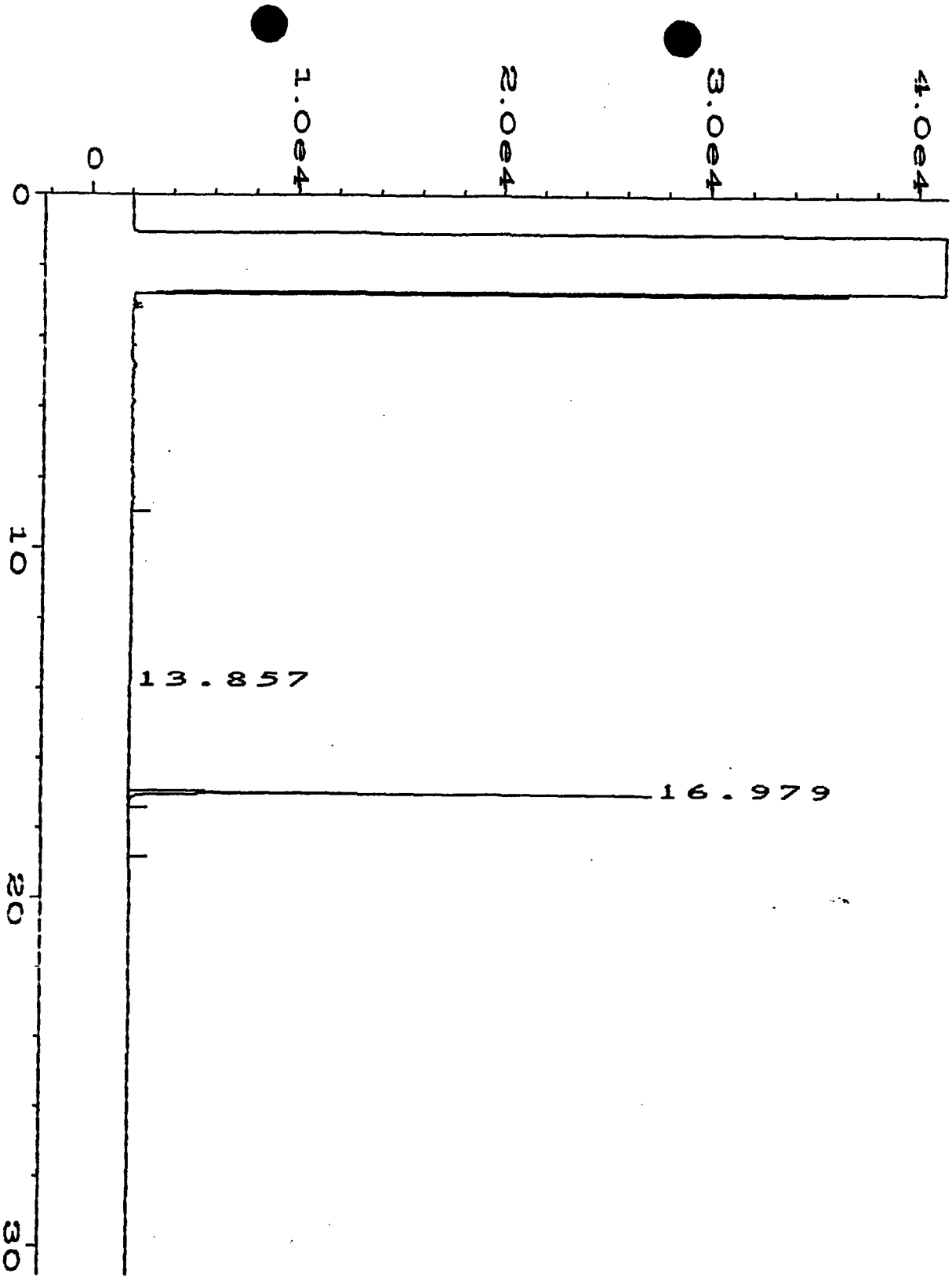
Instrument	: FID1	Vial Number	: 8
Sample Name	: 910053-01	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 21 Oct 99 03:01 PM	Instrument Method	: HX071599.MTH
Report Created on	: 22 Oct 99 08:49 AM	Analysis Method	: HX071599.MTH
Last Recalib on	: 11 JAN 93 08:58 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



user modified

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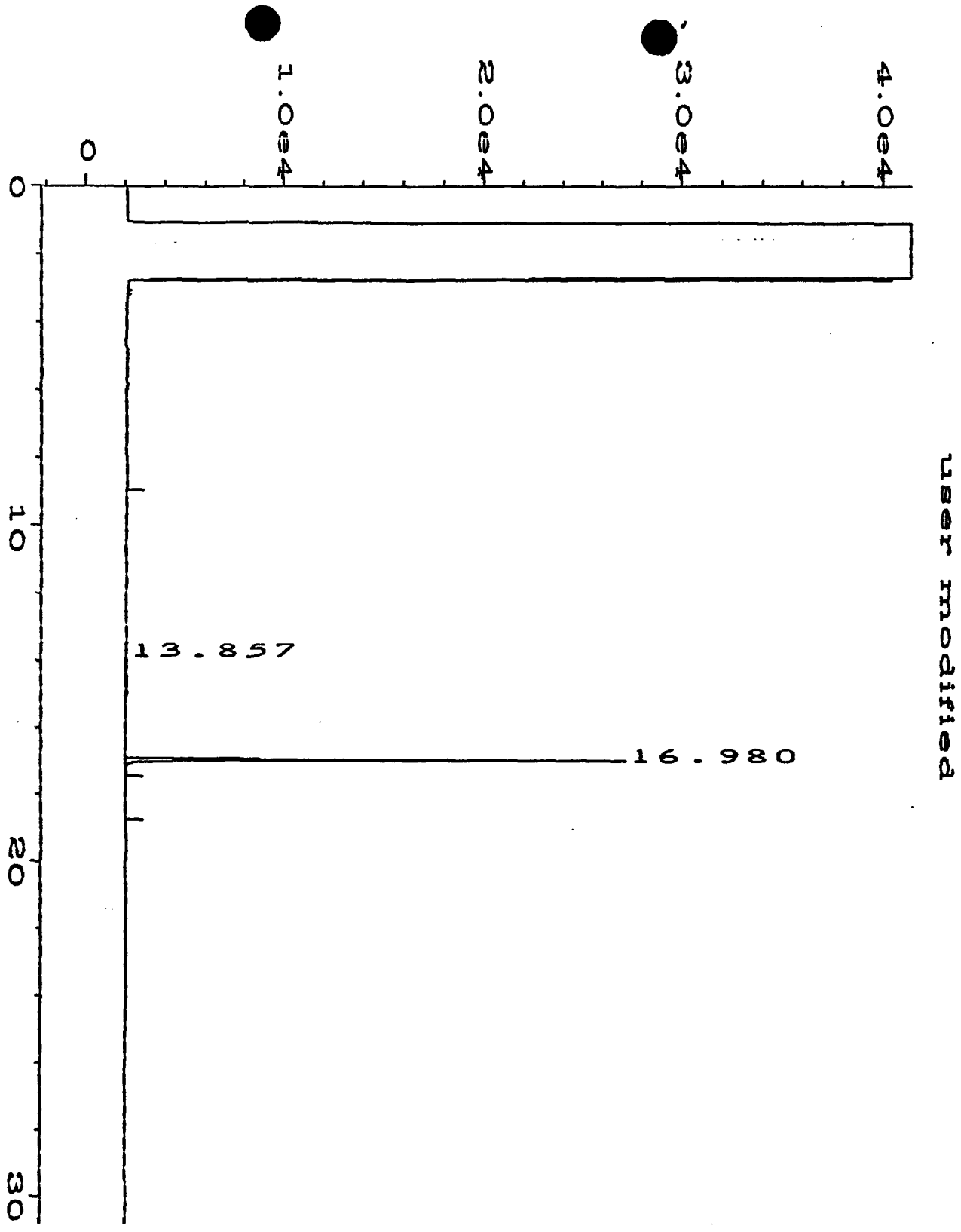
Operator	: Pinnacle - rg & cff	Page Number	: 1
Instrument	: FID1	Vial Number	: 9
Sample Name	: 910053-02	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 21 Oct 99 03:50 PM	Instrument Method	: HX071599.MTH
Report Created on	: 22 Oct 99 08:49 AM	Analysis Method	: HX071599.MTH
Last Recalib on	: 11 JAN 93 08:58 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



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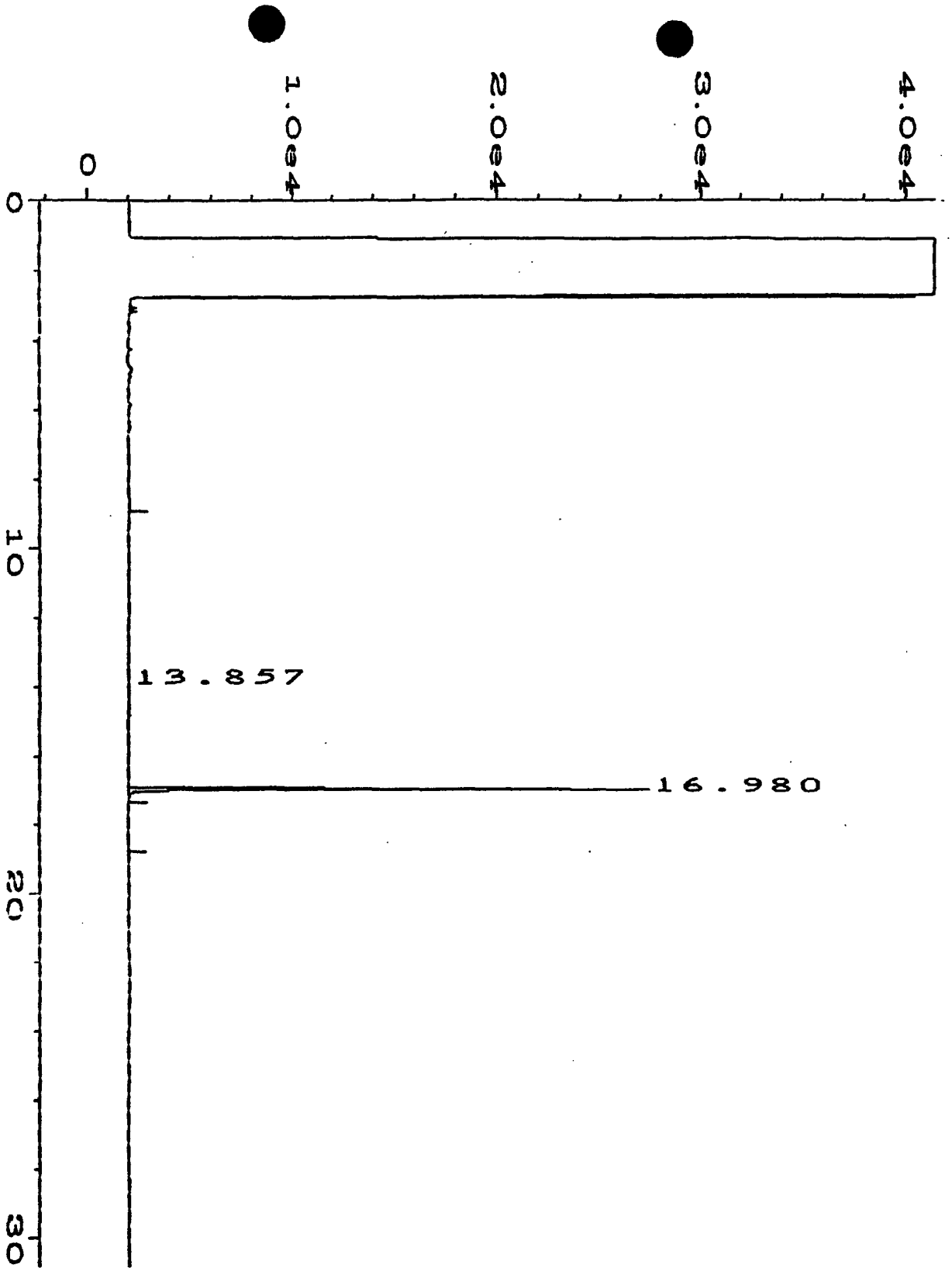
perator	: Pinnacle - rg & cff	Page Number	: 1
nstrument	: FID1	Vial Number	: 10
ample Name	: 910053-03	Injection Number	: 1
un Time Bar Code:		Sequence Line	: 1
cquired on	: 21 Oct 99 04:38 PM	Instrument Method	: HX071599.MTH
eport Created on:	22 Oct 99 08:50 AM	Analysis Method	: HX071599.MTH
ast Recalib on	: 11 JAN 93 08:58 AM	Sample Amount	: 0
ultiplier	: 1	ISTD Amount	:



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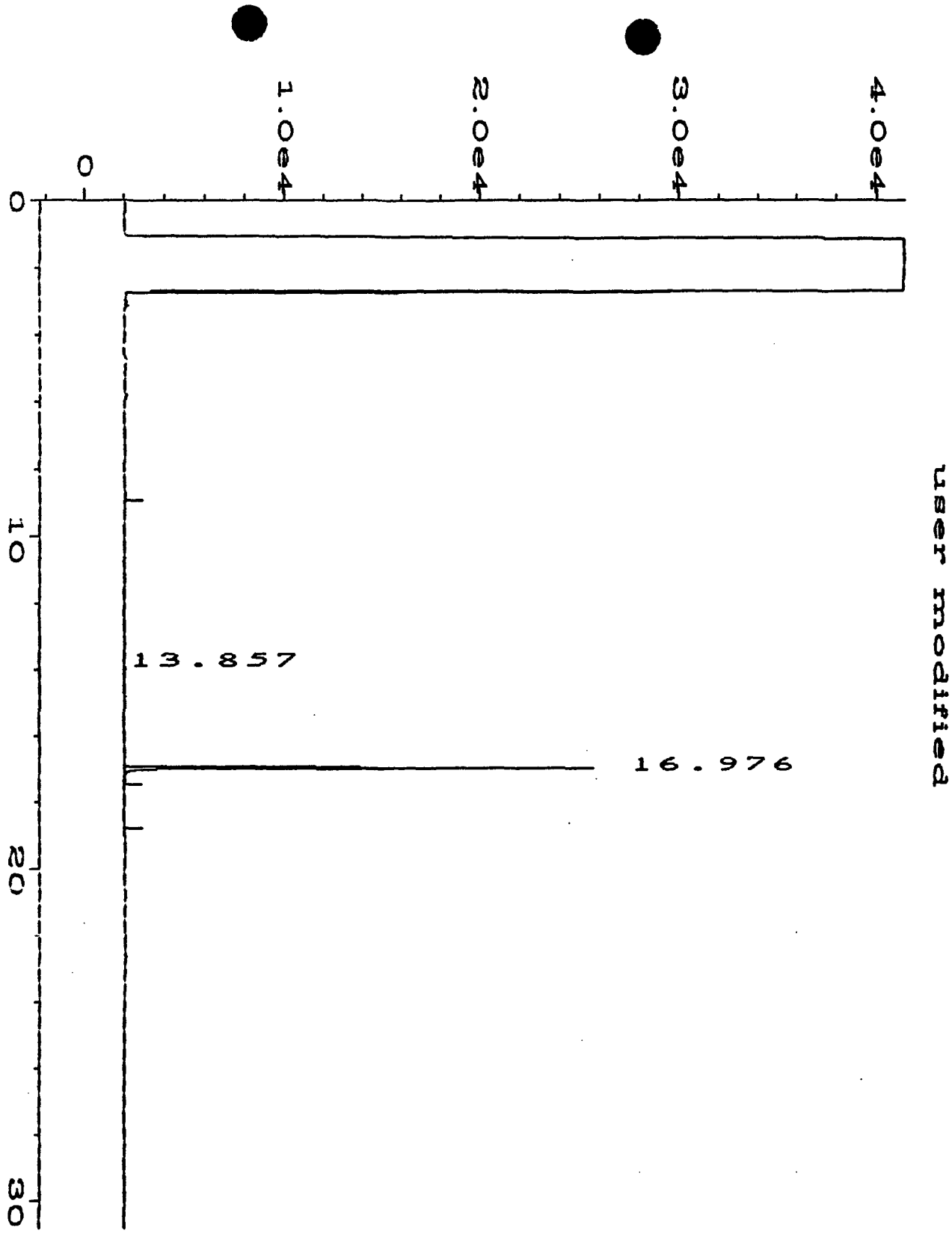
Operator	: Pinnacle - rg & cff	Page Number	: 1
Instrument	: FID1	Vial Number	: 11
Sample Name	: 910053-04	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 21 Oct 99 05:28 PM	Instrument Method	: HX071599.MTH
Report Created on	: 22 Oct 99 08:50 AM	Analysis Method	: HX071599.MTH
Last Recalib on	: 11 JAN 93 08:58 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



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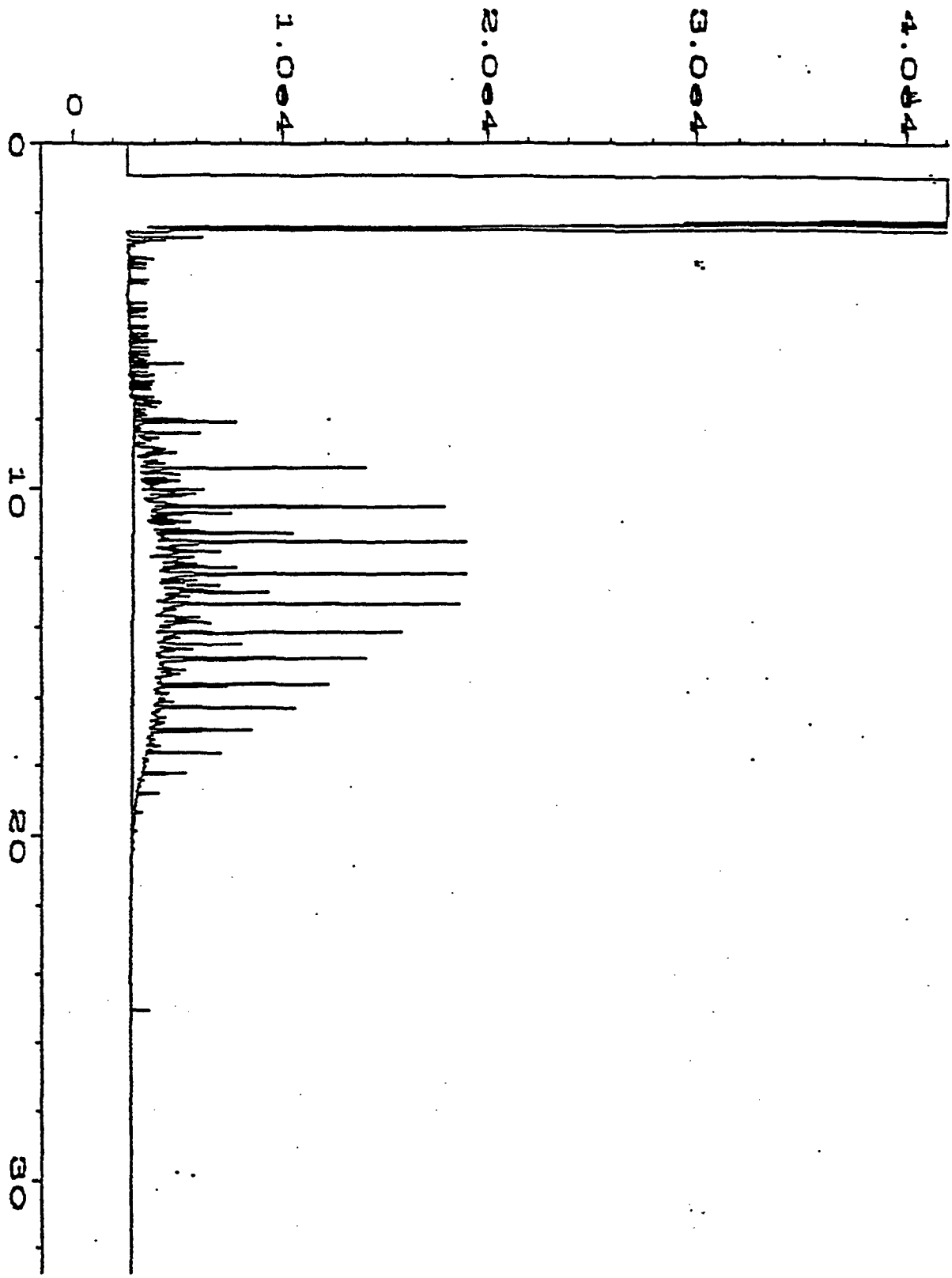
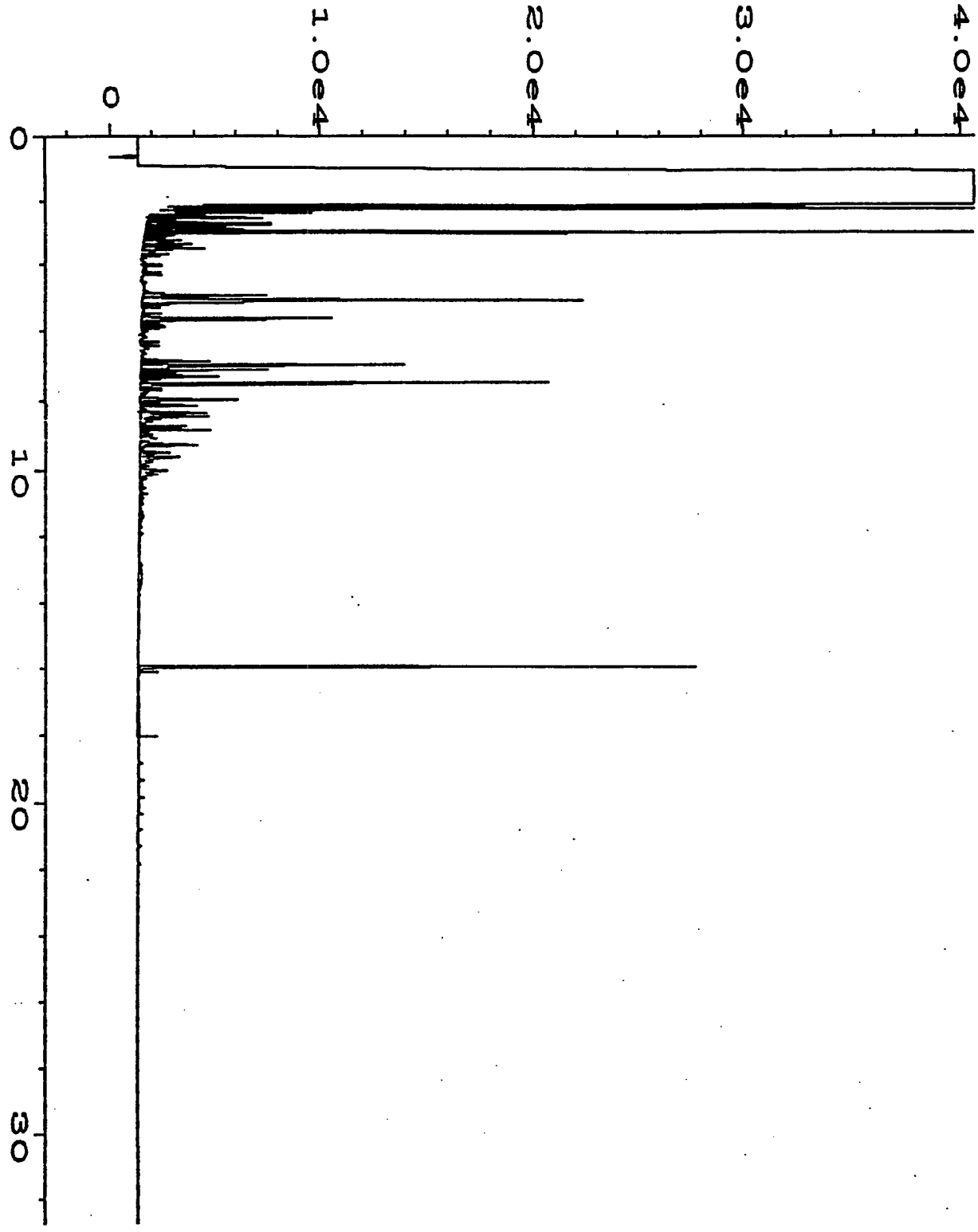
Instrument	: FID1	Vial Number	: 15
Sample Name	: 910053-05	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 21 Oct 99 08:44 PM	Instrument Method	: HX071599.MTH
Report Created on	: 22 Oct 99 08:53 AM	Analysis Method	: HX071599.MTH
Last Recalib on	: 11 JAN 93 08:58 AM	Sample Amount	: 0
Multiplier	: 1	ISTD Amount	:



Data File Name	: C:\HPCHEM\1\DATA\16SEPT97\011F0101.D		
Operator	: AEN NM GC #1 FID DI	Page Number	: 1
Instrument	: INSTRUMEN	Vial Number	: 11
Sample Name	: DSL GC3-103-15	Injection Number	: 1
Run Time Bar Code:		Sequence Line	: 1
Acquired on	: 16 Sep 97 08:50 PM	Instrument Method	: SDF0820.MTH
Report Created on:	17 Sep 97 11:19 AM	Analysis Method	: SDF0820.MTH



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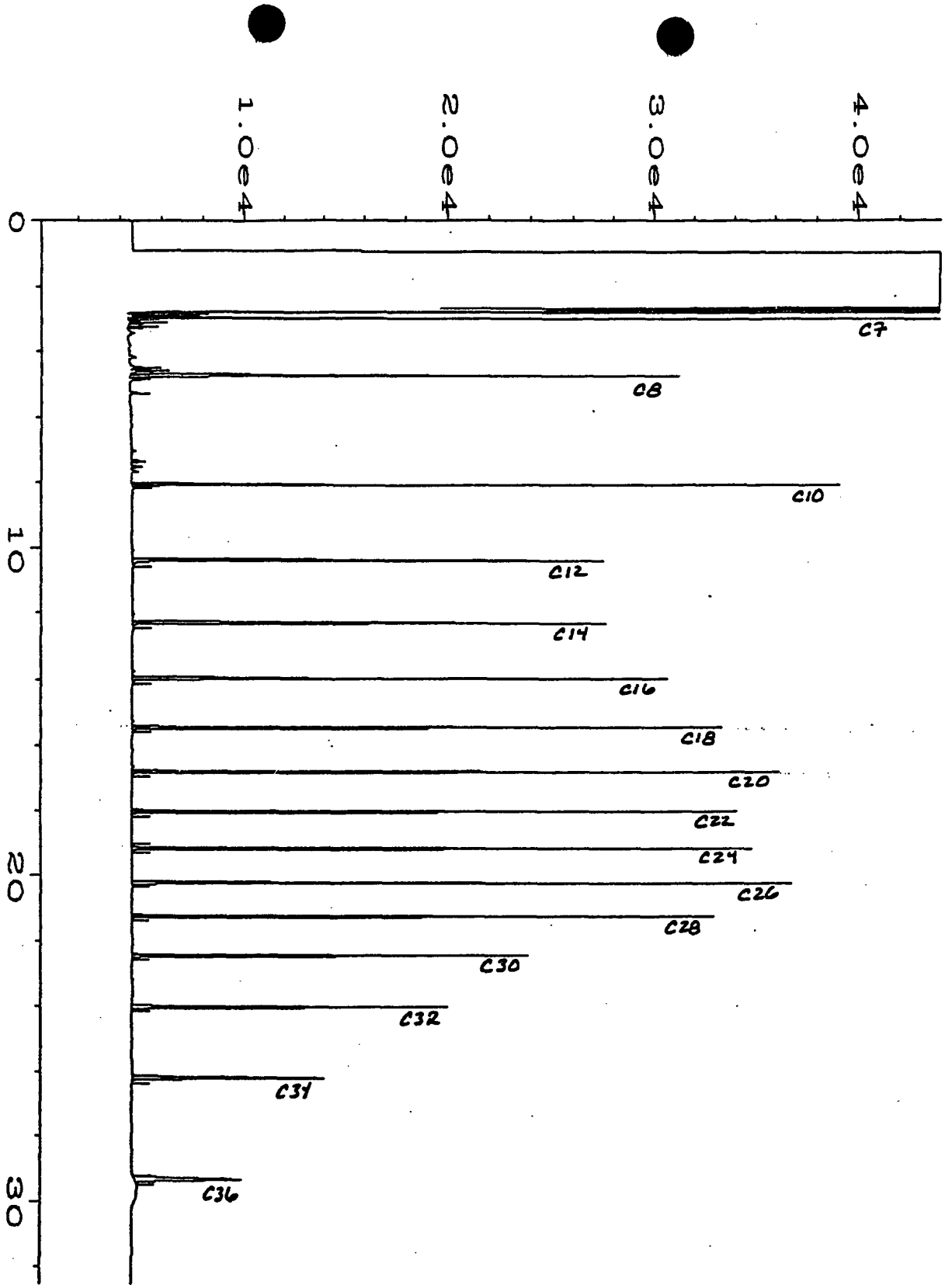
nstrument : FID1
ample Name : gas gc3-141-23
n Time Bar Code:
equired on : 12 Feb 99 10:38 AM
eport Created on: 12 Feb 99 11:45 AM

Page Number : 1
Vial Number : 2
Injection Number : 1
Sequence Line : 1
Instrument Method: RT061698.MTH
Analysis Method : RT061698.MTH



user modified

Data File Name : B:\11APR96\004F0101.D
Operator : DJ
Instrument : GC#1 5890
Sample Name : RET TIME STAND
Run Time Bar Code:
Acquired on : 11 Apr 96 10:17 AM
Report Created on: 03 Dec 98 02:11 PM

Page Number : 1
Vial Number : 4
Injection Number : 1
Sequence Line : 1
Instrument Method: SDF0311.MTH
Analysis Method : RT061698.MTH

BURLINGTON RESOURCES

SAN JUAN DIVISION

October 28, 1999

Certified: P 023 847 810

Bill Olson
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

RE: Hampton 4M - Groundwater Contamination
Unit Letter N, Section 13, Township 30N, Range 11W

Dear Mr. Olson:

The following is a status report on the soil/groundwater investigation and remediation activities that have been conducted at the Hampton 4M gas production location. This report addresses the activities that have taken place since the last status report submitted to you dated September 16, 1999. Details on earlier investigation/remediation work that were submitted to you previously will not be repeated in this report.

Monitoring Well Installation

As per the onsite meeting with Burlington Resources (BR), Public Service of New Mexico (PNM), and the New Mexico Oil Conservation Division (NMOCD) on September 8, 1999, BR has installed 3 additional monitoring wells on the Hampton 4M location. The wells were installed on October 13, 1999.

- Monitoring Well #14 (MW-14) is located in the southeast corner of location between MW-1 and MW-13. The well is in the area of BR's former tank battery that was excavated in December 1997.

- Monitoring Well #15 (MW-15) is located directly north of BR's former separator pit.

- Monitoring Well #16 (MW-16) is located at the edge of location east of PNM's former operations where excavation of impacted soil could not be completed due to the hillside.

A site diagram showing the approximate location of the discussed monitoring wells is included in Attachment #1. The field boring logs and well installation records for the three new wells are included in Attachment #2.

Down Gradient Monitoring Well Installation

As discussed at the September 8, 1999, onsite meeting, two additional monitoring wells are proposed downgradient of the location to help identify the lateral extent of the contaminant plume. One is proposed northwest of the existing MW-7 along the existing pipeline right-of-way and the other is proposed northeast of MW-7 prior to the landowner's well. These wells have not been installed to date.

BR has been in contact with Williams Field Service concerning installing one well along their existing pipeline right-of-way. An onsite meeting with Williams is tentatively set up for the week of November 1, 1999.

3535 East 30th St., 87402-8801, P.O. Box 4289, Farmington, New Mexico 87499-4289, Telephone 505-326-9700, Fax 505-326-9833

The land that the second downgradient monitoring well is to be located has recently changed ownership. The local individual that BR had dealt with concerning the installation of MW-11 has sold the land to a group in California called The Quiet Hour. BR has submitted a letter notifying them of our intentions to install a monitoring well.

PNM has refused to share in the costs associated with the installation of the downgradient wells, but BR plans to proceed with the installation of the two remaining wells as soon as all the necessary approvals are obtained.

Monitoring Well Sampling

After developing the wells and allowing them to stabilize for one week, the wells were purged and sampled on October 21, 1999. PNM conducted a complete round of sampling, including both the new and the existing monitoring wells. BR split samples with PNM on the newly installed wells. The preliminary laboratory results are summarized in the following table.

10/21/99 Sampling Summary
BTEX (ppb)

	Benzene	Toluene	Ethylbenzene	Xylenes	Depth to Water (ft)	Product Thickness
MW-1		Not	Sampled		42.82	
MW-5	5200	9600	650	6900	14.66	
MW-7	260	11	15	89	19.44	
MW-9	320	ND	ND	ND	21.79	
MW-11	ND	ND	ND	ND	56.85	
MW-12	5600	650	540	2890	8.85	
MW-13	1600	ND	ND	ND	18.05	
MW-14		Free	Product		20.22*	1.92 ft
MW-15	ND	1.2	ND	1.5	17.84	
Split	1	2	1	4		
MW-16	220	300	5.4	`62	14.93	
Split	214	268	4	151		
Seep	65	230	11	434		
TMP-1	1000	3100	410	9700		

*Depth to Product.

A summary of all the past sampling results is provided by PNM in Attachment #3. The sample labeled "TMP-1" is a temporary well located approximately half way between MW-5 and MW-7. The preliminary analytical laboratory reports of the October 21, 1999 sampling event are included in Attachment #4.

Conclusions

BR's excavation work removed over 6400 cubic yards of potential source material from the Hampton 4M well location. The work has eliminated free phase hydrocarbons on the groundwater in the vicinity of PNM's former operations. The information collected from the drilling and sampling of MW-15 has eliminated the concern that BR's separator pit may be a potential source of groundwater contamination. Although the water collected from MW-16 was above standards, the results reduce the concern of free phase hydrocarbons migrating under the Hampton #4M location from the impacted soils that could not be excavated in the eastern wall.

The discovery of free phase hydrocarbons in MW-14 was unexpected and is obviously a concern. During the excavation work in the southeast area of the well pad in the end of 1997, we reached what appeared to be clean soils on all four walls and the bottom. Photo-Ionization Detector (PID) readings and a composite laboratory sample confirmed clean soils. A D-8 dozer was necessary for excavation work due to the extremely hard soils, making acquiring representative soil samples difficult. Even if impacted soils had been observed, this method of excavation in the corner of the well pad next to the hillside did not make it feasible to excavate further in the southern or eastern direction.

Furthermore, the excavation in the southeast corner of the well pad was left open to atmosphere for approximately one year to allow any hydrocarbons to volatilize and to provide a pathway for additional oxygen to enter the groundwater to promote bioremediation. During this time, only a slight sheen was observed on the water a few times and samples indicated relatively clean water. Nothing was observed that would indicate that source material remained to account for the subsequent appearance of free product discovered in MW-14.

Plan of Action

As stated earlier, BR plans to install the two NMOCD requested downgradient monitoring wells when approvals are received. BR will then have the five newly installed monitoring wells surveyed so the wells can be properly tied into the existing monitoring well network at the Hampton #4M.

As evident by the recent discovery of free phase hydrocarbons in MW-14, more work may be required in the extreme southeast part of the well pad. Exactly how to address the concern has not been determined at this time. Additional removal of impacted soil is the preferred action, but the hard sandstone and the hillside may prevent this action from being feasible. Prior to taking additional action, plans will be discussed with the NMOCD.

As in the past, the new and existing monitoring wells will be sampled at least quarterly. The continued monitoring of the groundwater monitoring wells will determine if any additional active remediation is required at this site.

If you have questions or if additional information is needed, please contact me at (505) 326-9841.

Sincerely,

Ed Hasely
Sr. Staff Environmental Representative

Enclosures: Attachment #1: Hampton 4M Site Diagram
Attachment #2: Field Boring Logs and Well Installation Records: MW-14,15,16
Attachment #3: Summary of Analytical Results
Attachment #4: Analytical Results of Water Samples (10/21/99)

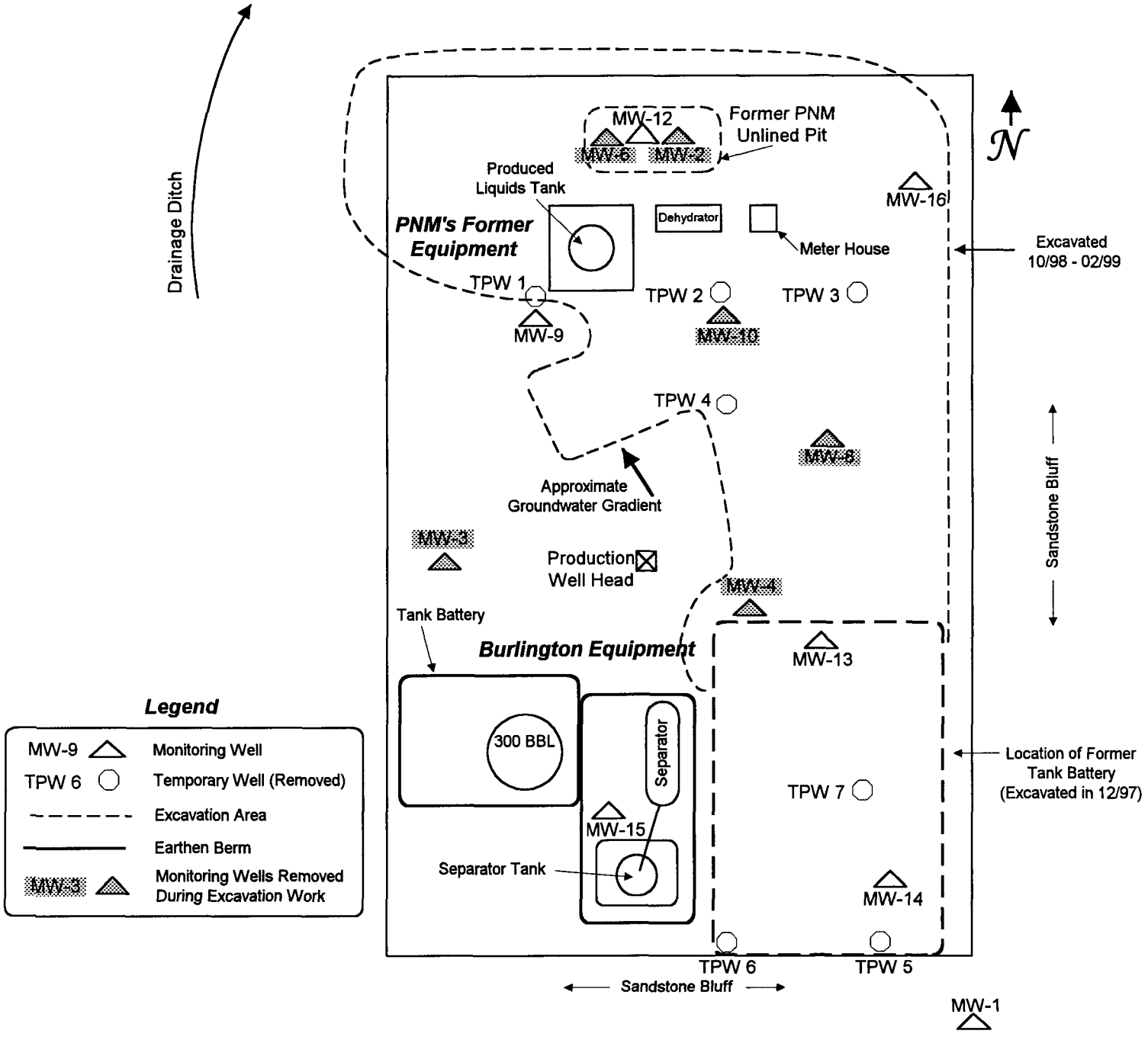
S: / grndwatr/facility/hampton/9910ocd.doc

cc: Denny Foust - NMOCD Aztec
Steve Florez - BR
Ken Raybon - BR
Bruce Gantner - BR
John Bemis - BR
Maureen Gannon - PNM Albuquerque
Paul Rosasco - EMSI Denver
Hampton 4M File
Correspondence

ATTACHMENT #1

HAMPTON 4M SITE DIAGRAM

Hampton #4M Site Diagram



Revised 10/28/99

ATTACHMENT #2

FIELD BORING LOGS
and
WELL INSTALLATION RECORDS
MW-14, MW-15, MW-16

RECORD OF SUBSURFACE EXPLORATION

Borehole # 1
Well # MW 4
Page 1 of 2

Philip Environmental Services Corp.
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Project Name BURLINGTON DRILLING
Project Number 628000 Phase 35
Project Location HAMPTON 4M

Elevation
Borehole Location
GWL Depth 17.88' → .13' Free Product
Logged By C. CULLICOTT
Drilled By K. PADILLA & D. PADILLA
Date/Time Started 10/13/99 8:15am
Date/Time Completed 10/13/99 11:00am

Well Logged By C. CULLICOTT
Personnel On-Site K. PADILLA & D. PADILLA
Contractors On-Site 0
Client Personnel On-Site ED MASLEY

Drilling Method AUGER
Air Monitoring Method PID

Depth (Feet)		Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: NDU BZ	BH	S	Drilling Conditions & Blow Counts
0										
5	(1)	5-6½		(1) 3" RECOVERY DAMP BROWN POORLY SORTED SILTY SAND CLAY						(1) 3 BLOWS SS 0.0 PPM HS 0.0 PPM
10	(2)	10-11½		(2) 8" RECOVERY DAMP BROWN POORLY SORTED SILTY/CLAYEY SAND, CLAY						(2) 50- BLOWS SS 0.0 PPM HS PPM
15	(3)	15-16½		(3) 10" RECOVERY DARK BROWN POORLY SORTED SILTY SAND. STRONG ODOR/STAIN						(3) 50+ BLOWS SS 2000 PPM HS 1644 PPM
20	(4)	20-21½		(4) 10" RECOVERY. BASE OF WATER TABLE UPPER 3" DARK ORANGE/RUST POORLY SORTED SAND, ODOR						(4) 50+ BLOWS SS 58 PPM HS 83 PPM
25	(5)	25-26½		1" BLACK PERVASIVELY STAINED SAND W/STRONG ODOR						(5) 50+ BLOWS SS 43 PPM HS 189 PPM
TD	(6)	27½-28½		2" LIGHTER ORANGE STAINED SAND REST GRAY CLAYEY SAND W/STRONG ODOR PIECES OF SHALE/SILTSTONE. (5) 8" RECOVERY GRAY SILT, MODERATE CONSOLIDATION, SLIGHT ODOR						(6) 50+ BLOWS SS 219 PPM HS 86 PPM
30										
35										
40										

Comments: CLEAR, SHADY COOL, SUNNY LATER

SS = SPLIT SPOON END PID READING
HS = HEAD SPACE PID READING

Geologist Signature Cathy Cullicott

MONITORING WELL INSTALLATION RECORD

Tulip Environmental Services Corp.
600 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Borehole # 1
Well # MW14
Page 2 of 2

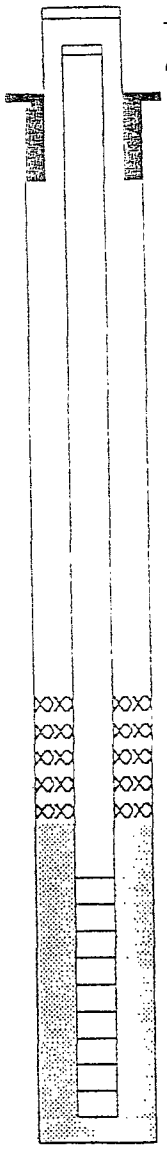
Project Name BURLINGTON DRILLING
Project Number 028000 Phase 35
Project Location HAMPTON 4M

On-Site Geologist C. CULLICOTT
Personnel On-Site E. PADILLA & D. PADILLA
Contractors On-Site Ø
Client Personnel On-Site ED HASLEY

Elevation
Well Location
GWL Depth 17.88' → .13' FREE PRODUCT
Installed By E. PADILLA & D. PADILLA
Date/Time Started 10/13/99 8:15am
Date/Time Completed 10/13/99 11:00am

Depths in Reference to Ground Surface

Item	Material	Depth
Top of Protective Casing		
Bottom of Protective Casing		
Top of Permanent Borehole Casing		
Bottom of Permanent Borehole Casing		
Top of Concrete		
Bottom of Concrete		
Top of Grout		GS
Bottom of Grout		9.4
Top of Well Riser	2"	+
Bottom of Well Riser	2"	13.4'
Top of Well Screen	2"	13.4'
Bottom of Well Screen	2"	28.4'
Top of Peltonite Seal	BENT.	9.4'
Bottom of Peltonite Seal	CHIPS	11.4'
Top of Gravel Pack	CO.	11.4'
Bottom of Gravel Pack	SAND	28.4'
Top of Natural Cave-In		
Bottom of Natural Cave-In		
Top of Groundwater		17.88'
Total Depth of Borehole		28.4'



Top of Protective Casing
Top of Riser
Ground Surface

GROUT

Top of Seal 9.4'
Top of Gravel Pack 11.4'
Top of Screen 13.4'
Bottom of Screen 28.4'
Bottom of Borehole 28.4'

Comments: DTP 17.75
DTW 17.88

Geologist Signature Cathy Cullicott

AFTER BAILING DTW 18.38'
WELL DEVELOPED W/ 6 1/2 gallons removed.
1st bailer had ~1/4" of brownish liquid @ top. water meter indicated >1" of product, otherwise product water was clear for

FIRST FIVE GALLONS, THEN CLOUDY W/ SEDIMENT, BUT NOT HIGHLY TURBID
STRONG ODOR, SHEEN

RECORD OF SUBSURFACE EXPLORATION

Philip Environmental Services Corp.
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Borehole # 2
Well # MW15
Page 1 of 2

Project Name BURLINGTON DRILLING
Project Number 28000 Phase 35
Project Location HAMPTON

Elevation
Borehole Location
GWL Depth 16.86'
Logged By C. CULLICOTT
Drilled By R. PADILLA, D. PADILLA
Date/Time Started 10/13/99 11:15 am
Date/Time Completed 10/13/99 1 pm

Well Logged By C. CULLICOTT
Personnel On-Site R. PADILLA, D. PADILLA, R. THOMPSON
Contractors On-Site
Client Personnel On-Site ED NEASLEY, GARY COOK, MARK MAUREEN-PA
Drilling Method AUGER
Air Monitoring Method PID

Depth (Feet)		Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: NDU BZ	BH	S	Drilling Conditions & Blow Counts
0										
5	(1)	5-6½		(1) 14" RECOVERY DAMP BROWN POORLY SORTED SAND, CLEAN						(1) 14 BLOWS SS 0.0 ppm HS 0.0 ppm
10	(2)	10-11½		(2) 12" RECOVERY TAN, POORLY SORTED SAND W/ PATCHY ORANGE STAIN, SLIGHT COHESION						(2) 40+ BLOWS SS 17.7 ppm HS 0.0 ppm
15	(3)	15-16½		(3) 6" RECOVERY LOOSE, DAMP, BROWN POORLY SORTED SAND ~~CHANGE~~ RUST COATING ON MANY GRAINS						(3) 50+ BLOWS SS 3.3 ppm HS 0.0 ppm
20	(4)	20-21½		(4) 8" RECOVERY, SATURATED SAND ON TOP OF 4" OF						(4) 50+ BLOWS SS 0.0 ppm HS 0.0 ppm
TD 25	(5)	25-26½		DRY BLUEISH GRAY CONSOLIDATED SILT/SILTSTONE, CLEAN (5) 0" RECOVERY STIFF BLUEISH GREY CONSOLIDATED SILT/ SILTSTONE, CLEAN						(5) 50+ BLOWS SS 0.0 ppm HS 0.0 ppm
30				TD 25'						
35										
40										

Comments: SUNNY, WARM

Geologist Signature Cathy Cullicott

MONITORING WELL INSTALLATION RECORD

Phillip Environmental Services Corp.
2000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Borehole # 2
Well # MW 15
Page 2 of 2

Project Name BURLINGTON DRILLING
Project Number 6Z8000 Phase 35
Project Location HAMPTON

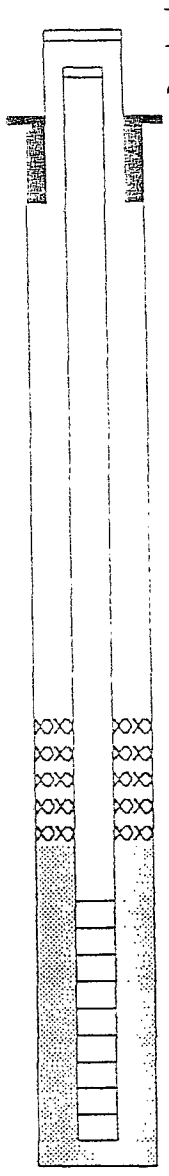
On-Site Geologist C. CULLICOTT
Personnel On-Site E. PADILLA, O. PADILLA, R. THOMPSON
Contractors On-Site Ø
Client Personnel On-Site ED FIASLEY

PNM - GARY COOK, MARK, MAURICE

Elevation
Well Location
GWL Depth 16.86'
Installed By E. PADILLA & O PADILLA
Date/Time Started 10/13/99 11:15 am
Date/Time Completed 10/13/99 1pm

Depths in Reference to Ground Surface

Item	Material	Depth
Top of Protective Casing		
Bottom of Protective Casing		
Top of Permanent Borehole Casing		
Bottom of Permanent Borehole Casing		
Top of Concrete		
Bottom of Concrete		
Top of Grout		0
Bottom of Grout		6
Top of Well Riser	2"	6.5
Bottom of Well Riser	2"	10
Top of Well Screen	2"	10
Bottom of Well Screen	2"	25
Top of Peltonite Seal	BENT	6
Bottom of Peltonite Seal	CHIPS	8
Top of Gravel Pack	CO	8
Bottom of Gravel Pack	SAND	25
Top of Natural Cave-In		
Bottom of Natural Cave-In		
Top of Groundwater		16.86'
Total Depth of Borehole		25



Top of Protective Casing
Top of Riser
Ground Surface
Top of Seal 6
Top of Gravel Pack 8
Top of Screen 10
Bottom of Screen 85
Bottom of Borehole 25

Comments: DTW 16.86'
DTW after Bailing 18.44'
well developed with 5 gallons removed. Well is good producer
Water used to bid entire time - with ~~GREY~~ Sediment

Geologist Signature Cathy Cullicott

RECORD OF SUBSURFACE EXPLORATI

Philip Environmental Services Corp.
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Borehole # 3
Well # MW16
Page 1 of 2

Project Name BURLINGTON DRILLING
Project Number (22x00086 Phase 35
Project Location HAMPTON

Elevation
Borehole Location
GWL Depth
Logged By C. CULLICOTT
Drilled By F. PADILLA & D. PADILLA
Date/Time Started 10/13/99 1:30pm
Date/Time Completed 10/13/99 3:50pm

Well Logged By C. CULLICOTT
Personnel On-Site F. PADILLA & D. PADILLA
Contractors On-Site Ø
Client Personnel On-Site ED HASLEY
PNM - MARTY MAUREEN
Drilling Method AUGER - LARGE
Air Monitoring Method PID

Depth (Feet)		Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: NDU BZ	BH	S	Drilling Conditions & Blow Counts
0										
5	(1)	5-6½		(1) 17" RECOVERY LAMP BROWN POORLY SORTED SILTY SAND, SLIGHT COHESION. CLEAN						(1) 9 BLOWS SS 0.0 ppm HS
10	(2)	10-11½		(2) 14" RECOVERY UPPER 10" WET SILTY SAND LOWER 4" BLUISH GREY CONSOLIDATED SILT/SILTSTONE, DRY						(2) 25 BLOWS SS 0.0 PPM HS 38.9 ppm
15	(3)	15-16½		(3) 8" RECOVERY DRY BLUISH GREY CONSOLIDATED GREY SILT/SILTSTONE, DRY ODOR VERY HARD DRILLING 10-16'						(3) 50+ BLOWS SS 93.6 PPM HS 43 ppm
TD	(4)	16-17½		(4) 6" RECOVERY BLUEISH GREY SILTSTONE, DRY, HARD AUGER REFUSAL AT 16.4'						(4) 45+ Blows SS 175 ppm HS 0.0 ppm
20										
25										
30										
35										
40										

Comments: SUNNY, WARM

WT ~ 8'

Geologist Signature Cathy Cullicott

MONITORING WELL INSTALLATION RECORD

Tullip Environmental Services Corp.
000 Monroe Road
armington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Borehole # 3
Well # MW#6
Page 2 of 2

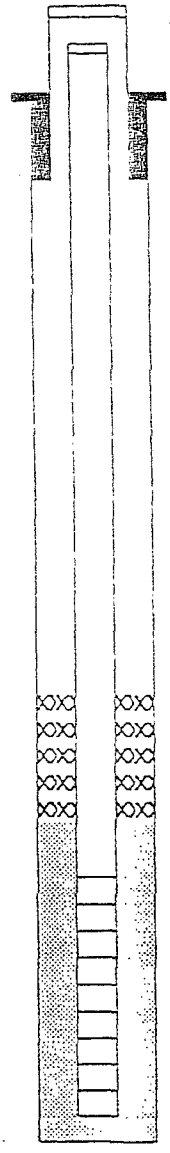
Project Name BURLINGTON DRILLING
Project Number 62800086 Phase 35
Project Location HAMPTON 4M

Elevation
Well Location
GWL Depth
Installed By F. PADILLA + D. PADILLA
Date/Time Started 10/13/99 1:30pm
Date/Time Completed 10/13/99 3:50pm

On-Site Geologist C. CULLICOTT
Personnel On-Site F. PADILLA & D. PADILLA
Contractors On-Site Ø
Client Personnel On-Site ED HASLEY + PNM

Depths in Reference to Ground Surface

Item	Material	Depth
Top of Protective Casing		
Bottom of Protective Casing		
Top of Permanent Borehole Casing		
Bottom of Permanent Borehole Casing		
Top of Concrete		
Bottom of Concrete		
Top of Grout		
Bottom of Grout		
Top of Well Riser	4"	+4
Bottom of Well Riser	4"	6.4'
Top of Well Screen	4"	6.4'
Bottom of Well Screen	4"	16.4'
Top of Peltonite Seal	BENT	~~2~~ GS
Bottom of Peltonite Seal	CHIPS	4.4
Top of Gravel Pack	CO	4.4'
Bottom of Gravel Pack	SAND	16.4'
Top of Natural Cave-In		
Bottom of Natural Cave-In		
Top of Groundwater		
Total Depth of Borehole		16.4'



Top of Protective Casing
Top of Riser
Ground Surface
Top of Seal ~~2~~ GS
Top of Gravel Pack 4.4'
Top of Screen 6.4'
Bottom of Screen 16.4'
Bottom of Borehole 16.4'

Comments: Well dry after completion - WILL DEVELOP LATER

Geologist Signature Cathy Cullicott

ATTACHMENT #3

SUMMARY of ANALYTICAL RESULTS

ANALYTICAL RESULTS SUMMARY - Hampton 4M

Well	Surveyed MP Elev. (ft,msl)	Sample Notes	Date Sampled	GW Elev. (ft,msl)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzen (ug/L)	Xylenes (ug/L)	Total BTEX (ug/L)	Product Thickness (ft)	2-MP (ug/L)
MW-1			10/30/97	6110.10	2.4	2.3	<0.2	1.1	5.8	--	
Upgradient well			01/12/98	6107.47	4.3	3.3	0.2	1.0	8.8	--	
	6149.42		04/14/98	6107.52	1.0	1.3	<0.5	<0.5	2.3	--	
			07/01/98	6107.13	1.3	1.0	<0.5	3.7	6.0	--	42.0
			10/05/98	6106.09	<1.0	<1.0	<1.0	<3.0	<6.0	--	
			11/09/98	6107.40	NA	NA	NA	NA	NA	--	
			01/27/99	6107.51	0.8	0.9	<0.5	<1.5	1.7	--	
			05/05/99	6106.76	NA	NA	NA	NA	NA	--	
			07/12/99	6106.55	1.1	0.5	<0.5	<0.5	1.6	--	
			08/17/99	6106.47	NA	NA	NA	NA	NA	--	
			10/21/99	6106.60	NA	NA	NA	NA	NA	--	
MW-2			12/16/96	NM	3840.0	7960.0	896.0	7920.0	20616.0	NM	
PNM drip pit well			02/04/97	NC	NA	NA	NA	NA	NA	4.40	
	6122.23		08/27/97	NC	NA	NA	NA	NA	NA	4.75	
			10/29/97	NC	NA	NA	NA	NA	NA	4.58	
			01/12/98	NC	NA	NA	NA	NA	NA	4.41	
			04/14/98	NC	NA	NA	NA	NA	NA	2.59	
			07/01/98	NC	NA	NA	NA	NA	NA	2.25	
			10/05/98	NC	NA	NA	NA	NA	NA	2.01	
			11/09/98	NC	NA	NA	NA	NA	NA	2.15	
			Well destroyed during Burlington excavation								
MW-3			1/31/97	NM	<0.2	<0.2	<0.2	<0.2	<0.2	--	
Up & cross-gradient to PNM			2/4/97	6101.06	NA	NA	NA	NA	NA	--	
	6121.49		5/5/97	NM	NA	NA	NA	NA	NA	--	
		(Burlington)	10/29/97	6101.19	<0.2	<0.2	<0.2	<0.2	<0.2	--	
			1/12/98	6101.11	<0.2	<0.2	<0.2	<0.2	<0.2	--	
			4/14/98	6100.97	<0.5	<0.5	<0.5	<0.5	<0.5	--	
			7/1/98	6101.14	0.03 JB	0.05 JB	<0.5	<0.5	0.08 JB	--	<30.0
			10/5/98	6100.57	<1.0	<1.0	<1.0	<3.0	<6.0	--	
			11/9/98	6100.89	<1.0	<1.0	<1.0	<3.0	<6.0	--	
			Well destroyed during Burlington excavation								
MW-4			1/31/97	NM	811.7	1420.5	31.0	388.1	2651.3	--	
Upgradient PNM; downgradient Burlington			2/4/97	6106.16	NA	NA	NA	NA	NA	--	
		(Burlington)	5/1/97	NM	1162.0	1797.0	41.0	486.0	3486.0	--	
	6123.105		8/27/97	6106.87	NA	NA	NA	NA	NA	--	
			10/29/97	6106.73	NA	NA	NA	NA	NA	--	
			1/12/98	6105.88	1251.0	6.0	82.0	24.0	1363.0	--	
			4/14/98	6105.93	1100.0	7.2	28.0	12.0	1147.2	--	
			7/1/98	6106.14	1400.0	50.0	120.0	124.0	1694.0	--	10.0 J
			10/5/98	NC	NA	NA	NA	NA	NA	0.63	
			11/9/98	NC	NA	NA	NA	NA	NA	0.26	
			1/27/99	NC	NA	NA	NA	NA	NA	0.40	
			Well destroyed during Burlington excavation								
MW-5			10/29/97	6075.23	5934.0	10024.0	709.0	8188.0	24855.0	--	
Downgradient along wash			1/12/98	6075.09	7521.0	11213.0	779.0	8436.0	27949.0	--	
	6090.825		4/14/98	6075.33	7000.0	11000.0	720.0	7800.0	26520.0	--	
			7/1/98	6075.43	6500.0	10000.0	780.0	7500.0	24780.0	--	800.0
			10/5/98	6074.48	6800.0	8400.0	740.0	6900.0	22840.0	--	
			11/9/98	6074.89	6200.0	8200.0	670.0	6500.0	21570.0	--	
			1/27/99	6074.87	6400.0	8900.0	660.0	6700.0	22660.0	--	
			5/5/99	6075.23	6800.0	9800.0	900.0	7800.0	25300.0	--	
		(Burlington)	5/26/99	NR	6600.0	10000.0	650.0	8100.0	25350.0	--	
			7/12/99	6075.60	6300.0	10000.0	750.0	8800.0	25850.0	--	
			8/17/99	6076.23	5400.0	9800.0	670.0	7500.0	23370.0	Sheen	
		(Eco. Split)	8/17/99	6076.23	5900.0	8900.0	500.0	6200.0	21500.0	Sheen	
		(prelim.)	10/21/99	6076.17	5200.0	9600.0	650.0	6900.0	22350.0	Sheen	
MW-6			11/12/97	NC	NA	NA	NA	NA	NA	4.80	
PNM drip pit/product recovery			1/12/98	NC	NA	NA	NA	NA	NA	4.71	
	6124.87		4/14/98	NM	NA	NA	NA	NA	NA	pumping	
			7/1/98	NC	NA	NA	NA	NA	NA	pumping	
			10/5/98	NC	NA	NA	NA	NA	NA	pumping	
			11/9/98	NC	NA	NA	NA	NA	NA	2.27	
			Well destroyed during Burlington excavation								

ANALYTICAL RESULTS SUMMARY - Hampton 4M

Well	Surveyed MP Elev. (ft,msl)	Sample Notes	Date Sampled	GW Elev. (ft,msl)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzen (ug/L)	Xylenes (ug/L)	Total BTEX (ug/L)	Product Thickness (ft)	2-MP (ug/L)
MW-7			1/12/98	6047.12	780.0	246.0	258.0	3942.0	5226.0	--	
Downgradient along wash; adj pipeline			04/14/98	6047.09	820.0	340.0	190.0	2450.0	3800.0	--	
	6066.91		07/01/98	6047.03	950.0	440.0	200.0	3020.0	4610.0	--	200.0
			10/05/98	6046.77	1600.0	930.0	180.0	1530.0	4240.0	--	
			11/09/98	6046.77	1800.0	1000.0	160.0	1240.0	4200.0	--	
			01/27/99	6046.77	2100.0	1000.0	160.0	1050.0	4310.0	--	
			05/05/99	6046.44	210.0	2.9	30.0	147.0	389.9	--	
	(Burlington)		05/26/99	NR	190.0	7.4	32.0	150.0	379.4	--	
			7/12/99	6046.04	130.0	7.2	22.0	101.3	260.5	--	
			8/17/99	6046.61	NA	NA	NA	NA	NA	--	
	(prelim.)		10/21/99	6047.47	260.0	11.0	15.0	89.0	375.0	--	
MW-8			1/12/98	6104.71	6410.0	17301.0	693.0	9397.0	33801.0	Sheen	
Upgradient PNM; downgradient Burlington			4/14/98	6104.41	NA	NA	NA	NA	NA	0.37	
	6122.971		7/1/98	6105.14	NA	NA	NA	NA	NA	0.37	
			10/5/98	6104.54	NA	NA	NA	NA	NA	0.13	
			11/9/98	6104.77	NA	NA	NA	NA	NA	0.02	
			Well destroyed during Burlington excavation								
MW-9			7/1/98	6100.12	12.0	0.2	0.6	1.3	14.1	--	<30.0
Upgradient PNM, crossgradient Burlington			10/5/98	6100.03	16.0	<1.0	1.1	2.1	19.2	--	
	6122.515		11/9/98	6100.40	12.0	<1.0	<1.0	<3.0	12.0	--	
			1/27/99	6099.23	0.8	<0.5	<0.5	2.2	3.0	--	
			5/5/99	6099.92	73.0	<0.5	2.2	1.6	76.8	--	
			5/26/99	6100.07	120.0	<0.5	2.5	1.8	124.3	--	
		(Burlington)	5/26/99	NR	120.0	<0.5	1.6	0.8	122.4	--	
			7/12/99	6100.18	140.0	<0.5	1.5	<0.5	141.5	--	
		(prelim.)	8/17/99	6100.92	290.0	<0.5	0.6	<1.5	290.6	--	
		(prelim.)	10/21/99	6100.73	320.0	<0.5	0.6	<1.5	320.0	Sheen	
MW-10			7/1/98	NC	NA	NA	NA	NA	NA	2.00	
Upgradient PNM, downgradient Burlington			10/5/98	NC	NA	NA	NA	NA	NA	1.91	
	6122.5		11/9/98	NC	NA	NA	NA	NA	NA	2.10	
			Well destroyed during Burlington excavation								
MW-11			1/27/99	5958.60	<0.5	2.5	0.7	13.1	16.3	--	
Downgradient well - 1800', near road			5/5/99	5958.65	<0.5	<0.5	<0.5	<1.5	0.0	--	
	6015.75	(Burlington)	5/26/99	NR	0.8	1.7	<0.5	1.1	3.6	--	
			7/12/99	5958.27	NA	NA	NA	NA	NA	--	
			8/17/99	5958.62	NA	NA	NA	NA	NA	--	
	(prelim.)		10/21/99	5958.90	<0.5	<0.5	<0.5	<1.5	<3.0	--	
MW-12 (new source well @ MW-6)			5/5/99		790.0	840.0	260.0	2880.0	4770.0	--	
SOIL sample TPH (ppm)	2350		5/5/99		1200	13000	5100	68000	87300.0	--	
	6109.02		5/26/99	6099.45	1900	820	200	1720	4640.0	Sheen	
		(Burlington)	5/26/99		1800	640	160	1600	4200.0	--	
			7/12/99	6099.63	4500	760	400	3100	8760.0	Sheen	
		(duplicate)	7/12/99		4600	730	390	3080	8800.0	Sheen	
			8/17/99	6100.56	4800	5000	320	3390	13510.0	Sheen	
		(Eco. Split)	8/17/99	6100.56	5900	6100	390	4100	16490.0	Sheen	
		(prelim.)	10/21/99	6100.17	5600	650	540	2890	9680.0	Sheen	
MW-13	6122.76		5/26/99	--	1800.0	25.0	12.0	35.3	1872.3	--	
BROG well between pit & MW-4		(Burlington)	5/26/99	--	2100	22	8.8	29	2159.8	--	
			7/12/99	6104.3	2100	14	9.9	10.9	2134.8	--	
			8/17/99	6104.7	1900	<10	<10	<30	1900.0	--	
		(prelim.)	10/21/99	6104.71	1600	<10	<10	<30	1600.0		
MW-14		--	10/21/99	--	not sampled - 2 feet of free product					1.92	
BROG well near TPW07			depth to water 22.14, depth to product 20.22 (no datum surveyed yet)								
MW-15		(prelim.)	10/21/99	--	<0.5	1.2	<0.5	1.5	2.7	--	
BROG well near separator pit			depth to water 17.84 (no datum surveyed yet)								
MW-16		(prelim.)	10/21/99	--	220.0	300.0	5.4	142.0	667.4	--	
Recovery well near excavation		(Burlington)	10/21/99	--	214.0	268.0	4.0	151.0	637.0	--	
			depth to water 14.93 (no datum surveyed yet)								
TMP-1			11/11/97	NM	2171.0	4185.0	190.0	2856.0	9402.0	--	
Temporary well; wash midway MW-5, MW-7			7/1/98	6057.61	2000.0	4300.0	180.0	2700.0	9180.0	--	80.0
MP =	6076.48		11/9/98	NM	980.0	1900.0	84.0	1540.0	4504.0	--	
		(prelim.)	10/21/99	6058.11	1000.0	3100.0	410.0	9700.0	14210.0		
EB WELL			11/25/97	5959.74	<0.2	<0.2	<0.2	<0.2	<0.2	--	
Downgradient private well			10/21/99	5960.93							
MP =	6028.64										
Burlington Excavation	Surface Water		2/11/98	15'	1800	1700	<25	1420	4920	rainbow	
	Surface Water		7/1/98	6106.26	10.0	0.4	0.1	1.5	12.0	rainbow	<30.0
	Surface Water		11/9/98	NM	2.9	16.0	<1	18.1	37.0	--	
	Soil - @ water		7/1/98	NM	36000.0	560000.0	100000.0	1430000.0	2126000.0	--	
Hydrocarbon Seep	Surface Water		7/1/98	6098.72	1.6	0.7	0.6	0.36	3.26	rainbow	6.0 J
			4/14/99		40.0	2.2	2.1	19.00	63.30	rainbow	
		(prelim.)	10/21/99		65.0	230.0	11.0	434.00	740.00		

ANALYTICAL RESULTS SUMMARY - Hampton 4M

Well	Surveyed MP Elev. (ft,msl)	Sample Notes	Date Sampled	GW Elev. (ft,msl)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzen (ug/L)	Xylenes (ug/L)	Total BTEX (ug/L)	Product Thickness (ft)	2-MP (ug/L)

Burlington Temporary Monitoring Well Sampling

Sample	Matrix	Date Sampled	Depth (ft)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)	Total BTEX (ppb)	TPH (mg/Kg)	PID (ppm)
TPW-01	Water	6/5/97		20.0	<1	<1	<1	20.0	NA	0
	Soil		25-26'	<1	<1	<1	<1	<1	<10	
TPW-02	Water	6/5/97	Product	NA	NA	NA	NA	NA	NA	187
	Soil		25-26'	2000.0	4600.0	14000.0	39000.0	59600.0	600.0	
TPW-03	Water	6/5/97	Dry	NA	NA	NA	NA	NA	NA	0
	Soil	6/5/97	25-26	<1	<1	<1	<1	<1	25	
TPW-04	Water	6/6/97		2000.0	3100.0	57.0	810.0	5967.0	NA	33
	Soil	6/6/97	20-21.5'	28.0	3.4	76.0	40.0	147.4	52	
TPW-05	Water	6/6/97		5800.0	460.0	16000.0	7000.0	29260.0	NA	470
	Soil	6/6/97	15-16'	4000.0	10000.0	4500.0	28000.0	46500.0	61	
TPW-06	Water	6/6/97		1600.0	3400.0	48.0	690.0	5738.0	NA	61
	Soil	6/6/97	16-16.5'	<1	<1	2.8	4.8	7.6	11	
TPW-07	Water	6/6/97		5300.0	18000.0	620.0	9300.0	33220.0	NA	948
	Soil	6/6/97	15-16'	7000.0	74000.0	20000.0	170000.0	271000.0	250	
Burlington Profile Borings										
SB-1 (near BROG excavation)	Soil	10/8/98	15-16'	335	697	181	1808	3021	26.4	1555
SB-2 (near PNM former pit)	Soil	10/8/98	15'	1950	9960	2460	22590	36960	194	>2000
PNM Test Holes along Wash									PID (ppm)	
TH-1	Soil	11/11/97	12.7'	NA	NA	NA	NA	NA	1412	
TH-2	Soil	11/11/97	14.4'	NA	NA	NA	NA	NA	1357	
TH-3	Soil	11/11/97	16.5'	NA	NA	NA	NA	NA	0	
TH-4	Soil	11/11/97	15'	NA	NA	NA	NA	NA	279	
TH-5	Soil	11/11/97	14.5'	NA	NA	NA	NA	NA	1211	
TH-6	Soil	11/11/97	16'	NA	NA	NA	NA	NA	0	
TH-7 (temporary well)	Water	11/11/97	NA	2171.0	4185.0	190.0	2856.0	170000.0	279	
TH-8	Soil	11/12/97	14'	NA	NA	NA	NA	NA	0	

Notes: All wells sampled byPNM unless otherwise noted in the "Sample Notes" column.
J = Analyte detected below Practical Quantitation Limit
B = Analyte detected in the associated Method Blank
NM = Not measured
NA = Not analyzed
NC = Not Calculated (product)

ATTACHMENT #4

PRELIMINARY ANALYTICAL RESULTS
WATER SAMPLES COLLECTED 10/21/99

ANALYTICAL REPORT

Date: *26-Oct-99*

Client:	PNM - Public Service Company of NM	**Client Sample Info:**	Hampton 4M
Work Order:	9910035	**Client Sample ID:**	9910211240; MW-5
Lab ID:	9910035-06A **Matrix:** AQUEOUS	**Collection Date:**	10/21/99 12:40:00 PM
Project:	Hampton 4M	**COC Record:**	7742

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		**SW8021B**				Analyst: DC
Benzene	5200	50		µg/L	100	10/25/99
Toluene	9600	50		µg/L	100	10/25/99
Ethylbenzene	650	50		µg/L	100	10/25/99
m,p-Xylene	5400	100		µg/L	100	10/25/99
o-Xylene	1500	50		µg/L	100	10/25/99

Qualifiers:

PQL - Practical Quantitation Limit
ND - Not Detected at the Practical Quantitation Limit
J - Analyte detected below Practical Quantitation Limit
B - Analyte detected in the associated Method Blank
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
Surr: - Surrogate

ANALYTICAL REPORT

Date: *26-Oct-99*

Client:	PNM - Public Service Company of NM	**Client Sample Info:**	Hampton 4M
Work Order:	9910035	**Client Sample ID:**	9910211300; MW-7
Lab ID:	9910035-08A **Matrix:** AQUEOUS	**Collection Date:**	10/21/99 1:00:00 PM
Project:	Hampton 4M	**COC Record:**	7742

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		**SW8021B**				Analyst: DC
Benzene	260	0.5	E	µg/L	1	10/25/99
Toluene	11	0.5		µg/L	1	10/25/99
Ethylbenzene	15	0.5		µg/L	1	10/25/99
m,p-Xylene	76	1		µg/L	1	10/25/99
o-Xylene	13	0.5		µg/L	1	10/25/99

Qualifiers:

PQL - Practical Quantitation Limit
ND - Not Detected at the Practical Quantitation Limit
J - Analyte detected below the Practical Quantitation Limit
B - Analyte detected in the associated Method Blank
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
Surr: - Surrogate

NW Corner of Well Pad

ANALYTICAL REPORT

Date: *26-Oct-99*

Client:	PNM - Public Service Company of NM	**Client Sample Info:**	Hampton 4M
Work Order:	9910035	**Client Sample ID:**	9910211220; MW-9
Lab ID:	9910035-05A **Matrix:** AQUEOUS	**Collection Date:**	10/21/99 12:20:00 PM
Project:	Hampton 4M	**COC Record:**	7742

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		**SW8021B**				Analyst: DC
Benzene	320	0.5	E	µg/L	1	10/25/99
Toluene	ND	0.5		µg/L	1	10/25/99
Ethylbenzene	ND	0.5		µg/L	1	10/25/99
m,p-Xylene	ND	1		µg/L	1	10/25/99
o-Xylene	ND	0.5		µg/L	1	10/25/99

Qualifiers:

PQL - Practical Quantitation Limit

ND - Not Detected at the Practical Quantitation Limit

J - Analyte detected below Practical Quantitation Limit

B - Analyte detected in the associated Method Blank

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Surr - Surrogate

ANALYTICAL REPORT

Date: *26-Oct-99*

Client:	PNM - Public Service Company of NM	**Client Sample Info:**	Hampton 4M
Work Order:	9910035	**Client Sample ID:**	9910211340; MW-11
Lab ID:	9910035-10A **Matrix:** AQUEOUS	**Collection Date:**	10/21/99 1:40:00 PM
Project:	Hampton 4M	**COC Record:**	7742

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		**SW8021B**				Analyst: DC
Benzene	ND	0.5		µg/L	1	10/25/99
Toluene	ND	0.5		µg/L	1	10/25/99
Ethylbenzene	ND	0.5		µg/L	1	10/25/99
m,p-Xylene	ND	1		µg/L	1	10/25/99
o-Xylene	ND	0.5		µg/L	1	10/25/99

Qualifiers:

PQL - Practical Quantitation Limit
ND - Not Detected at the Practical Quantitation Limit
J - Analyte detected below Practical Quantitation Limit
B - Analyte detected in the associated Method Blank
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
V - Value above quantitation range
Surr: - Surrogate

Former PNM Source Well

ANALYTICAL REPORT

Date: *26-Oct-99*

Client:	PNM - Public Service Company of NM	**Client Sample Info:**	Hampton 4M
Work Order:	9910035	**Client Sample ID:**	9910211130; MW-12
Lab ID:	9910035-03A Matrix: AQUEOUS	**Collection Date:**	10/21/99 11:30:00 AM
Project:	Hampton 4M	**COC Record:**	7742

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		**SW8021B**				Analyst: **DC**
Benzene	5600	25		µg/L	50	10/25/99
Toluene	650	25		µg/L	50	10/25/99
Ethylbenzene	540	25		µg/L	50	10/25/99
m,p-Xylene	2700	50		µg/L	50	10/25/99
o-Xylene	190	25		µg/L	50	10/25/99

Qualifiers:

PQL - Practical Quantitation Limit
ND - Not Detected at the Practical Quantitation Limit
J - Analyte detected below Practical Quantitation Limit
B - Analyte detected in the associated Method Blank
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
Surr: - Surrogate

Former BROG ~ MW-4

ANALYTICAL REPORT

Date: *26-Oct-99*

Client:	PNM - Public Service Company of NM	**Client Sample Info:**	Hampton 4M
Work Order:	9910035	**Client Sample ID:**	9910211150; MW-13
Lab ID:	9910035-04A **Matrix:** AQUEOUS	**Collection Date:**	10/21/99 11:50:00 AM
Project:	Hampton 4M	**COC Record:**	7742

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		**SW8021B**				Analyst: DC
Benzene	1600	10		µg/L	20	10/25/99
Toluene	ND	10		µg/L	20	10/25/99
Ethylbenzene	ND	10		µg/L	20	10/25/99
m,p-Xylene	ND	20		µg/L	20	10/25/99
o-Xylene	ND	10		µg/L	20	10/25/99

Qualifiers:

PQL - Practical Quantitation Limit
ND - Not Detected at the Practical Quantitation Limit
J - Analyte detected below the Quantitation Limit
B - Analyte detected in the associated Method Blank
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
Surr: - Surrogate

New Well Just North of
BROG Separator Pit

ANALYTICAL REPORT

Date: *26-Oct-99*

Client:	PNM - Public Service Company of NM	**Client Sample Info:**	Hampton 4M
Work Order:	9910035	**Client Sample ID:**	9910211030; MW-15
Lab ID:	9910035-01A **Matrix:** AQUEOUS	**Collection Date:**	10/21/99 10:30:00 AM
Project:	Hampton 4M	**COC Record:**	7742

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		**SW8021B**				Analyst: DC
Benzene	ND	0.5		µg/L	1	10/25/99
Toluene	1.2	0.5		µg/L	1	10/25/99
Ethylbenzene	ND	0.5		µg/L	1	10/25/99
m,p-Xylene	1.5	1		µg/L	1	10/25/99
o-Xylene	ND	0.5		µg/L	1	10/25/99

PROBABLE c/o (CARRY-OVER) CONTAMINATION
FROM PRIOR SAMPLE IN BATCH (BC) 10/26/99
TO BE RE-ANALYZED

Qualifiers:

PQL - Practical Quantitation Limit
ND - Not Detected at the Practical Quantitation Limit
J - Analyte detected below the Practical Quantitation Limit
B - Analyte detected in the associated Method Blank
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
Surr: - Surrogate

Inter-Mountain Laboratories, Inc.
Phone (505) 326-4737 Fax (505) 325-4182
2506 West Main Street, Farmington, NM 87401

Client: Burlington Resources
Project: Hampton 4M
Sample ID: MW-15 Split w/ PNM
Lab ID: 0399W05347
Matrix: Water
Condition: Intact

Date Reported: 10/25/99
Date Sampled: 10/21/99
Date Received: 10/21/99
Date Analyzed: 10/22/99

Parameter	Analytical Result	PQL	Units
BTEX - EPA METHOD 8021B			
Benzene	1	1	µg/L
Toluene	2	1	µg/L
Ethylbenzene	1	1	µg/L
Xylenes (total)	4	3	µg/L

Quality Control - Surrogate Recovery	%	QC Limits
a,a,a-Trifluorotoluene(SUR-602)	94	70 - 130
4- Bromofluorobenzene (8020)	118	70 - 130

Reference: Method 8021, Volatile Organic Compounds, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, United States Environmental Protection Agency, SW-846, Volume IB, December 1987.

Reviewed By: _____
William Lipps

4" "Recovery Well" requested by OCD
Due East of MW-12, Eastern Wall

ANALYTICAL REPORT

Date: *26-Oct-99*

Client:	PNM - Public Service Company of NM	**Client Sample Info:**	Hampton 4M
Work Order:	9910035	**Client Sample ID:**	9910211100; MW-16
Lab ID:	9910035-02A Matrix: AQUEOUS	**Collection Date:**	10/21/99 11:00:00 AM
Project:	Hampton 4M	**COC Record:**	7742

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		**SW8021B**				Analyst: DC
Benzene	220	0.5	E	µg/L	1	10/25/99
Toluene	300	0.5	E	µg/L	1	10/25/99
Ethylbenzene	5.4	0.5		µg/L	1	10/25/99
m,p-Xylene	74	1		µg/L	1	10/25/99
o-Xylene	68	0.5		µg/L	1	10/25/99

Qualifiers:

PQL - Practical Quantitation Limit
ND - Not Detected at the Practical Quantitation Limit
J - Analyte detected below the Practical Quantitation Limit
B - Analyte detected in the associated Method Blank
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
Surr: - Surrogate

iml Inter-Mountain Laboratories, Inc.
Phone (505) 326-4737 Fax (505) 325-4182 2506 West Main Street, Farmington, NM 87401

Client: Burlington Resources
Project: Hampton 4M
Sample ID: MW-16 - Split w/ PNM
Lab ID: 0399W05348
Matrix: Water
Condition: Intact

Date Reported: 10/25/99
Date Sampled: 10/21/99
Date Received: 10/21/99
Date Analyzed: 10/22/99

Parameter	Analytical Result	PQL	Units
BTEX - EPA METHOD 8021B			
Benzene	214	1	µg/L
Toluene	268	1	µg/L
Ethylbenzene	4	1	µg/L
Xylenes (total)	151	3	µg/L

Quality Control - Surrogate Recovery	%	QC Limits
a,a,a-Trifluorotoluene(SUR-602)	85	70 - 130
a,a,a-Trifluorotoluene (SUR-8021)	104	70 - 130

PRELIMINARY

Reference: Method 8021, Volatile Organic Compounds, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, United States Environmental Protection Agency, SW-846, Volume IB, December 1987.

Reviewed By: _____
William Lipps

ANALYTICAL REPORT

Date: *26-Oct-99*

Client:	PNM - Public Service Company of NM	**Client Sample Info:**	Hampton 4M
Work Order:	9910035	**Client Sample ID:**	9910211230; Seep
Lab ID:	9910035-07A **Matrix:** AQUEOUS	**Collection Date:**	10/21/99 12:30:00 PM
Project:	Hampton 4M	**COC Record:**	7742

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		**SW8021B**				Analyst: DC
Benzene	65	10		µg/L	20	10/25/99
Toluene	230	10		µg/L	20	10/25/99
Ethylbenzene	11	10		µg/L	20	10/25/99
m,p-Xylene	350	20		µg/L	20	10/25/99
o-Xylene	84	10		µg/L	20	10/25/99

Qualifiers:

PQL - Practical Quantitation Limit

ND - Not Detected at the Method Detection Limit

J - Analyte detected below Practical Quantitation Limit

B - Analyte detected in the associated Method Blank

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Surr: - Surrogate

Between 5 & 7

ANALYTICAL REPORT

Date: *26-Oct-99*

Client:	PNM - Public Service Company of NM	**Client Sample Info:**	Hampton 4M
Work Order:	9910035	**Client Sample ID:**	9910211310; TMP-1
Lab ID:	9910035-09A Matrix: AQUEOUS	**Collection Date:**	10/21/99 1:10:00 PM
Project:	Hampton 4M	**COC Record:**	7742

Parameter	Result	PQL	Qual	Units	DF	Date Analyzed
AROMATIC VOLATILES BY GC/PID		**SW8021B**				Analyst: DC
Benzene	1000	10		µg/L	20	10/25/99
Toluene	3100	10		µg/L	20	10/25/99
Ethylbenzene	410	10		µg/L	20	10/25/99
m,p-Xylene	7600	20		µg/L	20	10/25/99
o-Xylene	2100	10		µg/L	20	10/25/99

Qualifiers:

PQL - Practical Quantitation Limit

ND - Not Detected at the Practical Quantitation Limit

J - Analyte detected between the Practical Quantitation Limit

B - Analyte detected in the associated Method Blank

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

Surr - Surrogate

BURLINGTON RESOURCES

SAN JUAN DIVISION

October 19, 1999

The Quiet Hour
Attention: Joseph Lunfford, Jr.
P.O. Box 3000
Redlands, California 92373-1500

RE: Hampton 4M Gas Well
Unit Letter N, Section 13, Township 30N, Range 11W

Dear Mr. Lunfford:

My understanding is that you have recently acquired land in Section 13, Township 30 North, Range 11 West in San Juan County, New Mexico. This letter is to inform you that Burlington Resources Oil and Gas Company (BR) has been instructed by the New Mexico Oil Conservation Division to install a groundwater monitoring well on this property.

The following work is expected:

1. Blade a temporary road approximately 150 feet to allow access for the auger rig. No destruction of Pinon or Juniper trees will occur.

2. Auger a 4 inch borehole to groundwater (expected depth of 70 feet) and complete the borehole as a groundwater monitoring well using 2 inch PVC pipe.

3. The temporary road will be restored, as reasonably as possible, to its original state.

4. Perform periodic sampling of the monitoring well. This can be done without vehicle access. This may be required for several years.

5. Once all monitoring is complete, the well will be plugged and abandoned with grout. The standpipe will be cut to surface and the well pad removed. The ground surface will be restored, as reasonably as possible, to its original state.

BR will conduct all work in compliance with Federal, state and local laws and regulations. BR employees and contractors will act in a reasonable manner consistent with boring and monitoring well installation requirements. The monitoring well installed on your property will be secure and locked at all times. The monitoring well will not interfere with the movement of vehicles or livestock.

If you have questions or additional information is needed, please contact me at (505) 326-9841.

Sincerely,

Ed Hasely
Sr. Staff Environmental Representative

3535 East 30th St., 87402-8801, P.O. Box 4289, Farmington, New Mexico 87499-4289. Telephone 505-326-9700, Fax 505-326-9833

Cc: Maureen Gannon – PNM
Denny Foust – NMOCD
Bill Olson - NMOCD
Facility File
Correspondence

BURLINGTON RESOURCES

SAN JUAN DIVISION

September 21, 1999

Certified: Z 186 732 861

Ms. Maureen Gannon
Public Service Company of New Mexico
Alvarado Square, MS 0408
Albuquerque, NM 87158

RE: Letter Agreement - Additional Monitoring Wells
Hampton 4M Well Site

Dear Ms. Gannon:

Per our conversation on September 10, 1999, Burlington Resources Oil & Gas Company (Burlington) does not agree with your rationale concerning the cost and installations of the five proposed monitoring wells that were discussed on the Hampton 4M well location with Mr. Bill Olson on September 8, 1999. The fact that Mr. Olson invited Public Service Company of New Mexico (PNM) to the onsite meeting requested by Burlington indicates that he expects joint responsibility for those wells downgradient of past releases. The costs associated with the installation of the lateral and downgradient wells should not be Burlington's sole responsibility.

Burlington plans to install the two monitoring wells that are proposed in the southern portion of the well pad near our area of operations. The two wells, one in the area of our former tank battery and one near our current separator tank, are clearly Burlington's responsibility.

The remaining three proposed monitoring wells should be the responsibility of both PNM and Burlington. The location of the third proposed well on the well pad is directly east of PNM's former earthen pit and operations. The remaining two monitoring wells proposed off-location are clearly downgradient of both PNM and Burlington.

This letter requests that PNM reconsider its stance of "non-participation" and that PNM work cooperatively with Burlington in sharing the cost and installation of the two off-location downgradient monitoring wells and the monitoring well east of PNM's former operations. PNM and Burlington can and should work together to obtain necessary approvals, pick locations and install the wells. The contractor selected to drill and complete the wells will invoice Burlington and Burlington will, in turn, invoice PNM for one half the costs.

We would appreciate your response to this letter in writing prior to 5:00 p.m. on Monday, September 27, 1999 as to your intentions for these three downgradient wells. If your response indicates that PNM is unwilling to accept its responsibilities to share in the cost and installation of the three monitoring wells that the New Mexico Oil Conservation Division has requested, Burlington will have no choice but to promptly proceed with the work at our own expense and seek appropriate remedies thereafter. We hope that you will reconsider your stance of "non-participation" given the need to work cooperatively in resolving the contamination at this site.

If you have questions or additional information is needed, please contact me at (505) 326-9841.

Sincerely,

Ed Hasely
Sr. Staff Environmental Representative

cc: Bill Olson - NMOCD
John Bemis - BR
Bruce Gantner - BR
Steve Florez - BR
Hampton 4M File
Correspondence

BURLINGTON RESOURCES

SAN JUAN DIVISION

September 16, 1999

Certified: Z 186 732 857

Bill Olson
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

RE: Hampton 4M - Groundwater Contamination
Unit Letter N, Section 13, Township 30N, Range 11W

Dear Mr. Olson:

The following is a status report on the soil/groundwater investigation and remediation activities that have been conducted at the Hampton 4M gas production location. This report addresses the activities by Burlington Resources Oil and Gas Company (BR) that have taken place since the last status report submitted to you dated May 28, 1998. Details on earlier investigation/remediation work were submitted to you previously and will not be repeated in this report. A site diagram showing the approximate location of the discussed monitoring wells and soil excavation is included in Attachment #1.

Additional Soil Borings

As stated in my October 28, 1998 letter, in the process of gathering additional information to determine the source(s) of groundwater contamination, BR drilled two soil borings on October 8, 1998 on the Hampton 4M location. The borings, one near BR's original excavation in the southeast part of the location and one near Public Service of New Mexico's (PNM's) former dehydrator pit, were drilled down to the groundwater. The soil boring (SB-2) confirmed that a substantial amount of soil contamination remained in place in the area of PNM's operations with Photo Ionization Detector (PID) readings ranging from 663 ppm to "over-range" from a depth of 14 feet all the way down to groundwater. To a much lesser extent, high PID readings were noted in the soils near the groundwater in the soil boring (SB-1) near BR's excavated pit area.

The field boring logs and associated laboratory analyses are included in Attachment #2.

Down Gradient Monitoring Well Installation

Per the New Mexico Oil Conservation Division's (NMOCD's) letters to both BR and PNM dated September 1, 1998, BR requested a meeting with PNM to discuss downgradient investigation work and the desire to work cooperatively with them in remediating the Hampton 4M location. At this meeting, and subsequently through correspondence, PNM refused to share in the costs associated with the installation of a downgradient well. BR proceeded to obtain landowner approval and installed a downgradient groundwater monitoring well on November 12, 1998 near the lease road north of the Hampton 4M well pad. The monitoring well, named MW-11, was drilled to a depth of 70 feet and no signs of hydrocarbon impacted soils were noted. Groundwater samples have been collected several times and the water has been clean. The sampling results are provided in a table prepared by PNM in Attachment #3.

The field boring log and well installation record are included in Attachment #4.

Additional Excavation Work

November 10, 1998 through November 17, 1998

By letter dated October 26, 1998, BR notified PNM of the substantial soil contamination remaining underneath PNM's former unlined earthen pit and requested PNM to remediate the site. PNM, by letter dated October 28, 1998, refused to excavate the potential source material in their area of operation, so BR started excavation work in the northern portion of the well pad on November 10, 1998. Due to the rocky nature of the location, a bulldozer was necessary to rip and push the soils. Clean overburden was stockpiled around the edges of the location. Traces of hydrocarbon impacted soils were encountered a approximately 6 feet below the ground surface and heavy hydrocarbon contamination was encountered at 12 feet (the depth of PNM's excavation work). Excavation of hydrocarbon impacted soils in the northern section of the well pad continued through November 17, 1998. Excavation continued based on visually stained soil, strong hydrocarbon odor, and/or high PID readings down to an approximate depth of 27 feet below the original pad level. Removing the impacted soils under PNM's former operations resulted in a very large excavation, both vertically and horizontally.

Groundwater was encountered at approximately 25 feet below ground surface. BR constructed three cells in the bottom of the excavation using clean overburden. Excavation work was temporarily shut down on November 17, 1998 so that the water seeping into the cells could be monitored. The eastern most cell had free phase hydrocarbons seeping in with the groundwater. The other two cells also collected water, but little to no free phase hydrocarbons were detected on these cells. BR periodically had the water and any hydrocarbons removed from these cells using a vacuum truck. The liquids were properly disposed in BR's McGrath disposal well.

November 30, 1998 through December 9, 1998

Excavation work resumed on November 30, 1998. The open cells to the west and north were backfilled. The eastern most cell continued to have free phase hydrocarbons seep in with the groundwater and was left open. The excavation work concentrated on the contaminated soils in the north and west walls of the excavation in the area of PNM's former operations. Complete removal of all impacted soils was not accomplished, but the core of the contaminated soil was excavated.

Contaminated soils were also removed at this time from the northeast part of BR's original excavation located in the southeast part of the well pad. Hydrocarbon impacted soils had been detected near the bottom of the former excavation. Approximately 77 cubic yards of additional soil were removed from the northeast section of this excavation. A small band of impacted soil approximately one foot thick at 17 feet below ground surface remained. Again, complete removal of all the impacted soils was not accomplished, but the core of the soil contamination was excavated. At this time, clean soils were used to start to backfill the excavation in the southeast part of the location. This was necessary in order to make room for continued dirt work at the location.

Work at the Hampton 4M site was temporarily shut down on December 9, 1998 while approvals were being obtained to landfarm impacted soils on the Lloyd #1 well location.

January 21, 1999 through February 2, 1999

Work resumed at the Hampton 4M location on January 21, 1999. Impacted soils were hauled off for landfarming on the Lloyd #1 and excavation resumed into the eastern wall of the excavated area near PNM's former operations. Water and any collected hydrocarbons continued to be periodically vacuumed out of the eastern most cell that had been left open in the northern part of the well pad. Little to no free phase hydrocarbons were seeping into the cell with the water at this time. Two water samples were collected from the cell on January 20, 1999 and the results are included in Attachment #5. As the excavation work continued into the eastern wall, the cell was backfilled with clean soils.

Impacted soils were excavated to the east of PNM's former operations right to the edge of location. Soil removal to the east had to be stopped due to cutting into the hillside along the eastern edge of the well pad. Several areas of soils that had strong hydrocarbon odor (PID readings of 2999 ppm) were left in place at an approximate depth of 20 feet since excavation work could go no further to the east.

A cut into the soils between the Hampton 4M wellhead and MW-9 was made to determine if hydrocarbons in the soil/groundwater were coming from the wellbore. Clean soils were encountered along this trench which indicated that the wellbore was not a source of the contamination.

Excavation work continued to the south toward Burlington's former excavation in the southeast part of the well pad. Clean overburden was stripped off and stockpiled to the side. Impacted soils were removed from depths near the groundwater as the excavation moved south. Excavation to expose the groundwater was conducted in several places to ensure potential source materials were not being missed and that the water did not contain visible free phase hydrocarbons. BR excavated impacted soils to the south to MW-4 near BR's former excavation. Hydrocarbon impacted soils were excavated around the MW-4 wellbore and near BR's former excavation until all apparent source materials had been removed.

A report that was prepared by Philip Services that covers the time frame of November 10, 1998 through February 2, 1999 is included as Attachment #6.

OXY-1 Application and Backfill

To stimulate bioremediation, Tierra Environmental Company was contracted to apply 30 barrels of Oxy-1 chemical prior to backfilling the excavation with clean soil. On February 1, 1999, Tierra sprayed approximately 23 barrels of Oxy-1 on the bottom and sides of the open excavation. Earthen berms were then constructed around the hydrocarbon impacted soils that remained in the eastern wall in the area of PNM's former operations. An additional 7 barrels of Oxy-1 was then pumped into the bermed areas to allow the chemical to seep back into the eastern wall.

A report prepared by Tierra concerning this work is included as Attachment #7.

After the application of the Oxy-1, the clean overburden was pushed in as backfill. Due to the amount of impacted soil (approximately 6400 cubic yards) that was hauled off for landfarming, the northern portion of the well pad could not be backfilled up to original grade. Currently the well pad drops approximately 12 feet from the southern end of location to the area of PNM's former operations in the north. Plans are to continue backfilling the excavation as the landfarmed soils on the Lloyd #1 are remediated.

Monitoring Well Installations

After the southern end of the well pad was backfilled to the original grade, BR installed a groundwater monitoring well in the vicinity of MW-4 and downgradient of BR's original excavation under the former tank battery. The well (MW-13) was installed on May 19, 1999 and the sampling results are shown in Attachment #3.

The field boring log and well installation record are included in Attachment #8.

PNM also installed a groundwater monitoring well (MW-12) in the area of their former earthen pit since MW-2 and MW-6 had to be removed during BR's excavation of contaminated soils in the northern part of the well pad.

Conclusions

BR's recent excavation work removed over 6400 cubic yards of potential source material from the Hampton 4M well location. As evident by the sampling results shown in Attachment #3, the excavation work has had a positive impact on the quality of the groundwater underlying the location. In the area of PNM's former earthen pit, recent groundwater samples indicate only a sheen where over two feet of free phase hydrocarbons were present before BR's excavation work.

The continued monitoring of existing and any new groundwater monitoring wells will determine if any additional active remediation is required at this site.

Plan of Action

Per the onsite meeting with the OCD, PNM and BR on September 8, 1999, five additional monitoring wells will be installed and monitored. As in the past, the new and existing monitoring wells will be sampled at least quarterly.

Three of the monitoring wells will be on the Hampton 4M well pad and their approximate locations are shown on the site diagram (Attachment #1). One is proposed in the extreme southeast corner of the location near where TPW-5 was located. The second is proposed directly north of BR's existing open top tank associated with the separator. The third monitoring well is proposed at the edge of location east of PNM's former operations where excavation of impacted soil could not be completed due to the hillside.

The other two additional monitoring wells are proposed downgradient to help identify the lateral extent of the contaminant plume. One is proposed northwest of the existing MW-7 along the existing pipeline right-of-way and the other is proposed northeast of MW-7 prior to the landowner's well.

It is BR's intent to work in conjunction with PNM to install the proposed wells and conduct the necessary monitoring to evaluate the progress in groundwater cleanup and the need, if any, for further remediation. It is our firm belief that BR's source removal work will continue to have a positive impact on groundwater quality given sufficient time for the shallow aquifer to recharge. If you have questions or if additional information is needed, please contact me at (505) 326-9841.

Sincerely,

Ed Hasely
Sr. Staff Environmental Representative

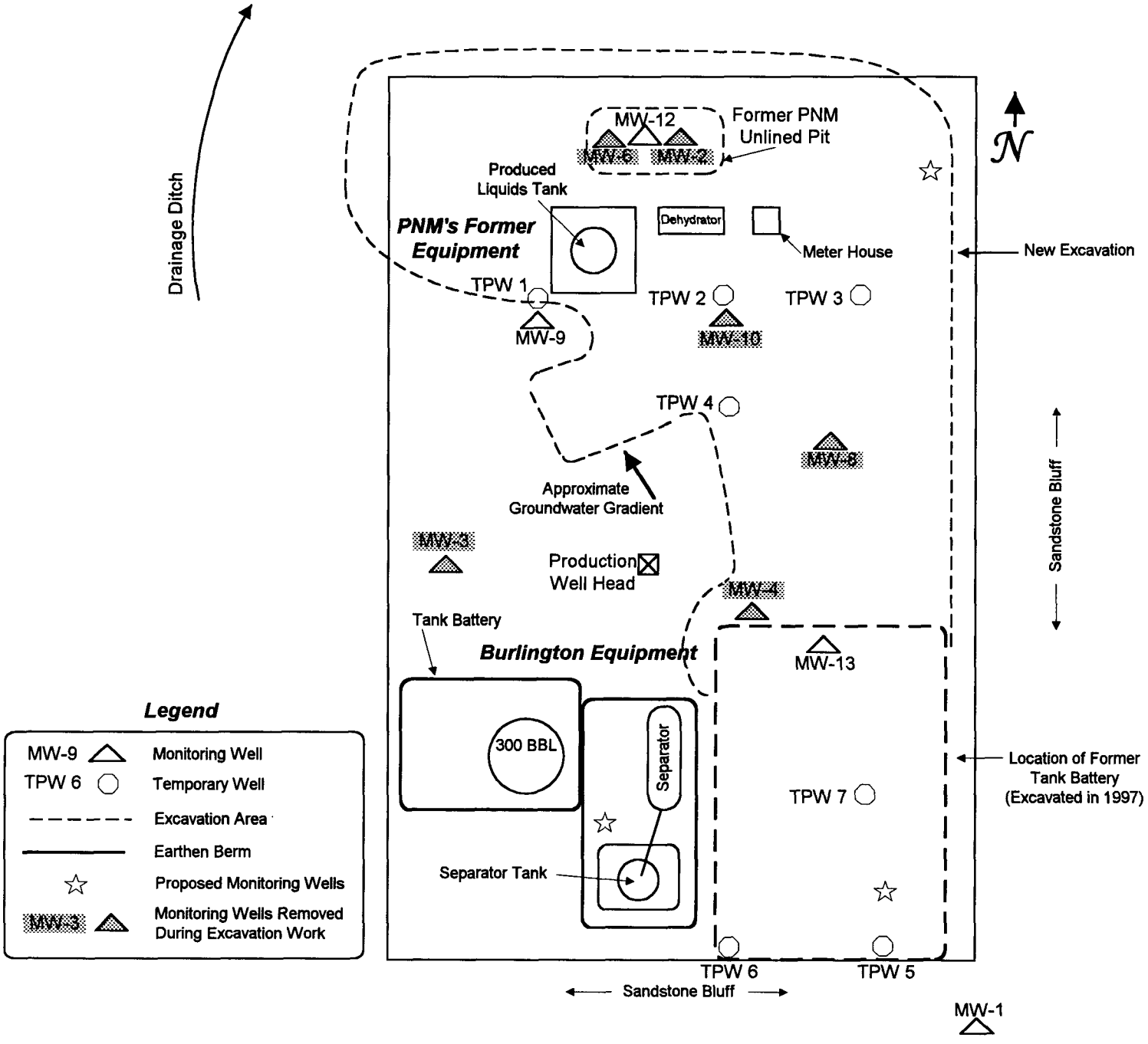
Enclosures: Attachment #1: Hampton 4M Site Diagram
Attachment #2: Soil Boring Logs
Attachment #3: Summary of Analytical Results
Attachment #4: Field Boring Log and Well Installation Record: MW-11
Attachment #5: Analytical Results of Water Samples from Open Excavation
Attachment #6: Philip Services Work Report
Attachment #7: Tierra Report on Oxy-1 Application
Attachment #8: Field Boring Log and Well Installation Record: MW-13

cc: Denny Foust - NMOCD Aztec
Steve Florez - BR
Ken Raybon - BR
Bruce Gantner - BR
John Bemis - BR
Maureen Gannon - PNM Albuquerque
Paul Rosasco - EMSI Denver
Hampton 4M File
Correspondence

ATTACHMENT #1

HAMPTON 4M SITE DIAGRAM

Hampton #4M Site Diagram



ATTACHMENT #2

SOIL BORING LOGS

ENVIROTECH INC.

FIELD BORING LOG

Directly North of ERI Excavation

TEST BORING No.	MONITOR WELL No.	PROJECT No.	PROJECT NAME:	SHEET:
SB-1		91364-21	Burlington Resources	OF: 1

MFG. DESIGNATION OF DRILL:	PROJECT LOCATION:
Mobile 61 B	Hampton 4M; SESW Sec 13 T30N R11W

TYPE OF BIT:	SURFACE ELEVATION OF TB OR MW:	TOTAL DEPTH OF HOLE:
Hollow Stem Auger - Pilot @ 2' To		20'

DATE		DRILLING Co.:
STARTED: 10-8-98		Envirotech
COMPLETED: 10-8-98		

COMPLETION TYPE:	ENGINEER: HMB	GROUNDWATER DEPTH	TIME
Backfilled - Native Soil	CREW: Matt Cain, J.B.	18'	11:00

SURFACE CONDITIONS:
Bladed well Location; Coarse Hard Sand.

DIST FROM SURF.	SAMPLE TYPE	SAMPLE No.	OVM READ IN PPM	BLOWS PER 6 IN.	USCS	LOG OF MATERIAL/COMMENTS
						0-1'2" ~~Sandstone~~ Lite Brown Silty Sand Release of Continuous Sam
1						1'2" - @ 5' 50 count blow to obtain 3" Sample.
2						~~Coarse to red Brown Sandstone.~~
						1-2" to 3' Light Gray Coarse Sandstone
3						2' Coarse Lite Brown Sandstone.
4						
5			2.1			
6						
7						
8						
9						
10			1.4			50 count blows 4" Sample Coarse lt. Brn Sandstone, Minor green Clay nodules.
11			2.4			50 Blows 4½" Light Gray Shaley Sandstone Fine ~~to~~ w/ Coarse Light Brown SS. Matrix
12			~~2.7~~	—		50 Blows 4"
13			6.3	~		50 Blows 3" Coarse-medium ~~Fine~~ Sand 4" Coarse Rusty Sand 2"
14			~~40.2~~	—		50 Blow 4" Gray Clayey-Silty clay Nodules 2"
15			1308	—		25 Blows 2"
Sample 16			1533	—		30 Blows 6"
80'15 80'21			77 ppm	~		
18			502	~		▼? Groundwater 35 blows 6"
19						35 Blows 6"
20						35 Blows 10" sample Gray Coarse Saturated Sand.
21						20' Total Depth.
22						

ENVIROTECH INC.

FIELD BORING LOG

North side of Location PNM's Pit Area

TEST BORING No.	MONITOR WELL No.	PROJECT No.	PROJECT NAME:	SHEET:
SB 2		91364-21	Burlington Resources	OF: 1

MFG. DESIGNATION OF DRILL:	PROJECT LOCATION:
MoBile 61B	Hampton 4M

TYPE OF BIT:	SURFACE ELEVATION OF TB OR MW:	TOTAL DEPTH OF HOLE:
Hollow Stem Auger.		23'

DATE		DRILLING Co.:
STARTED:	10·8·98	Envirotech
COMPLETED:	10·8·98	

COMPLETION TYPE:	ENGINEER:	GROUNDWATER DEPTH	TIME
Back Filled - Native Soil	CREW: MC JD	Condensate @ 22'	

SURFACE CONDITIONS: Blade Well location - Fill over former Pit.

DIST FROM SURF.	SAMPLE TYPE	SAMPLE No.	OVM READ IN PPM	BLOWS PER 6 IN.	USCS	LOG OF MATERIAL/COMMENTS
						0 - 13.75 Backfill/overburden Coarse SAND. 12:00 Noon Surface
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						— VAPOR ODOR.
13.75			1086			50 3" @ 13.75 Medium to Coarse Mix Backfill Native Sand
Keep Sample			Overrange			50-8" To White LT. Tan w/ orange Med. to Coarse Sand (odor)
16			1294			50 Blows - 2" Tan to Lt. Green Medium grained Sand. (odor)
17			1020			50 Blows - 8" Variable Lt Tan; orange Black organics in Coarse to Sand Matrix. (Odor)
18			663'			50 Blows - 10" Med to coarse sand ltgrays, and orange, all Lt. Tan (Odor)
19			1728'			50 Blows 10" Med to Coarse LT Tans & Oranges (odor)
20			1416'			50 Blows 10" Med well Sorted LT Tans & orange (Odor Lite)
21			1196			50 Blows 6" Med grained Tan (Odor).
22		Sample.				50 Blows 6" Med grain Orange & Tan (Free Product? Core Barrel Coated.
23						50 Blows 5" Liquid Condensate Coarse Sand. Coated

ATTACHMENT #3

SUMMARY of ANALYTICAL RESULTS

Table 1: SUMMARY OF ANALYTICAL RESULTS

GROUNDWATER MONITORING DATA - collected by PNM, except as noted

Well		Date Sampled	GWEL (ft msl)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)	Total BTEX (ug/L)	Product Thickness (ft)
MW-1		12/30/97	6110.10	2.4	2.3	<0.2	1.1	5.8	--
Upgradient well		01/12/98	6107.47	4.3	3.3	0.2	1.0	8.8	--
MP =	6149.42	04/14/98	6107.52	1.0	1.3	<0.5	<0.5	2.3	--
		07/01/98	6107.13	1.3	1.0	<0.5	3.7	6.0	--
		10/05/98	6106.09	<1.0	<1.0	<1.0	<3.0	<6.0	--
		11/09/98	6107.40	NA	NA	NA	NA	NA	--
		01/27/99	6107.51	0.6	0.9	<0.5	<1.5	1.7	--
		05/05/99	6106.78	NA	NA	NA	NA	NA	--
		07/12/99	6106.55	1.1	0.5	<0.5	<0.5	1.6	--
		08/17/99	6106.47	NA	NA	NA	NA	NA	--
MW-2		12/16/96	NM	3840.0	7960.0	896.0	7920.0	20616.0	NM
PNM drip pit well		02/04/97	NC	NA	NA	NA	NA	NA	4.10
MP =	6122.23	08/27/97	NC	NA	NA	NA	NA	NA	4.75
		10/29/97	NC	NA	NA	NA	NA	NA	4.38
		01/12/98	NC	NA	NA	NA	NA	NA	4.41
		04/14/98	NC	NA	NA	NA	NA	NA	2.59
		07/01/98	NC	NA	NA	NA	NA	NA	2.25
		10/05/98	NC	NA	NA	NA	NA	NA	2.01
		11/09/98	NC	NA	NA	NA	NA	NA	2.15
MW-3		1/31/97	NM	<0.2	<0.2	<0.2	<0.2	<0.2	--
Up & cross-gradient fr. PNM		2/4/97	6101.05	NA	NA	NA	NA	NA	--
MP =	6121.43	5/5/97	NM	NA	NA	NA	NA	NA	--
	(Burlington)	10/29/97	6101.19	<0.2	<0.2	<0.2	<0.2	<0.2	--
		1/12/98	6101.11	<0.2	<0.2	<0.2	<0.2	<0.2	--
		4/14/98	6100.97	<0.5	<0.5	<0.5	<0.5	<0.5	--
		7/1/98	6101.14	0.03 JB	0.05 JB	<0.5	<0.5	0.08 JB	--
		10/5/98	6100.57	<1.0	<1.0	<1.0	<3.0	<6.0	--
		11/9/98	6100.69	<1.0	<1.0	<1.0	<3.0	<6.0	--
MW-4		1/31/97	NM	911.7	1420.5	91.0	389.1	2651.3	--
Upgradient PNM; downgradient Burlington		2/4/97	6106.15	NA	NA	NA	NA	NA	--
	(Burlington)	5/1/97	NM	1162.0	1797.0	41.0	486.0	3486.0	--
MP =	6120.105	8/27/97	6106.87	NA	NA	NA	NA	NA	--
		10/29/97	6106.73	NA	NA	NA	NA	NA	--
		1/12/98	6105.88	1251.0	5.0	82.0	24.0	1362.0	--
		4/14/98	6105.93	1100.0	7.2	28.0	12.0	1147.2	--
		7/1/98	6106.14	1400.0	50.0	120.0	124.0	1694.0	--
		10/5/98	NC	NA	NA	NA	NA	NA	0.63
		11/9/98	NC	NA	NA	NA	NA	NA	0.26
		1/27/99	NC	NA	NA	NA	NA	NA	0.40
MW-5		10/29/97	6075.23	5934.0	10024.0	709.0	8188.0	24855.0	--
Downgradient along wash		1/12/98	6075.09	7521.0	11213.0	779.0	8436.0	27949.0	--
MP =	6090.825	4/14/98	6075.33	7000.0	11000.0	720.0	7800.0	26520.0	--
		7/1/98	6075.48	6500.0	10000.0	780.0	7500.0	24780.0	--
		10/5/98	6074.48	6800.0	8400.0	740.0	6900.0	22840.0	--
		11/9/98	6074.89	6200.0	8200.0	670.0	6500.0	21570.0	--
		1/27/99	6074.87	6400.0	8900.0	660.0	6700.0	22360.0	--
		5/6/99	6075.25	6800.0	9800.0	900.0	7800.0	25300.0	--
	Burlington	5/26/99	NR	6600.0	10000.0	650.0	8100.0	25350.0	--
		7/12/99	6075.60	6300.0	10000.0	750.0	8300.0	25850.0	--
		8/17/99	6076.23	5400.0	9800.0	670.0	7500.0	23370.0	Sheen
MW-6		11/12/97	NC	NA	NA	NA	NA	NA	4.80
PNM drip pit/product recovery		1/12/98	NC	NA	NA	NA	NA	NA	4.71
MP =	6123.87	4/14/98	NM	NA	NA	NA	NA	NA	pumping
		7/1/98	NC	NA	NA	NA	NA	NA	pumping
		10/5/98	NC	NA	NA	NA	NA	NA	pumping
		11/9/98	NC	NA	NA	NA	NA	NA	2.27
MW-7		1/12/98	6047.12	780.0	246.0	258.0	3942.0	5226.0	--
Downgradient along wash; adj pipeline		04/14/98	6047.09	320.0	340.0	190.0	2450.0	3300.0	--
MP =	6066.93	07/01/98	6047.03	950.0	440.0	200.0	3020.0	4610.0	--
		10/05/98	6046.77	1600.0	930.0	180.0	1530.0	4240.0	--
		11/09/98	6046.77	1800.0	1000.0	160.0	1240.0	4200.0	--
		01/27/99	6046.77	2100.0	1000.0	160.0	1050.0	4310.0	--
		05/05/99	6046.44	210.0	2.9	30.0	147.0	389.9	--
	Burlington	05/25/99	NR	190.0	7.4	32.0	150.0	379.4	--
		7/12/99	6045.04	130.0	7.2	22.0	101.3	260.5	--
		8/17/99	6046.61	NA	NA	NA	NA	NA	--
MW-8		1/12/98	6104.71	5410.0	17301.0	593.0	9397.0	33801.0	Sheen
Upgradient PNM; downgradient Burlington		4/14/98	6104.41	NA	NA	NA	NA	NA	0.37
MP =	6122.971	7/1/98	6105.14	NA	NA	NA	NA	NA	0.37
		10/5/98	6104.54	NA	NA	NA	NA	NA	0.13
		11/9/98	6104.77	NA	NA	NA	NA	NA	0.02

Notes: J = Analyte detected below Practical Quantitation Limit NM = Not measured NC = Not Calculated (produ
B = Analyte detected in [illegible] associated Method Blank NA = Not Available

Table 1: SUMMARY OF ANALYTICAL RESULTS

Sample	Matrix	Date Sampled	GWEL (ft, msl)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)	Total BTEX (ppb)	Product Thickness (ft)
MW-9		7/1/98	6100.12	12.0	0.2	0.6	1.3	14.1	--
Upgradient PNM, crossgradient Burlington		10/5/98	6100.03	16.0	<1.0	1.1	2.1	19.2	--
MP = 6122.5		11/9/98	6100.40	12.0	<1.0	<1.0	<3.0	12.0	--
		1/27/99	6099.23	0.8	<0.5	<0.5	2.2	3.0	--
		5/5/99	6098.92	73.0	<0.5	2.2	1.6	76.8	--
		5/26/99	6100.07	120.0	<0.5	2.5	1.8	124.3	--
	Burlington	5/26/99	NR	120.0	<0.5	1.6	0.8	122.1	--
		7/12/99	6100.18	140.0	<0.5	1.5	<0.5	141.5	--
		8/17/99	6100.02	280.0	<0.5	0.6	<1.5	280.6	--
MW-10		7/1/98	NC	NA	NA	NA	NA	NA	2.00
Upgradient PNM, downgradient Burlington		10/5/98	NC	NA	NA	NA	NA	NA	1.91
MP = 6122.5		11/9/98	NC	NA	NA	NA	NA	NA	2.10
MW-11		1/27/99	5958.60	<0.5	2.5	0.7	13.1	16.3	--
Downgradient well - 1800', near road		5/5/99	5958.65	<0.5	<0.5	<0.5	<1.5	0.0	--
6015.75	Burlington	5/26/99	NR	0.8	1.7	<0.5	1.1	3.6	--
		7/12/99	5958.27	NA	NA	NA	NA	NA	--
		8/17/99	5958.62	NA	NA	NA	NA	NA	--
MW-12 (new source well @ MW-6)		5/5/99		790.0	840.0	280.0	2880.0	4770.0	--
SOIL sample TPH (ppm)	2350	5/5/99		1200	13000	5100	65000	87300.0	--
6105.92		5/26/99	6099.45	1900	820	200	1720	4640.0	Sheen
	Burlington	5/26/99		1800	640	160	1600	4200.0	--
		7/12/99	6099.63	4500	760	400	3100	8760.0	Sheen
	duplicate	7/12/99		4600	730	390	3080	8800.0	Sheen
		8/17/99	6100.56	4800	5000	320	3390	13510.0	Sheen
MW-13	6122.76	5/26/99	--	1800.0	25.0	12.0	35.3	1972.3	--
BROG well between pit & MW-4	Burlington	5/26/99	--	2100	22	8.8	29	2159.8	--
		7/12/99	6104.3	2100	14	8.9	10.9	2134.8	--
		8/17/99	6104.7	1900	<10	<10	<30	1900.0	--
TMP-1		11/11/97	NM	2171.0	4195.0	190.0	2856.0	9402.0	--
Temporary well: wash midway MW-5, MW-7		7/1/98	6057.61	2000.0	4300.0	180.0	2700.0	9180.0	-
MP = 6076.48		11/9/98	NM	960.0	1900.0	84.0	1540.0	4504.0	-
EB WELL		11/25/97	5959.74	<0.2	<0.2	<0.2	<0.2	<0.2	--
Downgradient private well									
MP = 6028.64									
Burlington Excavation	Surface Water	2/11/98	15'	1800	1700	<25	1420	4920	rainbow
	Surface Water	7/1/98	6106.26	10.0	0.4	0.1	1.5	12.0	rainbow
	Surface Water	11/9/98	NM	2.9	16.0	<1	18.1	37.0	--
	Soil - @ water	7/1/98	NM	36000.0	560000.0	100000.0	1430000.0	2126000.0	--
Hydrocarbon Seep	Surface Water	7/1/98	6098.72	1.8	0.7	0.8	0.36	3.66	rainbow
		4/14/99		40.0	2.2	2.1	19.00	63.30	rainbow

Burlington Temporary Monitoring Well Sampling

Sample	Matrix	Date Sampled	Depth (ft)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)	Total BTEX (ppb)	TPH (mg/Kg)
TPW-01	Water	6/5/97		20.0	<1	<1	<1	20.0	NA
	Soil		25-26'	<1	<1	<1	<1	<1	<10
TPW-02	Water	6/5/97	Product	NA	NA	NA	NA	NA	NA
	Soil		25-26'	2000.0	4600.0	14000.0	39000.0	59600.0	600.0
TPW-03	Water	6/5/97	Dry	NA	NA	NA	NA	NA	NA
	Soil	6/5/97	25-26	<1	<1	<1	<1	<1	25
TPW-04	Water	6/6/97		2000.0	3100.0	57.0	810.0	5967.0	NA
	Soil	6/6/97	20-21.5'	28.0	3.4	76.0	40.0	147.4	52
TPW-05	Water	6/6/97		5800.0	460.0	16000.0	7000.0	29260.0	NA
	Soil	6/6/97	15-16	4000.0	10000.0	4500.0	28000.0	46500.0	91
TPW-06	Water	6/6/97		1600.0	2400.0	48.0	690.0	5738.0	NA
	Soil	6/6/97	16-16.5'	<1	<1	2.8	4.8	7.6	11
TPW-07	Water	6/6/97		5300.0	18000.0	620.0	9300.0	33220.0	NA
	Soil	6/5/97	15-16'	7000.0	74000.0	20000.0	170000.0	271000.0	250

Burlington Profile Borings									
SB-1 (near BROG excavation)	Soil	10/6/98	15-16'	335	697	181	1808	3021	26.4
SB-2 (near PNM former pit)	Soil	10/8/98	15'	1950	9960	2460	22530	36960	194
PNM Test Holes along Wash									**PID (ppm)**
TH-1	Soil	11/11/97	12.7'	NA	NA	NA	NA	NA	1412
TH-2	Soil	11/11/97	14.4'	NA	NA	NA	NA	NA	1557
TH-3	Soil	11/11/97	15.5'	NA	NA	NA	NA	NA	0
TH-4	Soil	11/11/97	15'	NA	NA	NA	NA	NA	279
TH-5	Soil	11/11/97	14.5'	NA	NA	NA	NA	NA	1211
TH-6	Soil	11/11/97	16'	NA	NA	NA	NA	NA	0
TH-7 (temporary well)	Water	11/11/97	NA	2171.0	4185.0	190.0	2858.0	170000.0	279
TH-8	Soil	11/12/97	14'	NA	NA	NA	NA	NA	0

Notes: J = Analyte detected below Practical Quantitation Limit; B = Analyte detected in the associated Method Blank; NM = Not measured; NA = Not analyzed; NC = Not Calculated (produ

ATTACHMENT #4

FIELD BORING LOG
And
WELL INSTALLATION RECORD
MW-11

RECORD OF SUBSURFACE EXPLORATION

PHILIP SERVICES CORP.
[illegible] Monroe Road
[illegible], New Mexico 87401
[illegible] 1262 FAX (505) 326-2388

Borehole # BH-1
Well # MW-11
Page 1 of 1

Project Number 20484 Phase 1001
Project Name BR HAMPTON DRILL 98'
Project Location HAMPTON NM

Elevation
Borehole Location LTR: S. T. R:
GWL Depth 55'
Drilled By K. PADILLA
Well Logged By H. BRADBURY
Date Started 11/12/98
Date Completed 11/12/98

Drilling Method 4 1/4 ID HSA
Air Monitoring Method PID

Depth (Feet)	Sample Number	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: PPM BZ	BH	S/HS	Drilling Conditions & Blow Counts	
0										BZ=Breathing Zone BH=Borehole S/HS=Sample/Headspace	
5	1	5-7	24	LT BR silty SAND, FINE SAND, LOOSE, dry	SM		0	0	0/0	927 HRS	
10	2	10-12	24	LT BR silty SAND, FINE SAND, LOOSE, dry	SM		0	0	0/0	932 HRS.	
12	3	12-14	24	LT BR silty SAND. FINE SAND. LOOSE. dry	SM		0	0	0/0	938 HRS	
15	4	15-17	24	LT BR silty SAND FINE SAND LOOSE, dry	SM		0	0	0/0	944 HRS	
17	5	17-19	24	LT BR silty SAND, FINE SAND LOOSE dry	SM		0	0	0/0	949 HRS	
20	6	20-22	24	LT BR silty SAND, FINE SAND LOOSE dry	SM		0	0	0/0	955 HRS	
22	7	22-24	24	LT BR silty SAND FINE SAND, LOOSE, dry	SM		0	0	0/0	1002 HRS	
25	8	25-27	24	LT BR Silty SAND, FINE SAND TR COURSE SAND. ROCK, LOOSE dry	SM		0	0	0/0	1014 HRS	TRACE COBBLES PRESENT
27	9	27-29	24	LT BR silty SAND. FINE SAND TR COURSE SAND, HARD, dry	SM		0	0	0/0	1018 HRS	
30	10	30-32	24	LT BR silty SAND FINE SAND MED DENSE. dry	SM		0	0	0/0	1026 HRS	
32	11	32-34	24	LT BR silty SAND, FINE SAND DENSE dry	SM		0	0	0/0	1032 HRS	
35	12	35-37	24	LT BR silty SAND, FINE SAND, DENSE dry			0	0	0/0	1041 HRS	
40	13	40-42	24	LT BR Sandy CLAY, FINE SAND low plasticity, Stiff. dry			0	0	0/0	1055 HRS	

Comments:

Geologist Signature Holly Bradbury

8/18/98\Drillog

RECORD OF SUBSURFACE EXPLORATION

LF SERVICES CORP.
Monroe Road
, New Mexico 87401
1262 FAX (505) 325-2388

Borehole # BH-1
Well # MW-11
Page 2 of 2

Project Number 20484 Phase 1001
Project Name BR HAMPTON DRILL 98
Project Location HAMPTON 4M

Elevation
Borehole Location LTR: S: T: R:
W/L Depth 55'
Filled By K. PADILLA
Well Logged By H. BRADBURY
Date Started 11/12/98
Date Completed 11/12/98

Drilling Method 4 1/4 ID HSA
Air Monitoring Method PID

Depth (Feet)	Sample Number	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: PPM BZ	BH	S/HS	Drilling Conditions & Blow Counts
0										BZ=Breathing Zone BH=Borehole S/HS=Sample/Headspace
45	14	45-47	24	LT BR SANDY CLAY, FINE SAND, mod plastic, stiff, dry			0	0	0/0	1109 hrs
50	15	50-52	24	LT BR SANDY CLAY FINE SAND mod plastic, mod stiff, dry			0	0	0/0	1131 hrs
55							0	0		
60							0	0		
65							0	0		
70	~~70-72~~ 16	70-72	24	LT BR SAND, fine sand loose, moist			0	0	0/0	1247
35										
40										

Comments: STOPPED TAKING SPOON SAMPLES at 55'. STARTED SAMPLING AT 70'
Hit WATER AT 55' WELL WAS INSTALLED.

Geologist Signature Holly Bradbury

8/18/98\Drillog

MONITORING WELL INSTALLATION RECORD

Philip Environmental Services Corp.
1000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Borehole # 1 MW-11
Well #
Page 1 of 1

Project Name BR HAMPTON DRILL 98
Project Number 20484 Phase 1001
Project Location HAMPTON #4M

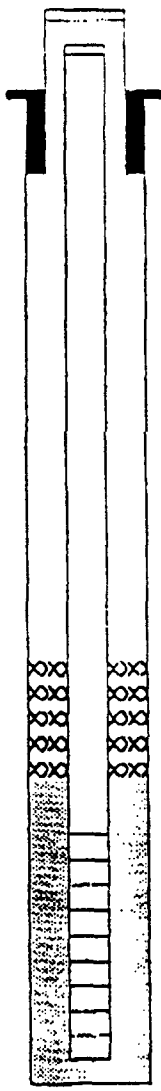
Elevation
Well Location
GWL Depth 55'
Installed By K. PADILLA

Date/Time Started 11/12/98 1415
Date/Time Completed 11/13/98

On-Site Geologist H. BRADBURY
Personnel On-Site A. WERITO
Contractors On-Site
Client Personnel On-Site

Depths in Reference to Ground Surface

Item	Material	Depth
Top of Protective Casing		
Bottom of Protective Casing		
Top of Permanent Borehole Casing		
Bottom of Permanent Borehole Casing		
Top of Concrete		0
Bottom of Concrete		0
Top of Grout		0'
Bottom of Grout		45'
Top of Well Riser		
Bottom of Well Riser		49'
Top of Well Screen		49'
Bottom of Well Screen	PVC	69'
Top of Peltonite Seal		45'
Bottom of Peltonite Seal		47'
Top of Gravel Pack		47'
Bottom of Gravel Pack		69'
Top of Natural Cave-In		
Bottom of Natural Cave-In		
Top of Groundwater		55'
Total Depth of Borehole		70'



Top of Protective Casing
Top of Riser
Ground Surface 0

Top of Seal 45'

Top of Gravel Pack 47'

Top of Screen 49'

Δ 55'

Bottom of Screen 69'
Bottom of Borehole 70

Comments: WELL SET AS flush mt w locking WELL VAULT & PADLOCK.

Geologist Signature H. Bradbury

ATTACHMENT #5

ANALYTICAL RESULTS of WATER SAMPLES OPEN EXCAVATION

iml

Inter·Mountain Laboratories, Inc.

Phone (505) 326-4737 Fax (505) 325-4182

2506 West Main Street, Farmington, NM 87401

Ed Hasely
Burlington Resources
3535 E. 30th St.
Farmington, NM 87402

February 3, 1999

Mr. Hasely:

Enclosed, please find the reports for the samples received by our laboratory for analysis on January 20, 1999.

If you have any questions about the results of these analyses, please don't hesitate to call me at your convenience.

Thanks for using IML for your analytical needs!

Sincerely,

Sharon Williams
Organics Lab Supervisor

Water samples from open excavation at Hampton 4M

41

Enclosure

xc: File

Inter-Mountain Laboratories, Inc.
Phone (505) 326-4737 Fax (505) 325-4182
2506 West Main Street, Farmington, NM 87401

BURLINGTON RESOURCES

Case Narrative

On January 20, 1999, two water samples were submitted to Inter-Mountain Labs - Farmington for analysis. The samples were received intact. Analyses for Benzene-Toluene-Ethylbenzene-Xylenes (BTEX) were performed on the samples as per the accompanying Chain of Custody document.

BTEX analysis on the samples were performed by EPA Method 5030, Purge and Trap, and EPA Method 8021, Aromatic Volatile Hydrocarbons, using an OI Analytical 4560 Purge and Trap and a Hewlett-Packard 5890 Gas Chromatograph, equipped with a photoionization detector. Detectable levels of BTEX analytes were found in the samples as indicated in the enclosed report.

It is the policy of this laboratory to employ, whenever possible, preparatory and analytical methods which have been approved by regulatory agencies. The methods used in the analyses of the samples reported herein are found in Test Methods for Evaluation of Solid Waste, SW-846, USEPA, 1986 and Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, USEPA, 1983.

Quality control reports appear at the end of the analytical package and may be identified by title. If there are any questions regarding the information presented in this package, please feel free to call at your convenience.

Sincerely,

Sharon Williams
Organic Lab Supervisor

Inter-Mountain Laboratories, Inc.
Phone (505) 326-4737 Fax (505) 325-4182
2506 West Main Street, Farmington, NM 87401

Client: Burlington Resources
Project: Hampton 4M
Sample ID: Hampton 4M #1
Lab ID: 0399W00448
Matrix: Water
Condition: Cool/Intact

Date Reported: 02/03/99
Date Sampled: 01/20/99
Date Received: 01/20/99
Date Analyzed: 02/02/99

Parameter	Analytical Result	PQL	Units
Benzene	2,460	1	µg/L
Toluene	4,315	1	µg/L
Ethylbenzene	472	1	µg/L
Xylenes (total)	4,830	2	µg/L

Quality Control - Surrogate Recovery	%	QC Limits
a,a,a-Trifluorotoluene (SUR-8021)	92	70 - 130

Reference: Method 8021, Volatile Organic Compounds, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, United States Environmental Protection Agency, SW-846, Volume IB, December 1987.

Reviewed By: S. Williams
Sharon Willams, Organic Lab Supervisor

Inter-Mountain Laboratories, Inc.
Phone (505) 326-4737 Fax (505) 325-4182
2506 West Main Street, Farmington, NM 87401

Client: Burlington Resources
Project: Hampton 4M
Sample ID: Hampton 4M #2
Lab ID: 0399W00449
Matrix: Water
Condition: Cool/Intact

Date Reported: 02/03/99
Date Sampled: 01/20/99
Date Received: 01/20/99
Date Analyzed: 02/02/99

Parameter	Analytical Result	PQL	Units
Benzene	3,718	1	µg/L
Toluene	5,682	1	µg/L
Ethylbenzene	1,437	1	µg/L
Xylenes (total)	7,030	2	µg/L

Quality Control - Surrogate Recovery	%	QC Limits
a,a,a-Trifluorotoluene (SUR-8021)	84	70 - 130

Reference: Method 8021, Volatile Organic Compounds, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, United States Environmental Protection Agency, SW-846, Volume IB, December 1987.

Reviewed By: S. Williams
Sharon Willams, Organic Lab Supervisor

Inter- Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	ANALYSES / PARAMETERS
Burlington Resources	Hampton 4M	
Sampler: (Signature) E J Hawley	**Chain of Custody Tape No.**	**Remarks**

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	BTEX				
Hampton 4M #1	1/20	9:30		Water	2	X				
Hampton 4M #2	1/20	9:35		Water	2	X				

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
E J Hawley	1/20	10:30			
Relinquished by: (Signature)	**Date**	**Time**	**Received by: (Signature)**	**Date**	**Time**
Relinquished by: (Signature)	**Date**	**Time**	**Received by laboratory: (Signature)**	**Date**	**Time**
				1/24/99	10:-

Inter-Mountain Laboratories, Inc.

☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945

☐ 1701 Phillips Circle, Gillette, Wyoming 82716, Telephone (307) 682-8945

☒ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737

☐ 1160 Research Drive, Bozeman, Montana 59718, Telephone (406) 586-8450

☐ Route 3, Box 256, College Station, TX 77845, Telephone (409) 776-8945

01-5095

Sheridan, WY -- Gillette, WY -- Farmington, NM -- College Station, TX -- Bozeman, MT

***** PACKING SLIP ***** 9 PAGE: 1

INTER-MOUNTAIN LABORATORIES, INC.
P.O. BOX 4006
SHERIDAN, WY

(307) 674-7506

INVOICE NUMBER: 9
INVOICE DATE: 02/04/99
LAB LOCATION: 0003
2506 West Main Street
Farmington, NM 87401

Burlington Resources
3535 E. 30th St. 87402-8801
P.O. Box 4289
Farmington NM 87499-4289

CUSTOMER NO: 030000813 IN
Customer P.O. :

TERMS: NET 30
Attn: Ed Hasely:

SALES CD	DESCRIPTION	QUANTITY	PRICE	AMOUNT
	COC#01-50956, Hampton 4M Rcd:01/20/99 Lab#0399 W0448-49 PS#0009			
301500	BETX-Water	2.00	90.00	180.00
900060	Sales Tax 6%	1.00	10.69	10.69

Balances past due are subject to a late payment charge of 1.5% or $2.00 minimum per month.

NET INVOICE: 190.69

RInvoice.frx 950130

ATTACHMENT #6

PHILIP SERVICES WORK REPORT

Copy. Bruce Gantner
John Bemis

PHILIP SERVICES

Industrial Services Group
Central Region

March 3, 1999 Project 20477

Mr. Ed Hasely
Burlington Resources
PO Box 4289
Farmington, NM 87499-4289

RE: Report for work performed at the Hampton #4M Well Site

Dear Mr. Hasely:

Philip Services Corporation (Philip) is pleased to submit to Burlington Resources Oil & Gas Company (Burlington) this report for work performed at the Hampton #4M well site on November 10, 1998 through February 2, 1999.

Philip appreciates the opportunity to provide Burlington with professional services and looks forward to providing additional services in the future. If you have any questions or require additional information, please contact Robert Thompson or Martin Nee at (505) 326-2262.

Respectfully submitted,
PHILIP SERVICES CORPORATION

Robert Thompson
Project Manager

Attachments – As stated

PHILIP SERVICES CORP
Industrial Services Group
Central Region

March 3. 1999 Project 20477

RE: Report for Work Performed at the Hampton #4M Well Site

On November 10, 1998 through February 2, 1999 Philip Services Corporation (Philip) initiated field work at the Hampton #4M well site for Burlington Resources Oil & Gas Company (Burlington). The Scope of Work was to delineate, excavate and remediate hydrocarbon-impacted soils at the site.

SCOPE OF WORK

On November 10, 1998 Philip mobilized to the Hampton #4M well site to begin excavation activities. Burlington contracted the services of Rosenbaum Construction to supply a dozer and operator to excavate the site. Excavation activities began at approximately 8:30 a.m. on the northern portion of the location in the area of Public Service Company of New Mexico's (PNM) former pit. Brush was cleared from an area on the west side of the location to make room for overburden to be stockpiled as it was removed from the area being excavated. Overburden was removed throughout the day and stockpiled. Traces of hydrocarbon impacted soil were encountered from approximately 6 feet below ground surface (bgs) to approximately 12 feet bgs. Heavier amounts of hydrocarbon impacted soil were encountered beyond 12 feet bgs. Heated headspace analyses were performed in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines; the results are recorded in Attachment A listed as Table 1 and the sample locations are plotted in Attachment B on a Plan View diagram. Visitors throughout the day included Ed Hasely and Johnny Ellis with Burlington; Ron Dedrick, Maureen Gannon and Mark Sikelianos with PNM; Robert Foley with Williams Field Services (Williams) and; Denny Foust and Bruce Martin with the NMOCD.

Excavation activities continued on November 11, 1998 through November 17, 1998. Efforts concentrated on excavating impacted soils from the northern section of the well pad in the area of PNM's former pit. Excavation proceeded to approximately 27 feet bgs in this area. Water was encountered at approximately 25 feet bgs. Soil samples were collected for heated headspace analysis throughout the excavation process; the results are recorded in Table 1 and the sample locations are plotted on the Plan View Diagram. A soil sample was also obtained from a natural seep northwest of the well pad and the results are recorded in the above mentioned attachments.

Soil samples collected were sent to Southern Petroleum Laboratories, Inc. located in Farmington. NM and analyzed for Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) using U.S. Environmental Protection Agency (USEPA) method 8020 and Total Petroleum Hydrocarbons using U.S. EPA method 8015 modified.

Three cells were constructed using clean overburden in the bottom of the excavation. The cells were constructed from east to west to observe groundwater entering the different areas of the excavation. The project was temporarily shut down after November 17, 1998 so that the cells could be monitored. The cells were checked periodically by Burlington and then pumped out by Dawn Trucking using a vacuum truck and hauled off to Burlington's McGrath disposal well. Visual observation of the cells indicated that there was free phase hydrocarbons on the surface of the water in the east portion of the excavation. The center and western portions revealed no free phase hydrocarbons.

Excavation activities resumed on November 30, 1998 and continued through December 4, 1998. A trackhoe was used in place of a dozer during this phase of the project. Philip continued to excavate impacted soils from the north portion of the location. The remediation process was concentrated on impacted soils in the northern and western walls to complete the excavation work in these areas. Emphasis was then directed to following the plume of impacted soils into the eastern wall and removing the impacted soils from this area.

Approximately 77 cubic yards of additional material were also excavated from the northern wall of Burlington's former pit that was previously excavated and left open in December 1997. At this time the project was temporarily shut down at Burlington's request while pursuing approval to landfarm on nearby locations.

On January 21, 1999 the excavation activities resumed, using the dozer. The dozer and operator were provided to Burlington, this time, by Aztec Excavation. Excavation activities continued through February 2, 1999. The removal of impacted soils continued by following the plume of impacted soils into the access road to the location east of the former excavation and south toward Burlington's former pit excavation. As the excavation of impacted soils proceeded south toward Burlington's old excavation, the impacted soils ended. There was no connection of impacted soil from Burlington's old excavation in the south to the impacted soil that was being excavated in the north. The excavation also included stripping out a section of the location between the wellhead and the former excavation to determine if there was a connection of impacted soils between the two locations. The soil in the stripped out section between the wellhead and former excavation showed no signs of impacted soil, therefore eliminating concern for the well bore as a possible source.

On February 2, 1999, the last day of the excavation process, MW-4 was exposed from ground surface to the bottom of the well without disturbing the well components. This was done to examine the layers of soil across MW-4 to see the extent of the impacted soil effecting this well. Sampling the soil around this well showed that there was a band of impacted soil approximately 5" thick between 16.5 feet and 17 feet bgs to the north of MW-4. Soils were clean to the south of MW-4. The monitor well was then removed and the band of impacted soil observed was excavated. The above mentioned activities was the extent of Philip's involvement in the project.

SUMMARY

Various soil samples and heated headspace analyses were collected throughout the excavation process. The sample analyses results are recorded in Table 1 and the sample locations are plotted on the Plan View Diagram. This report is based solely upon field notes received from Philip's supervisor on site during the excavation process.

Respectfully submitted,
PHILIP SERVICES CORPORATION

Robert Thompson
Project Manager

J:\20477\hamprprt.doc

Attachment A

Table 1

TABLE 1
SOIL SAMPLE ANALYSES

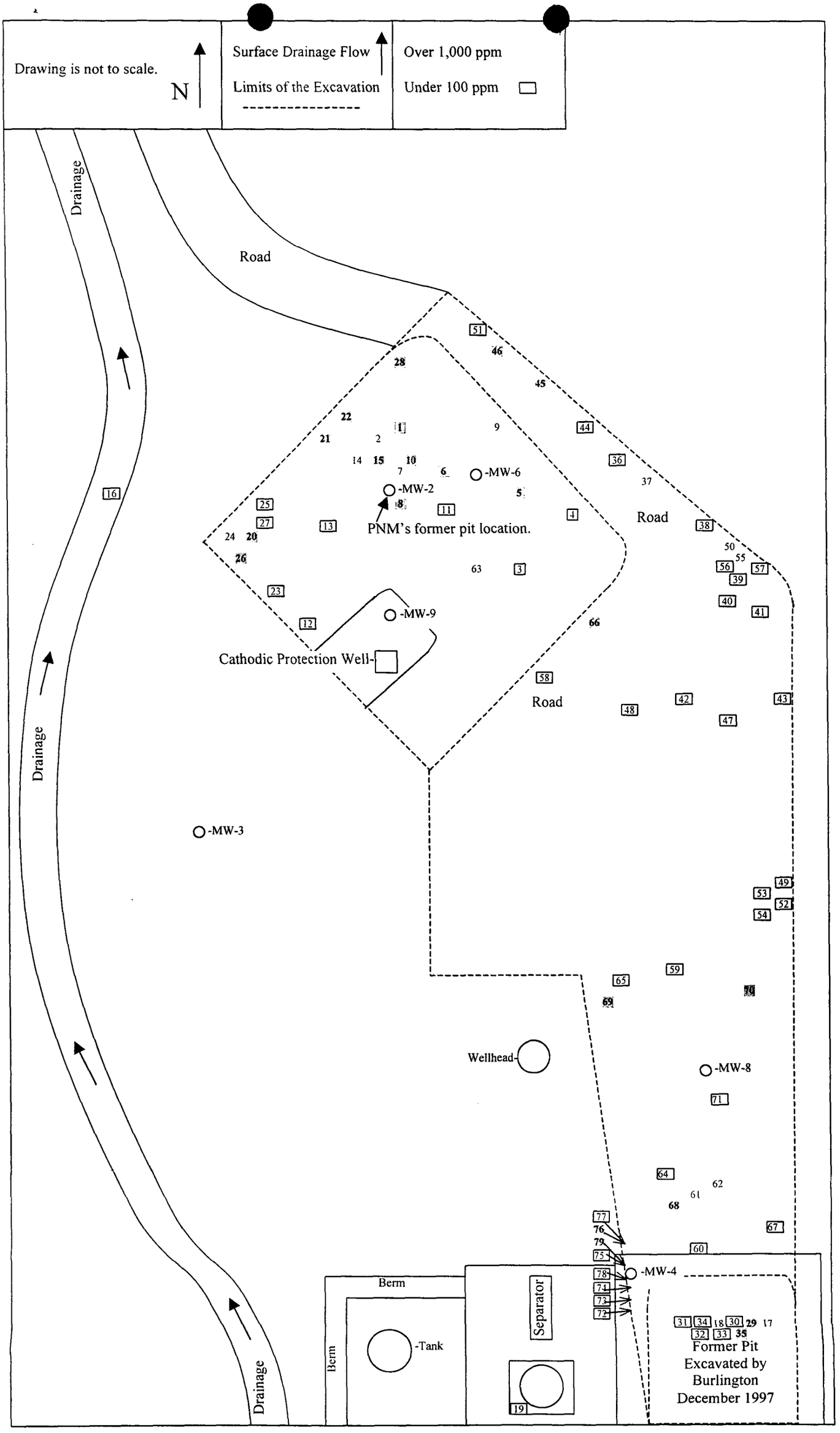
NUMBER	DATE	SAMPLE TYPE	APPROXIMATE DEPTH	RESULT
1	11/10/98	Heated Headspace	10 feet	1,677 ppm
2	11/10/98	Heated Headspace	12 feet	561 ppm
3	11/11/98	Heated Headspace	7 feet	19.5 ppm
4	11/11/98	Heated Headspace	16 feet	96.8 ppm
5	11/11/98	Soil Sample	18 feet	BTEX – 102.4 ppm TPH – 2,510 ppm
6	11/12/98	Soil Sample	21 feet	BTEX – 412 ppm TPH – 4,300 ppm
7	11/13/98	Heated Headspace	25 feet	431 ppm
8	11/13/98	Heated Headspace	25 feet	3,000 ppm
9	11/13/98	Heated Headspace	25 feet	101 ppm
10	11/13/98	Heated Headspace	24 feet	> 3,000 ppm
11	11/13/98	Heated Headspace	22 feet	18.4 ppm
12	11/16/98	Heated Headspace	25 feet	21.5 ppm
13	11/16/98	Heated Headspace	23.5 feet	9.8 ppm
14	11/16/98	Heated Headspace	25 feet	207 ppm
15	11/16/98	Heated Headspace	25 feet	2,696 ppm
16	11/17/98	Soil Sample	Ground Surface	BTEX – 11.92 ppm TPH – 40 ppm
17	11/30/98	Heated Headspace	16.7 feet	794 ppm
18	11/30/98	Heated Headspace	16.7 feet	196 ppm
19	11/30/98	Heated Headspace	1 foot	19.4 ppm
20	11/30/98	Heated Headspace	23 feet	2,999 ppm
21	11/30/98	Heated Headspace	20 feet	1,946 ppm
22	11/30/98	Heated Headspace	22 feet	2,983 ppm
23	11/30/98	Heated Headspace	20 feet	6.9 ppm

24	12/01/98	Heated Headspace	22 feet	316 ppm
25	12/01/98	Heated Headspace	24 feet	3.5 ppm
26	12/01/98	Heated Headspace	24 feet	2,541 ppm
27	12/01/98	Heated Headspace	28 feet	7.8 ppm
28	12/01/98	Heated Headspace	24 feet	2,007 ppm
29	12/03/98	Heated Headspace	16.4 feet	2,999 ppm
30	12/03/98	Heated Headspace	13.9 feet	90.3 ppm
31	12/03/98	Heated Headspace	13 feet	9.2 ppm
32	12/03/98	Heated Headspace	13.9 feet	16.5 ppm
33	12/03/98	Heated Headspace	18 feet	35.3 ppm
34	12/03/98	Heated Headspace	14.7 feet	7.9 ppm
35	12/03/98	Heated Headspace	17 feet	1,825 ppm
36	01/21/99	Heated Headspace	6 feet	13.5 ppm
37	01/22/99	Heated Headspace	18 feet	883 ppm
38	01/22/99	Heated Headspace	12 feet	19.1 ppm
39	01/22/99	Heated Headspace	10 feet	15 ppm
40	01/22/99	Heated Headspace	18 feet	70.4 ppm
41	01/22/99	Heated Headspace	18 feet	45.5 ppm
42	01/22/99	Heated Headspace	18 feet	60.1 ppm
43	01/22/99	Heated Headspace	18 feet	9 ppm
44	01/22/99	Heated Headspace	22 feet	38.8 ppm
45	01/22/99	Heated Headspace	20 feet	2,999 ppm
46	01/22/99	Heated Headspace	20 feet	2,999 ppm
47	01/25/99	Heated Headspace	15 feet	9.7 ppm
48	01/25/99	Heated Headspace	15 feet	8.6 ppm
49	01/25/99	Heated Headspace	18 feet	27.9 ppm
50	01/25/99	Heated Headspace	18 feet	714 ppm
51	01/25/99	Heated Headspace	18 feet	20.9 ppm
52	01/25/99	Heated Headspace	20 feet	40 ppm
53	01/25/99	Heated Headspace	15 feet	38.7 ppm
54	01/25/99	Heated Headspace	6 feet	21.1 ppm

55	01/25/99	Heated Headspace	22 feet	792 ppm
56	01/25/99	Heated Headspace	15 feet	25 ppm
57	01/25/99	Heated Headspace	5 feet	19.6 ppm
58	01/26/99	Heated Headspace	5 feet	12.7 ppm
59	01/26/99	Heated Headspace	12 feet	16.7 ppm
60	01/26/99	Heated Headspace	15 feet	13.9 ppm
61	01/26/99	Heated Headspace	18 feet	167 ppm
62	01/26/99	Heated Headspace	22 feet	452 ppm
63	01/26/99	Heated Headspace	23 feet	385 ppm
64	01/26/99	Heated Headspace	15.4 feet	27 ppm
65	01/26/99	Heated Headspace	17.1 feet	58.3 ppm
66	01/26/99	Heated Headspace	24 feet	2,999 ppm
67	01/27/99	Heated Headspace	15 feet	38.9 ppm
68	01/27/99	Heated Headspace	16.6 feet	2,999 ppm
69	01/27/99	Heated Headspace	21 feet	2,999 ppm
70	01/27/999	Heated Headspace	20 feet	1,121 ppm
71	01/27/99	Heated Headspace	20.6 feet	75.5 ppm
72	02/02/99	Heated Headspace	17 feet	14.5 ppm
73	02/02/99	Heated Headspace	15 feet	18.2 ppm
74	02/02/99	Heated Headspace	15.6 feet	22.8 ppm
75	02/02/99	Heated Headspace	15.4 feet	88.4 ppm
76	02/02/99	Heated Headspace	16.4 feet	2,999 ppm
77	02/02/99	Heated Headspace	18.5 feet	32.6 ppm
78	02/02/99	Heated Headspace	20 feet	43.6 ppm
79	02/02/99	Heated Headspace	17 feet	2,999 ppm

Attachment B

Plan View Diagram


Drawing is not to scale.
N
Surface Drainage Flow
Limits of the Excavation
Over 1,000 ppm
Under 100 ppm
Drainage
Road
-MW-6
-MW-2
PNM's former pit location.
Road
-MW-9
Cathodic Protection Well-
Road
-MW-3
Drainage
Wellhead-
-MW-8
-MW-4
Berm
Separator
Berm
-Tank
Drainage
Former Pit
Excavated by
Burlington
December 1997

ATTACHMENT #7

TIERRA REPORT ON OXY-1 APPLICATION

TIERRA ENVIRONMENTAL COMPANY INC.

PHONE: (505) 334-8894
FAX: (505) 334-9024

P.O. DRAWER 15250
FARMINGTON, NM 87401

E-mail Address: teci@cyberport.com

February 2, 1999

Ed Hasley
Burlington Resources
3535 East 30th Street
Farmington, New Mexico 87401

RE: OXY-1 APPLICATION TO THE HAMPTON #4M LOCATION

Mr. Hasley,

After our phone conversation concerning Oxy-1 application to the Hampton #4m location, I proceeded to the location and surveyed the excavation to estimate quantity and plan the most effective use of our product.

Upon arrival I talked briefly with the site supervisor from Philip Services and he explained the extent and concentration of contamination to me. The highest concentration of contamination seemed to be at the north and ~~northwest~~ east end of the excavation. The surface area and depth to groundwater indicated that approximately 20 bbls. of product would sufficiently treat this area. In the ~~northwest~~ east corner there was a significantly higher concentration of contamination and would need additional attention.

Upon the arrival of you and Johnny Ellis, I made the recommendation that the north end of the excavation be treated with 20 bbls. of Oxy-1, and that ideally, groundwater should be exposed upgradient and an additional 40 to 60 bbls. be applied there. By treating the groundwater upgradient, the product would flush though the contamination neutralizing contamination in the groundwater.

It was decided by Johnny Ellis, that the 20 bbls. would be applied to the surface of the north end and that an additional amount be applied to the ~~northwest~~ east corner at the points of highest concentration. These areas were to be bermed by the dozer that was on location, and then treated with an additional <u>few</u> bbls. of Oxy-1.

While you were still on location, another point of considerable concentration was discovered along the west side of the excavation. This was to be treated also. I ordered 30 bbls. total of Oxy-1 to be on location at approximately 11:30 am.

Feb 1, 1999

The Ladd water truck arrived at 11:45 am and treatment of the north end surface commenced. 23 bbls. were used on this surface area. The dozer then began berming two points along the northeast corner. Upon completion of the berms, we treated the two points with the remaining 7 bbls. of product. Operations were complete at 1:00 p.m.

If you have any questions or require any additional information, please call me, 334-8894.

Sincerely,

Tim Nobis
Operations Manager

ATTACHMENT #8

FIELD BORING LOG
And
WELL INSTALLATION RECORD
MW-13

Barrington well

RECORD OF SUBSURFACE EXPLORATION

Borehole # 13
Well # MW-13
Page 1 of 1

Philip Environmental Services Corp.
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Project Name Hampton
Project Number Phase
Project Location Hampton - Hare location

Elevation
Borehole Location
GWL Depth 19'
Logged By P. Cheney
Drilled By K. Padilla
Date/Time Started 5/19
Date/Time Completed 5/19/99

Well Logged By P. Cheney
Personnel On-Site P. Cheney, K. Padilla, D. Padilla
Contractors On-Site
Client Personnel On-Site Ed Vasely

Drilling Method 4 1/4" HSA
Air Monitoring Method PID

Depth (Feet)	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: NDU BZ	BH	S	Drilling Conditions & Blow Counts
0									
5	5 – 7	24"	yellowish brown, medium grained well sorted sand (Fill)			2.0	0.0	3.7	BC = 4 S/15 = 1.1
10	10 – 12	24"	Fill (same as 5'-7')			0.7	0.0	2.5	BC = 4 S/15 = 5.9
15	15 – 17	18"	very light gray, medium grained, well sorted sand w/ limonite staining			0.4		2.9	BC = 19 S/15 = 2.6
20	20 – 22	6"	gray, medium grained, poorly sorted sand w/ pea gravel. Last 2" in spoon was a gray sandy clay			0.4		0.7	BC = 50 (6") S/15 = 10.8
25	25 – 27		gray clayey sand, very hard, dry						
30			TD = 25'						
35									
40									

Comments:

Geologist Signature

MONITORING WELL INSTALLATION RECORD

Philip Environmental Services Corp.
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Borehole # 13
Well # mw-13 (Burlington)
Page 1 of 1

Project Name Burlington Drilling
Project Number 21057 Phase 1000.99
Project Location Hampton

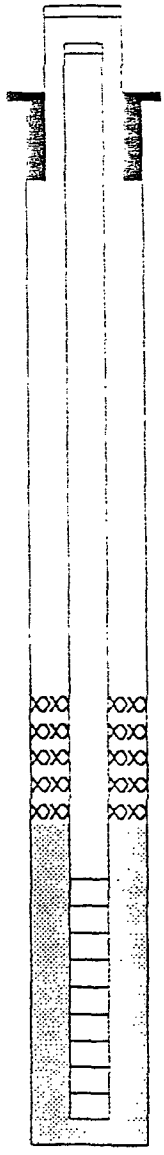
Elevation
Well Location Hampton
GWL Depth 19'
Installed By K. Padilla

Date/Time Started 5/19
Date/Time Completed 5/19

On-Site Geologist P. Cheney
Personnel On-Site P. Cheney, K. Padilla, E. Padilla
Contractors On-Site
Client Personnel On-Site Ed. Riley

Depths in Reference to Ground Surface

Item	Material	Depth
Top of Protective Casing		
Bottom of Protective Casing		
Top of Permanent Borehole Casing		
Bottom of Permanent Borehole Casing		
Top of Concrete		
Bottom of Concrete		
Top of Grout		
Bottom of Grout		
Top of Well Riser		Ground Surface
Bottom of Well Riser		15'
Top of Well Screen		15'
Bottom of Well Screen		25'
Top of Peltonite Seal		11'
Bottom of Peltonite Seal		13'
Top of Gravel Pack		13'
Bottom of Gravel Pack		25'
Top of Natural Cave-In		N.A.
Bottom of Natural Cave-In		N.A
Top of Groundwater		19'
Total Depth of Borehole		25



Top of Protective Casing
Top of Riser
Ground Surface
Top of Seal 11'
Top of Gravel Pack 13'
Top of Screen 15'
Bottom of Screen 25'
Bottom of Borehole 25'

Comments: TD = 25' set 10' screen (2") from 25'-15' silica sand to 13', bentonite to 11'

Geologist Signature

THE LAW FIRM OF
KELEHER
&McLEOD
A PROFESSIONAL ASSOCIATION

Richard L. Alvidrez
Attorney at Law
Direct Dial: 505-346-9150
E-mail: rla@keleher-law.com

August 22, 1999

William Carr, Esq.
Campbell, Carr, Berg & Sheridan, P.A.
PO Box 2208
Santa Fe NM 87504-2208

Re: Public Service Company of New Mexico On-Site Remediation Operations on Burlington Resources Oil and Gas Company Well Sites.

Dear Mr. Carr:

This letter is in response to yours of August 12, 1999 requesting the identification of any authority to allow Public Service Company of New Mexico ("PNM") to use leasehold surface acreage at Burlington operated sites to conduct land farm operations.

As indicated in my letter to you of July 20, 1999, PNM has been conducting its remediation activities, including onsite land farming, at various well sites in the San Juan Basin pursuant to its approved Pit Remediation Plan ("Plan"). As you are aware, PNM's Plan has been approved by both the New Mexico Oil Conservation Division ("OCD") as well as the Bureau of Land Management ("BLM"). This approved Plan forms the basis for PNM's authority to conduct onsite land farming activities at sites operated by Burlington as well as others

The majority of sites that have been remediated this season by PNM and that have active land farm operations are on federal leases. This includes the majority of Burlington operated sites. PNM has authority to conduct land farm operations as a part of its remediation at federally managed sites as evidenced by the enclosed letter to Denver Bearden, formerly of PNM, from Mike Poole, District Manager for the BLM. Please note, the third paragraph of the BLM letter states:

> For all other pit remediation work on federal leases within the Farmington District of the San Juan Basin, remediation work may proceed upon approval of the pit remediation plan and concurrence of the Environmental Section of the New Mexico State Oil Conservation Division, or other approving agency.

The enclosed letter from the BLM constitutes express authority for PNM to conduct its remediation, including land farming activities, on federal lease sites managed by the BLM. There is no exclusion for federal sites where Burlington has operations. In fact, you will note that the letter quoted above involved a Burlington Resources site.

W. A. Keleher *(1886-1972)*
A.H. McLeod *(1902-1976)*

Mailing Address
PO Drawer AA
Albuquerque NM 87103

Main Phone
505-346-4646

Street Address
Albuquerque Plaza
201 Third NW, 12th floor
Albuquerque NM 87102
Fax: 505-346-1370

414 Silver SW, 12th floor
Albuquerque NM 87102
Fax: 505-346-1345

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There are a limited number of non-federal sites where PNM is conducting land farm activities as a part of its approved remediation Plan, and where Burlington serves as operator. If there are any non-federal lease sites which Burlington has concerns about with respect to PNM land farming operations, please provide us with a list of specific sites of concern, together with documentation of the authority which Burlington believes it has to preclude PNM's access to conduct land farming activities at those sites.

In reviewing this matter, we are prompted to ask by what authority Burlington is asserting its right to halt PNM from conducting on-site land farming, activities, particularly with respect to federal leased land. Although Burlington may have the right to conduct gas production activities on federal leased land, we are not aware of any authority which grants Burlington exclusive surface rights over these properties. If such authority exists, we once again request that Burlington provide us with the documentation granting Burlington's exclusive rights to the surface and Burlington's ability to exclude other lawful users.

As indicated in prior correspondence and in telephone conversations, PNM is very disappointed with Burlington's attempt to unnecessarily complicate PNM's pit remediation progress by prohibiting PNM's access to complete its remediation activities through on-site land farming. When conducting land farming activities, PNM field personnel have always willingly accommodated specific needs related to egress and operational concerns that Burlington's field representatives have had at individual sites; therefore, it is incomprehensible why Burlington chooses to act in this manner. Burlington's actions will only serve to increase the costs of remediation and enhance the potential for environmental degradation with no other purpose than to inflict unnecessary expense upon PNM. We further view these actions by Burlington as an assertion of complete control over these sites and the contaminants that may be at these sites. Burlington's actions constitute an admission of Burlington's own control over these sites as a whole, over the contamination present at these sites, and of Burlington's sole responsibility for clean-up at these sites.

We trust that the enclosed letter addresses your question as to our right of access to conduct remediation activities, including onsite land farming, on federal leased land. We await documentation of Burlington's asserted right to attempt to order PNM to cease land farming activities at these sites.

Should you have any questions, please do not hesitate to call.

Very truly yours,

KELEHER & McLEOD, P.A.

By: _____
Richard L. Alvidrez

RLA:dm:dam0391

cc Rand Carroll-OCD
William Olson
Roger Anderson

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Farmington District Office
1235 La Plata Highway
Farmington, New Mexico 87401

IN REPLY REFER TO:
3160 (07600)
NM 077056

Mr. Denver Bearden
Public Service Company of New Mexico
PNM Gas Services
603 W. Elm Street
Farmington, New Mexico 87401

Dear Mr. Bearden:

This letter is to serve as written confirmation for Public Service Company of New Mexico, PNM Gas Services to conduct soil remediation on contaminated soils on the 1 Cozzens "B" located 1660' FSL, 990' FWL, and the 1-E Cozzens 'B', 1620' FSL and 1525' FEL; both located in section 19, T.29N., R.11 W., NMPM., lease number NM 077056.

All work should follow your approved pit remediation plan and any instructions from the Environmental Section of the New Mexico State Oil Conservation Division. Remediation of ground water contamination will be under the primacy of the Environmental Section of the New Mexico State Oil Conservation Division.

* For all other pit remediation work on federal leases within the Farmington District of the San Juan Basin, soil remediation work may proceed upon approval of a pit remediation plan and concurrence of the Environmental Section of the New Mexico State Oil Conservation Division, or other approving agency.

If you have any questions, please contact Ilyse Gold at (505) 599-6330.

Sincerely,

Mike Pool
District Manager

cc: Meridian Oil
Williams Field Services
NMOCD

THE LAW FIRM OF
KELEHER
&McLEOD
A PROFESSIONAL ASSOCIATION

July 20, 1999

COPY

FAX (505) 983-6043

William F. Carr
Campbell, Carr, Berge & Sheridan, P.A.
P.O. Box 2208
Suite 1-110 North Guadalupe
Santa Fe, New Mexico 87504-4421

Re: ***Public Service Company of New Mexico on site land farm operations on Burlington Resources Oil and Gas well sites***

Dear Mr. Carr:

This letter is in response to your letter to me of July 16, 1999 concerning PNM's ongoing practice of landfarming soils on Burlington Resources leasehold sites. We are very surprised at this most recent development and can only regard it as a form of retribution for PNM's appeal in Case 12033 before the New Mexico Oil Conservation Commission.

As you know, PNM has been landfarming soils at various sites, including sites operated by Burlington Resources, for a number of years now. On-site landfarming has been expressly approved by the New Mexico Oil Conservation Division ("OCD') through their approval of PNM's Pit remediation program. This process has been efficient and cost effective and has been carried out without incident.

PNM has alerted the OCD to Burlington's recent position prohibiting PNM from conducting on-site landfarming at Burlington operated sites. The OCD informs us that before PNM's current practice of onsite landfarming can be altered or discontinued, PNM will need to seek a variance from or modification to its approved Pit Remediation Plan from the OCD and the Bureau of Land Management ("BLM"). Therefore, before we can take any action to address Burlington's directive, we will need time to develop a variance or modification to our plan and to submit and obtain approval for such a variance or modification. We will advise Burlington Resources of a time schedule of when we believe this approval can be obtained once we have received further direction from the OCD and BLM.

W. A. Keleher *(1886-1972)*
A.H. McLeod *(1902-1976)*

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We are very disappointed in Burlington's recent decision not to allow PNM to conduct on site landfarming. Despite assurances in your letter to the contrary, we can only regard this as an attempt to impede PNM's remediation efforts and to cause PNM to incur additional unnecessary costs. PNM will certainly make note of this fact in any future action for cost recovery.

If you have any questions concerning the foregoing, or disagree with the process outlined above, please advise us at once.

Very truly yours,

KELEHER & MCLEOD, PA

By: RICHARD L. ALVIDREZ

cc: William Olson, OCD
Roger Anderson, OCD

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

May 5, 1999

Mr. Ed Hasely
Burlington Resources
P.O. Box 4289
Farmington, New Mexico 87499-4289

RE: GROUND WATER ANALYSES
HAMPTON 4M WELL SITE

Dear Mr. Hasely:

On April 14, 1999, the New Mexico Oil Conservation Division (OCD) met with you at the Burlington Resources (BR) Hampton 4M well site near Aztec, New Mexico to review the recent remedial actions taken at the site. After you left, the OCD inspected the ground water seep on the west side of the well pad and observed a sheen on the water. Subsequently, the OCD obtained a sample of the water. The analyses show that benzene is present in the seep ground water at concentrations in excess of New Mexico Water Quality Control Commission ground water standards. Enclosed you will find copies of the analyses for your information.

If you have any questions or comments, please call me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrologist
Environmental Bureau

xc w/enclosure: Denny Foust, OCD Aztec District Office
Maureen Gannon, PNM
J. Burton Everett

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

Pinnacle Lab ID number **904068**
April 20, 1999

NMOCD
2040 S. PACHECO
SANTA FE, NM 87505

Project Name HAMPTON 4M
Project Number (none)

Attention: BILL OLSON

On 4/15/99 Pinnacle Laboratories, Inc. Inc., (ADHS License No. AZ0592), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

If you have any questions or comments, please do not hesitate to contact us at (505)344-3777.

Kimberly D. McNeill
Project Manager

H. Mitchell Rubenstein, Ph. D.
General Manager

MR: mt

Enclosure

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

CLIENT	: NMOCD	PINNACLE ID	: 904068
PROJECT #	: (none)	DATE RECEIVED	: 4/15/99
PROJECT NAME	: HAMPTON 4M	REPORT DATE	: 4/20/99

PIN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	9904141130 (SEEP)	AQUEOUS	4/14/99
02	TRIP BLANK	AQUEOUS	4/13/99

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS

TEST : EPA 8021 MODIFIED
CLIENT : NMOCD
PROJECT # : (none)
PROJECT NAME : HAMPTON 4M

PINNACLE I.D.: 904068

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	9904141130 (SEEP)	AQUEOUS	4/14/99	NA	4/16/99	1
02	TRIP BLANK	AQUEOUS	4/13/99	NA	4/16/99	1

PARAMETER	DET. LIMIT	UNITS	9904141130 (SEEP)	TRIP BLANK
BENZENE	0.5	**UG/L**	**40**	< 0.5
TOLUENE	0.5	**UG/L**	**2.2**	< 0.5
ETHYLBENZENE	0.5	**UG/L**	**2.1**	< 0.5
TOTAL XYLENES	0.5	**UG/L**	**19**	< 0.5
METHYL-t-BUTYL ETHER	2.5	UG/L	< 2.5	< 2.5
SURROGATE:				
BROMOFLUOROBENZENE (%)			98	99
SURROGATE LIMITS	(80 - 120)			

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY RESULTS
REAGENT BLANK

TEST	: EPA 8021 MODIFIED	PINNACLE I.D.	: 904068
BLANK I. D.	: 041699	DATE EXTRACTED	: N/A
CLIENT	: NMOCD	DATE ANALYZED	: 4/16/99
PROJECT #	: (none)	SAMPLE MATRIX	: AQUEOUS
PROJECT NAME	: HAMPTON 4M		

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5
METHYL-t-BUTYL ETHER	UG/L	<2.5
SURROGATE:		
BROMOFLUOROBENZENE (%)		97
SURROGATE LIMITS:	(80 - 120)	

CHEMIST NOTES:
N/A

PINNACLE LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GAS CHROMATOGRAPHY QUALITY CONTROL
MSMSD

TEST	: EPA 8021 MODIFIED		
MSMSD #	: 041699	PINNACLE I.D.	: 904068
CLIENT	: NMOCD	DATE EXTRACTED	: N/A
PROJECT #	: (none)	DATE ANALYZED	: 4/16/99
PROJECT NAME	: HAMPTON 4M	SAMPLE MATRIX	: AQUEOUS
		UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD	REC LIMITS	RPD LIMITS
BENZENE	<0.5	20	20.7	104	19.4	97	6	(80 - 120)	20
TOLUENE	<0.5	20	21.0	105	20.5	103	2	(80 - 120)	20
ETHYLBENZENE	<0.5	20	21.4	107	20.8	104	3	(80 - 120)	20
TOTAL XYLENES	<0.5	60	64.7	108	62.7	105	3	(80 - 120)	20

CHEMIST NOTES:
N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

PINNACLE LABORATORIES

Pinnacle Laboratories Inc.

CHAIN OF CUSTODY

DATE: 4/15/99 PAGE: 1 OF 1

PLI Accession #: 9904068

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

PROJECT MANAGER: Bill Olson

COMPANY: NM Oil Conservation Division

ADDRESS: 2040 S. Pacheco
Santa Fe, NM 87505

PHONE: (505) 827-7154

FAX: (505) 827-8177

BILL TO: Same

COMPANY:

ADDRESS:

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	NUMBER OF CONTAINERS
990414 1130 (seep)	4/14/99	1130	water	01	2
Trip Blank	4/13	1145	AQ	02	1

ANALYSIS REQUEST

SAMPLE ID	Petroleum Hydrocarbons (418.1) TRPH	(MOD.8015) Diesel/Direct Inject	(M8015) Gas/Purge & Trap	8021 (BTEX)/8015 (Gasoline) MTBE	8021 (BTEX) ☐ MTBE ☐ TMB ☐ PCE	8021 (TCL)	8021 (EDX)	8021 (HALO)	8021 (CUST)	504.1 EDB ☐ / DBCP ☐	8260 (TCL) Volatile Organics	8260 (Full) Volatile Organics	8260 (CUST) Volatile Organics	8260 (Landfill) Volatile Organics	Pesticides /PCB (608/8081/8082)	Herbicides (615/8151)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Polynuclear Aromatics (610/8310/8270-SIMS)	General Chemistry:		Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:		NUMBER OF CONTAINERS
990414 1130 (seep)					2																						2
Trip Blank					1																						1

PROJECT INFORMATION	
PROJ. NO.:	
PROJ. NAME:	Hampton 4M
P.O. NO.:	
SHIPPED VIA:	

SAMPLE RECEIPT	
NO. CONTAINERS	3
CUSTODY SEALS	(Y) N / NA
RECEIVED INTACT	Yes
BLUE ICE/ICE	5°C

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

METHANOL PRESERVATION ☐

COMMENTS: FIXED FEE ☐

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: Bill Olson Time: 1535	Signature: Time:
Printed Name: Bill Olson Date: 4/15/99	Printed Name: Date:
Company: NMOCD	Company:
See reverse side (Force Magure)	
RECEIVED BY: 1.	**RECEIVED BY: (LAB) 2.**
Signature: Time:	Signature: Francine Torino Time: 1535
Printed Name: Date:	Printed Name: Francine Torino Date: 4/15/99
Company:	Pinnacle Laboratories Inc.

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

CASE NO. 12033
DE NOVO

APPLICATION OF PUBLIC SERVICE COMPANY OF NEW MEXICO FOR REVIEW OF OIL CONSERVATION DIVISION DIRECTIVE DATED MARCH 13, 1998, DIRECTING APPLICANT TO PERFORM ADDITIONAL REMEDIATION FOR HYDROCARBON CONTAMINATION, SAN JUAN COUNTY, NEW MEXICO.

STAY OF ORDER NO. R-11134

Burlington Resources Oil & Gas Company ("Burlington") filed a Motion for Partial Stay of Order R-11134 on April 5, 1999. Pursuant to order ¶ 5 on page 5, Burlington and PNM are to submit remediation plans to the Oil Conservation Division by April 6, 1999. However, Burlington and Public Service Company of New Mexico ("PNM") filed applications for a *de novo* hearing before the Oil Conservation Commission. Consequently, a Commission hearing will be scheduled and an order entered based upon the evidence presented at that hearing. Therefore, the Division Order R-11134 is hereby stayed in its entirety pending a Commission hearing.

On February 26, 1999, a Motion of the Division for Clarification/Reconsideration of Order No. 11134 was filed; that motion has been withdrawn.

Done this 5th day of April 1999.

Lori Wrotenbery
Director

CAMPBELL, CARR, BERGE
& SHERIDAN, P.A.
LAWYERS

MICHAEL B. CAMPBELL
WILLIAM F. CARR
BRADFORD C. BERGE
MARK F. SHERIDAN
MICHAEL H. FELDEWERT
ANTHONY F. MEDEIROS
PAUL R. OWEN
KATHERINE M. MOSS

JACK M. CAMPBELL
OF COUNSEL

JEFFERSON PLACE
SUITE I - 110 NORTH GUADALUPE
POST OFFICE BOX 2208
SANTA FE, NEW MEXICO 87504-2208
TELEPHONE: (505) 988-4421
FACSIMILE: (505) 983-6043
E-MAIL: ccbsps@ix.netcom.com

April 5, 1999

HAND DELIVERED

Marilyn S. Hebert
Special Assistant Attorney General
New Mexico Oil Conservation Commission
2040 South Pacheco Street
Santa Fe, New Mexico 87505

Re: ***Oil Conservation Division Case No. 12033; Order No. R-11134 Application of Public Service Company of New Mexico for Review of Oil Conservation Division Directive dated March 13, 1998, Directing Applicant to Perform Additional Remediation for Hydrocarbon Contamination, San Juan County, New Mexico***

Dear Ms Hebert:

Enclosed for your consideration is Burlington Resources Oil & Gas Company's Motion for Partial Stay of Order No. R-11134.

Very truly yours,

WILLIAM F. CARR

WFC:mlh
Enc.
cc: Richard L. Alvidrez, Esq.
Rand Carroll, Esq.
John H. Bemis, Esq.

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

APPLICATION OF PUBLIC SERVICE COMPANY OF NEW MEXICO FOR REVIEW OF OIL CONSERVATION DIVISION DIRECTIVE DATED MARCH 13, 1998, DIRECTING APPLICANT TO PERFORM ADDITIONAL REMEDIATION FOR HYDROCARBON CONTAMINATION, SAN JUAN COUNTY, NEW MEXICO.

CASE NO. 12033
ORDER NO. R-11134

BURLINGTON RESOURCES OIL & GAS COMPANY'S MOTION FOR PARTIAL STAY OF ORDER NO. R-11134

Burlington Resources Oil & Gas Company ("Burlington"), by and through their undersigned attorneys, moves the Oil Conservation Division and/or Commission for an order staying the provisions of Order No. R-11134 entered on February 5, 1999, which require the filing of additional plans for remediation at the Hampton 4-M well site and in support of its motion states:

1. The Division entered Order No. R-11134 on February 5, 1999 denying the application of The Public Service Company of New Mexico ("PNM") in this case and determining that both PNM and Burlington are responsible parties for hydrocarbon contamination in the area of the Burlington Resources Oil & Gas Company Hampton 4-M Well located in Unit N, Section 13, Township 30 North, Range 11 West, NMPM, San Juan County, New Mexico.

2. Order paragraph 5 of Order No. R-11134 also directed PNM and Burlington to submit remediation plans to the Environmental Bureau of the Oil Conservation Division ("Bureau"), for approval, within 60 days of the date of the order. At a minimum these plans are are to contain plans

to determine the lateral extent of contamination, to remove remaining sources of contamination, and to remediate the remaining contamination. These remediation plans must be filed by April 6, 1999.

3. Since the entry of Order No. R-11134, PNM and Burlington each filed an application for a hearing **de novo** on this application by the Oil Conservation Commission.

4. The Commission has set a prehearing conference on Tuesday, April 13, 1999, in preparation for a Commission hearing.

5. The order which results from a Commission hearing could supercede Division Order No. R-11134 on any or all issues in this case including the requirement for new remediation plans..

6. At this time, each party has a remediation plan on file which has been approved by the Bureau and which governs the remediation activities of the parties at this location.

7. A stay of order paragraph 5 of Order No. R-11134 will defer the filing of additional remediation plans until the Commission can fully review the issues in this case, including the need for additional remediation plans at the pending hearing **de novo**.

WHEREFORE, Burlington Resources Oil & Gas Company , requests that the Division and/or the Commission enter its order staying the provisions of order paragraph 5 of Division Order No. R-11134 pending the entry of a Commission order in the pending hearing **de novo** in this case.

Respectfully submitted,

CAMPBELL, CARR, BERGE
& SHERIDAN, P. A.

By: _____
WILLIAM F. CARR
Post Office Box 2208
Santa Fe, New Mexico 87504-2208

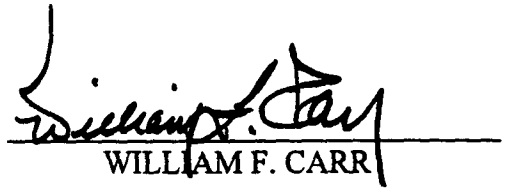
BURLINGTON RESOURCES OIL & GAS COMPANY

CERTIFICATE OF SERVICE

I hereby certify that I have caused a true and correct copy of the foregoing Motion for Partial Stay of Division Order No. R-11134 to be mailed and/or hand-delivered to the following counsel of record on this 5th day of April, 1999:

Richard L. Alvidrez, Esq.
Keleher & McLeod, P.A.
Post Office Drawer AA
Albuquerque, New Mexico 87103

Rand Carroll, Esq.
Oil Conservation Division
New Mexico Department of Energy,
Minerals and Natural Resources
2040 South Pacheco
Santa Fe, New Mexico 87505



WILLIAM F. CARR

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

April 1, 1999

William F. Carr
Campbell, Carr, Berge & Sheridan, P.A.
Post Office Box 2208
Santa Fe, New Mexico 87504-2208

Richard L. Alvidrez
Keleher & McLeod, P.A.
Post Office Drawer AA
Albuquerque, New Mexico 87103

Re: **Application of Public Service Company of New Mexico for review of Oil Conservation Division directive dated March 13, 1998, directing applicant to perform additional remediation for hydrocarbon contamination, San Juan County, New Mexico.**
Case No. 12033 *de novo*

Gentlemen:

In preparation of the *de novo* hearing before the Oil Conservation Commission ("Commission"), a prehearing conference will be held on Tuesday, April 13, 1999, at 2:00 p.m. at the Oil Conservation Division at 2040 South Pacheco, Santa Fe, New Mexico.

The matters to be discussed at the conference will include the following: a discovery schedule, if necessary; witness and exhibit lists; the use of prepared written testimony; stipulations as to facts; and length and schedule for the Oil Conservation Commission hearing. Lyn Hebert, attorney for the Commission, will conduct the conference.

Best regards,

Lori Wrotenbery
Director

cc: Rand Carroll

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

CASE NO. 12033
ORDER NO. R-11134

APPLICATION OF PUBLIC SERVICE COMPANY OF NEW MEXICO FOR REVIEW OF OIL CONSERVATION DIVISION DIRECTIVE DATED MARCH 13, 1998, DIRECTING APPLICANT TO PERFORM ADDITIONAL REMEDIATION FOR HYDROCARBON CONTAMINATION, SAN JUAN COUNTY, NEW MEXICO.

BY THE DIVISION:

This case came on for hearing at 8:15 a.m. on November 19, 1998, at Santa Fe, New Mexico, before Examiner Mark W. Ashley.

NOW, on this 5th day of February, 1999, the Division Director, having considered the record and the recommendation of the Examiner,

FINDS THAT:

(1) Due public notice has been given and the Division has jurisdiction of this case and its subject matter.

(2) The applicant, Public Service Company of New Mexico ("PNM"), seeks an order nullifying the Division directive to PNM dated March 13, 1998 requiring it to perform additional remediation for hydrocarbon contamination in the area of the Burlington Resources Oil & Gas Company ("Burlington") Hampton No. 4 M Well ("Hampton 4M") located in Unit Letter N, Section 13, Township 30 North, Range 11 West, NMPM, San Juan County, New Mexico, and a determination by the Division that PNM is not a responsible person for purposes of further investigation and remediation of contamination at this location.

(3) Burlington appeared at the hearing and presented testimony in opposition to the application of PNM.

(4) The Environmental Bureau of the Oil Conservation Division ("Bureau") appeared at the hearing and presented testimony in support of the Division directive dated

March 13, 1998.

(5) In 1984 Burlington's predecessors Meridian Oil Company and/or Southland Royalty Company drilled and completed the Hampton 4M well in the Dakota and Mesaverde formations. Burlington operates well equipment located in the southern most portion of the Hampton 4M well site. At one time, this equipment discharged into an unlined pit at the site. The unlined pit has since been covered up.

(6) PNM installed and operated dehydration equipment in the northern most portion of the Hampton 4M well site until Williams Field Services purchased the equipment on June 30, 1995. The equipment included an unlined discharge pit. The purpose of the dehydration equipment is to remove liquids from the gas stream produced from the Hampton 4M well.

(7) During a site assessment of the Hampton 4M well site conducted on April 23, 1996, PNM discovered potential hydrocarbon contamination at PNM's pit. PNM began closure activities at PNM's pit in April 1996 pursuant to a Bureau-approved pit closure plan.

(8) On December 16, 1996 PNM performed soil borings at PNM's former pit which encountered ground water hydrocarbon contamination.

(9) On January 13, 1997 PNM notified the Bureau in writing of ground water hydrocarbon contamination at PNM's former pit.

(10) On January 31, 1997 PNM installed two monitor wells upgradient from PNM's former pit. One of the wells, located adjacent to Burlington equipment, encountered ground water hydrocarbon contamination.

(11) On April 14, 1997 Burlington discovered a hydrocarbon seep along the northwestern edge of the Hampton 4M well site adjacent to PNM's former pit. Burlington notified both the Bureau and PNM about the seep.

(12) On April 17, 1997 Burlington conducted excavations around the northwest perimeter of the site and constructed a collection trench.

(13) On April 30, 1997 Burlington began excavation in the area of the Burlington's former pit located in the southeastern portion of the Hampton 4M well site. Burlington drilled soil borings and monitor wells at the excavation that encountered ground water hydrocarbon contamination.

(14) Additional monitor wells were installed at the Hampton 4M well site between June 1997 and May 1998.

(15) In August 1997 the Bureau drew a line of demarcation just south of the PNM equipment for the purpose of apportioning liability for hydrocarbon contamination at the Hampton 4M well site. PNM was assigned responsibility for any hydrocarbon contamination north of that line. Burlington was assigned responsibility for any hydrocarbon contamination south of the line.

(16) PNM installed a free phase hydrocarbon recovery well system adjacent to PNM's former pit in November 1997 and initiated recovery of free phase hydrocarbons from the ground water in January 1998.

(17) On March 13, 1998 the Bureau wrote to PNM and directed PNM to remove, within 30 days, the remaining source areas with free phase hydrocarbons in the vicinity of and immediately downgradient of PNM's former pit.

(18) In April 1998 PNM appealed the March 13, 1998 directive and sought a stay of the directive pending a decision on its appeal. The Division denied PNM's request for stay on August 20, 1998.

(19) On September 1, 1998, the Bureau directed PNM and Burlington to conduct additional investigation and to determine the complete downgradient extent of hydrocarbon contamination at the Hampton 4M well site.

(20) On October 28, 1998 Burlington submitted a response to the Bureau letter dated September 1, 1998. Burlington stated that if PNM did not begin remediation of PNM's former pit by October 30, 1998, then Burlington would begin remediating the entire Hampton 4M well site, starting at PNM's former pit and working south towards Burlington's former pit.

(21) PNM continued recovery of free phase hydrocarbons until early November 1998 when Burlington's remediation activities resulted in the removal of PNM's free phase hydrocarbon recovery well system.

(22) At the time of the hearing, neither PNM nor Burlington had completed remediation activities at the Hampton 4M well site.

(23) The evidence indicates that soil and ground water contamination at the Hampton 4M well site is a result of hydrocarbon releases at the facilities of both PNM and Burlington, and not from off-site sources.

(24) The evidence also indicates that the ground water gradient is from southeast to northwest.

(25) The evidence further indicates that PNM's facilities are located downgradient from Burlington's facilities and that ground water contamination from Burlington's facilities has moved downgradient and commingled with ground water contamination from PNM's facilities.

(26) The evidence failed to indicate that PNM or Burlington had removed all soil and ground water contamination that resulted from releases from their former pits.

(27) The application of PNM should be denied.

(28) Burlington should be the responsible party for any contamination remaining south and upgradient of the previously determined Bureau line of demarcation.

(29) PNM should be the responsible party for any soil contamination remaining north and downgradient of the previously determined Bureau line of demarcation.

(30) PNM and Burlington should equally share the responsibility of remediation for any ground water contamination remaining north and downgradient of the previously determined Bureau line of demarcation.

(31) Both PNM and Burlington should submit remediation plans to the Bureau, for approval, within 60 days of the date of this order. At a minimum, the remediation plans should contain plans to determine the lateral extent of contamination, to remove remaining sources of contamination, and to remediate the remaining contaminants.

(32) PNM should have the oversight and reporting responsibilities for ground water remediation in the area north and downgradient of the previously determined Bureau line of demarcation.

(33) This order should supersede all prior directives of the Bureau.

IT IS THEREFORE ORDERED THAT:

(1) The application of the Public Service Company of New Mexico ("PNM") for an order nullifying the Division directive to PNM dated March 13, 1998 requiring it to perform additional remediation for hydrocarbon contamination in the area of the Burlington Resources Oil & Gas Company Hampton No. 4-M Well located in Unit N, Section 13, Township 30 North, Range 11 West, NMPM, San Juan County, New Mexico, and a determination by the Division that PNM is not a responsible person for purposes of further investigation and remediation of contamination at this location is hereby denied.

(2) Burlington shall be the responsible party for any contamination remaining south and upgradient of the previously determined Bureau line of demarcation.

(3) PNM shall be the responsible party for any soil contamination remaining north and downgradient of the previously determined Bureau line of demarcation.

(4) PNM and Burlington shall equally share the responsibility of remediation for any ground water contamination remaining north and downgradient of the previously determined Bureau line of demarcation.

(5) Both PNM and Burlington shall submit remediation plans to the Bureau, for approval, within 60 days of the date of this order. At a minimum, the remediation plans shall contain plans to determine the lateral extent of contamination, to remove remaining sources of contamination, and to remediate the remaining contaminants.

(6) PNM shall have the oversight and reporting responsibilities for ground water remediation in the area north and downgradient of the previously determined Bureau line of demarcation.

(7) This order shall supersede all prior directives of the Bureau.

(8) Jurisdiction is hereby retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

LORI WROTENBERY
Director

S E A L

Bill Olson

submitted in lieu of Form 3160-5

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED
BLM
98 DEC 15 PM 1:52
070 FARMINGTON, NM

Sundry Notices and Reports on Wells

1. **Type of Well**
GAS

2. **Name of Operator**
BURLINGTON RESOURCES OIL & GAS COMPANY

3. **Address & Phone No. of Operator**
PO Box 4289, Farmington, NM 87499 (505) 326-9700

4. **Location of Well, Footage, Sec., T, R, M**
970' FSL, 1680' FWL, Sec. 13, T-30-N, R-11-W, NMPM

5. **Lease Number**
SF-078141

6. **If Indian, All. or Tribe Name**

7. **Unit Agreement Name**

8. **Well Name & Number**
Hampton #4M

9. **API Well No.**
30-045-25810

10. **Field and Pool**
Blanco MV/Basin DK

11. **County and State**
San Juan Co, NM

12. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OTHER DATA

Type of Submission	Type of Action		
_X_ Notice of Intent	___ Abandonment	___ Change of Plans	
	___ Recompletion	___ New Construction	
___ Subsequent Report	___ Plugging Back	___ Non-Routine Fracturing	
	___ Casing Repair	___ Water Shut off	
___ Final Abandonment	___ Altering Casing	___ Conversion to Injection	
	_X_ Other		

13. Describe Proposed or Completed Operations

It is intended to landfarm the hydrocarbon impacted soil from the subject well to the plugged and abandoned Lloyd #1 (located Sec. 24, T-30-N, R-11-W).

14. I hereby certify that the foregoing is true and correct.

Signed Peggy Bradfield Title Regulatory Administrator Date 12/8/98

vkh

(This space for Federal or State office use)

APPROVED BY /S/ Duane W. Spencer Title _____ Date JAN - 6 1998

CONDITION OF APPROVAL, if any:

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

NMOCD

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

December 22, 1998

Mark Ashley
Hearing Examiner
New Mexico Oil Conservation Division
2040 South Pacheco
Santa Fe, NM 87505

RE: Case No. 12033--Application of PNM for review of the cleanup actions required by OCD letter dated March 13, 1998

Dear Mr. Ashley:

Enclosed is a draft order in the above-referenced case pursuant to your request and your postponement of its due date to today.

If you desire any other information or have any questions, please feel free to call me at 827-8156.

Sincerely,

Rand Carroll
Division Attorney

c w/enc: Richard L. Alvidrez, Esq.
Kelleher & McLeod, P.A.
P.O. Drawer AA
Albuquerque, NM 87103

William F. Carr, Esq.
Campbell, Carr, Berge & Sheridan, P.A.
P.O. Box 2208
Santa Fe, NM 87504-2208

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

APPLICATION OF PUBLIC SERVICE COMPANY OF NEW MEXICO FOR REVIEW OF OIL CONSERVATION DIVISION DIRECTIVE DATED MARCH 13, 1998, DIRECTING APPLICANT TO PERFORM ADDITIONAL REMEDIATION FOR HYDROCARBON CONTAMINATION, SAN JUAN COUNTY, NEW MEXICO

CASE NO. 12033
ORDER NO. R-

ORDER OF THE DIVISION

BY THE DIVISION:

This case came on for hearing at 8:15 a.m. on November 20, 1998, at Santa Fe, New Mexico, before Examiner Mark Ashley.

NOW, on this _____ day of December, 1998, the Division Director, having considered the record and the recommendations of the Examiner,

FINDS THAT:

(1) Due public notice has been given and the Division has jurisdiction of this case and its subject matter.

(2) Public Service Company of New Mexico ("PNM") owned and operated dehydration equipment and an unlined dehydrator pit located down gradient from a well site (the "Hampton 4M") operated by Burlington Resources Company located at Unit Letter N, Section 13, Township 30 North, Range 11 West, San Juan County, New Mexico, near Aztec, New Mexico.

(3) Evidence presented by PNM, Burlington and the Division show that hydrocarbons were disposed of in PNM's unlined dehydrator pit and migrated downward to the groundwater underneath the dehydrator pit. Evidence presented by Burlington and the Division show that such hydrocarbons contaminated the ground water beneath the dehydrator pit and then migrated down gradient from the dehydrator pit.

(4) Evidence presented by PNM, Burlington and the Division also show that another

source of hydrocarbon contamination of the ground water was from Burlington's production operations up gradient of the dehydrator pit and that such contamination contributed to the groundwater contamination and added to contamination down gradient of PNM's dehydrator pit.

(5) The evidence does not support a finding that either the PNM or Burlington source of hydrocarbon contamination was the primary source of the groundwater contamination under the dehydrator pit or of the contamination down gradient of the PNM pit.

(6) Burlington is a responsible person for soil and ground water contamination up gradient of the unlined PNM dehydrator pit.

(7) PNM is a responsible person for the contamination from the unlined dehydrator pit down to the groundwater.

(8) PNM and Burlington are both responsible persons for groundwater contamination beneath, and down gradient of, the unlined dehydrator pit.

IT IS THEREFORE ORDERED THAT:

(1) PNM is a responsible person for the hydrocarbon contamination located under the unlined dehydrator pit down to the ground water, the groundwater hydrocarbon contamination located under the dehydrator pit and for hydrocarbon contamination found down gradient of the dehydrator pit.

(2) Burlington is a responsible person for the contamination up gradient of the unlined dehydrator pit, the groundwater contamination under the dehydrator pit and for hydrocarbon contamination found down gradient of the dehydrator pit.

(3) PNM and Burlington, as responsible persons, are required to comply with Division directives regarding remediation of hydrocarbon contamination.

(4) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

LORI WROTENBERY
Director

SEAL

CAMPBELL, CARR, BERGE & SHERIDAN, P.A.
LAWYERS

MICHAEL B. CAMPBELL
WILLIAM F. CARR
BRADFORD C. BERGE
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ANTHONY F. MEDEIROS

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JEFFERSON PLACE
SUITE 1 -110 NORTH GUADALUPE
POST OFFICE BOX 2208
SANTA FE, NEW MEXICO 87504-2208
TELEPHONE: (505) 988-4421
TELECOPIER: (505) 983-6043

TELECOPIER COVER SHEET
November 9, 1998

To: Rand Carroll, Esq.
Oil Conservation Division Fax: (827-8177)

Re: ***OCD Case No. 12033.***

FROM: William F. Carr
TOTAL PAGES (including this cover sheet): 3
DOCUMENT: Letter to R. Alvidrez.

OPERATOR: Martha CLIENT/MATTER #
PLEASE CALL: [ ] TO CONFIRM RECEIPT [ ] AFTER REVIEW

MESSAGE:

IF THERE ARE ANY PROBLEMS WITH OUR TRANSMISSION,
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November 9, 1998

VIA FACSIMILE

Richard L. Alvidrez, Esq.
Keleher & McLeod, P. A.
Post Office Drawer AA
Albuquerque, New Mexico 87103

Re: ***Oil Conservation Division Case 12033***

Dear Mr. Alvidrez:

On March 13, 1998, the Oil Conservation Division wrote the Public Service Company of New Mexico ("PNM") concerning the migration of contaminated ground water from the Hampton No. 4 Well site onto down gradient private lands. The Division's Environmental Bureau required PNM take additional remedial action to remove the remaining source areas with free phase hydrocarbons in the vicinity of and immediately down gradient of the PNM dehydration pit. Since that time PNM has failed and refused to take required remedial action.

On October 26, 1998, I advised you that if PNM did not agree to undertake the full remediation of its contamination at this site by Friday, October 30, 1998, Burlington would remediate this contamination and pursue all remedies available to it for PNM's continued unwillingness to clean up its contamination. On October 28, PNM declined to undertake remediation.

Although in its October 28 letter PNM encouraged Burlington "to immediately proceed with remediation of the contamination...," PNM now opposes Burlington's plans to remediate the PNM contamination at this well site.

This letter is to advise you that unless otherwise directed by the Oil Conservation Division Environmental Bureau, Burlington will remediate the Hampton 4M well site commencing

on November 10, 1998. Representatives of PNM may monitor Burlington's remediation of this site but may not interfere with or impede Burlington's efforts to fully remediate this site to the level required by the Oil Conservation Division.

Burlington's remediation of this contamination is not an acknowledgment by Burlington of responsibility for either this contamination or the cleanup thereof.

Very truly yours,

WILLIAM F. CARR
WFC:mlh
cc: Rand Carroll, Esq.
John H. Bemis, Esq.

BURLINGTON RESOURCES

SAN JUAN DIVISION

October 28, 1998

Certified: P 103 693 144

Mr. Bill Olson
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

RE: Hampton 4M
Unit Letter N, Section 13, Township 30N, Range 11W

Dear Mr. Olson:

Your September 1, 1998 letter to Burlington Resources (BR) requested that BR submit a remediation and monitoring work plan for groundwater contaminated as a result of BR's activities at the subject well location.

In the process of gathering additional information to determine the source(s) of groundwater contamination, BR drilled two soil borings on the Hampton 4M location. The borings, one near BR's excavation and one near Public Service of New Mexico's (PNM's) former dehydrator pit, were drilled down to the groundwater. The soil borings confirmed that a substantial amount of soil contamination remains in place in the area of PNM's operations and, to a much lesser extent, near BR's pit area that was previously remediated. It also appears that the contamination associated with PNM's operations is migrating not only downgradient into groundwater, but also upgradient through sand lenses in the soils. In this regard, BR believes that no effort to clean up the groundwater at this site will be effective until the area surrounding the old PNM unlined dehydrator pit is remediated.

As a result of these recent findings, BR has submitted a letter dated October 26, 1998 to PNM concerning the Hampton 4M well. As the letter states, BR has requested PNM to immediately begin the remediation of the contamination at the Hampton 4M location. If PNM does not agree to undertake this action by Friday, October 30, then BR is prepared to immediately remediate the contamination on the entire location, including the pit area where PNM's operations took place.

In the event that PNM does not initiate action to clean up its contamination by Friday, October 30, BR will conduct source removal work for the entire Hampton 4M location, starting in the area of PNM's former dehydrator pit and working towards the old BR pit area. A PID and/or lab analyses will be utilized to determine the extent of the excavation. Clean overburden will be stockpiled on location or used as fill. Impacted soil that is excavated will be landfarmed on BR locations (i.e., within the same lease) or will be disposed at a permitted commercial disposal facility.

3535 East 30th St., 87402-8801, P.O. Box 4289, Farmington, New Mexico 87499-4289, Telephone 505-326-9700, Fax 505-326-9833

Upon the completion of the source removal work and the backfilling of the excavation with clean soils, the location of necessary monitoring wells will be determined. At a minimum, a monitoring well will be installed in the source area near PNM's former dehydrator pit. As mentioned in the action plan of BR's May 28, 1998 letter, a monitoring well will also be installed in the area of BR's original excavation in the southeast corner of the Hampton 4M location. These monitoring wells and other existing monitoring wells will then be periodically tested to show improvement in water quality.

If you require additional details concerning the remediation and monitoring work plan prior to BR initiating source removal work, please let me know. If PNM is unwilling to take action, BR plans to start the remediation work as soon as the necessary equipment is available. Please contact me at (505) 326-9841 if you have questions or additional information is needed.

Sincerely,

Ed Hasely
Sr. Staff Environmental Representative

Attachment: October 26, 1998 letter from William F. Carr

cc: Denny Foust - NMOCD Aztec
Johnny Ellis - BR
Bruce Gantner - BR
John Bemis - BR
Maurene Gannon - PNM Albuquerque
Hampton 4M File

S: / grndwatr/facility/hampton/985ocd.doc

CAMPBELL, CARR, BERGE
& SHERIDAN, P.A.
LAWYERS

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October 26, 1998

VIA FACSIMILE

Richard Alvidrez, Esq.
Keleher & McLeod, P.A.
Post Office Drawer AA
Albuquerque, New Mexico 87103

Re: ***Hampton Well No. 4M***
Unit N, Section 13,
Township 30 North, Range 11 West, NMPM,
San Juan County, New Mexico

Dear Mr Alvidrez:

Recent sampling near the Hampton Well No. 4M confirms that the prior activities of the Public Service Company of New Mexico, and in particular the discharge of hydrocarbons into an unlined pit from its dehydrator, are a continuing active source at this well site. This source is not the result of the activity at this well of Burlington Resources Oil & Gas Company or its predecessors. Until the contamination caused by PNM's discharge of hydrocarbons from its dehydrator is remediated, problems will continue. Furthermore, no effort to clean up this site will be effective until the area surrounding the old PNM unlined dehydrator pit is remediated.

Burlington Resources Oil & Gas Company believes that the delays by PNM in remediation of contamination caused by PNM's discharge of hydrocarbons from its dehydrator can no longer be tolerated and therefore demands that PNM immediately undertake the remediation of the contamination at the Hampton 4M Well. If PNM does not agree to undertake the full remediation of its contamination by 5:00 p.m. on Friday October 30, 1998, Burlington will promptly remediate the contamination resulting from PNM's operation of its dehydrator at the Hampton 4M Well site. Thereafter, Burlington Resources will pursue all remedies available to it for PNM's continued unwillingness to clean up its contamination.

Very truly yours,

WILLIAM F. CARR
Attorney for Burlington Resources Oil & Gas Company
WFC:mlh
cc: Bruce Gantner, Burlington Resources Oil & Gas Company

BURLINGTON RESOURCES

SAN JUAN DIVISION

October 9, 1998

Certified: P 103 693 140

Bill Olson
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

RE: Hampton 4M
Unit Letter N, Section 13, Township 30N, Range 11W

Dear Mr. Olson:

As we discussed on Wednesday, October 7, 1998, Public Service of New Mexico (PNM) and Burlington Resources (BR) have been unsuccessful in obtaining landowner approval to conduct downgradient investigations near the subject location. Dr. J. Burton Everett is out of town and may not be able to be reached until late October. Due to this delay, we will be unable to meet the October 20, 1998 deadline for submittal of a report on the downgradient extent of impact from the Hampton 4M, as requested in your September 1, 1998 letter. Upon obtaining the necessary landowner approval, BR's intention is to proceed with investigations to determine the extent of impact downgradient of this site, pursuant to your request.

If you have questions or additional information is needed, please contact me at (505) 326-9841.

Sincerely,

Ed Hasely
Sr. Staff Environmental Representative

cc: Denny Foust - NMOCD Aztec
Johnny Ellis - BR
Bruce Gantner - BR
John Bemis - BR
Maurene Gannon - PNM Albuquerque
Hampton 4M File

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

September 1, 1998

CERTIFIED MAIL
RETURN RECEIPT NO. Z-274-520-552

Mr. Ed Hasely
Burlington Resources
P.O. Box 4289
Farmington, New Mexico 87499-4289

RE: GROUND WATER CONTAMINATION
HAMPTON 4M WELL SITE

Dear Mr. Hasely:

The New Mexico Oil Conservation Division (OCD) has reviewed Burlington Resources (BR) May 28, 1998 letter captioned "HAMPTON 4M - GROUNDWATER CONTAMINATION, UNIT LETTER N, SECTION 13, TOWNSHIP 30N, RANGE 11W" and the ground water investigation and remediation actions related to Public Service Company of New Mexico's (PNM) former dehy pit at the BR Hampton 4M well site near Aztec, New Mexico.

Burlington's investigation and soil remedial actions taken to date are satisfactory. However, a review of the file shows that the investigation of the extent of ground water contamination at the site has not been completed. Since ground water at the site has been contaminated by both PNM's and BR's operations and due to the potential for contamination of downgradient private water wells, the OCD hereby requires that both PNM and BR conduct additional investigations to determine the complete downgradient extent of ground contamination at the Hampton 4M site. The investigations are to be conducted according to PNM and BR's prior approved plans with a report on the investigations to be submitted to the OCD by October 20, 1998. The OCD requests that PNM and BR cooperatively work together on the investigation so that the activities can be conducted in the most efficient and economical manner.

In addition, the OCD hereby requires BR to submit a remediation and monitoring work plan for ground water contaminated as a result of BR's activities. The work plan is to be submitted to the OCD Santa Fe Office by October 30, 1998 and must include methods for removal of free phase products upgradient of PNM's dehy pit.

If you have any questions, please call me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrologist
Environmental Bureau

xc: Denny Foust, OCD Aztec District Office
Maureen Gannon, PNM
J. Burton Everett

Z 274 520 552

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PS Form **3800**, April 1995

BURLINGTON RESOURCES

SAN JUAN DIVISION

May 28, 1998

Certified: P 103 693 121

Bill Olson
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

RE: Hampton 4M - Groundwater Contamination
Unit Letter N, Section 13, Township 30N, Range 11W

Dear Mr. Olson:

As requested in your April 7, 1998 letter, the following is a status report on the soil/groundwater investigation and remediation activities that have been conducted at the Hampton 4M gas production location. This report addresses the activity by Burlington Resources Oil and Gas Company (BR) near our area of operations. Details on earlier investigation work were submitted to you on July 30, 1997 and January 30, 1998, and will not be repeated in this report. A site diagram showing the location of the discussed monitoring wells and soil excavation is included in Attachment #1.

Additional Monitor Well Installation

As required in your April 7 letter, BR installed additional monitor wells near the locations of the former temporary boreholes TPW-1 and TPW-2. On May 11, 1998, Philip Services Corporation drilled and completed both monitor wells (identified as MW-9 and MW-10). The geologic logs and well completion diagrams for these wells are included in Attachment #2.

Monitoring Well Sampling

Since the last report on January 30, 1998, the monitor wells have been sampled twice, first on April 14, 1998 and again on May 12, 1998. The details of the sample results, along with earlier sample results, are shown in Table 1. Due to MW-3 showing "non-detect" for BTEX components over the last five sampling events, it was not sampled during the last sampling event.

Table 1
Groundwater Sampling Summary
BTEX (ppb)

	MW-1	MW-3	MW-4	MW-8	MW-9	MW-10
1/31/97		ND	2651.3			
5/1/97		ND	3477.0			
10/30/97	5.8	ND				
1/12/98	8.8	ND	1362.0	33,801		
4/14/98	2.3	ND	1147.2	0.37 ft		
5/12/98	ND	Not sampled	1024.8	0.29 ft	10.5	1.41 ft

NOTE: The shaded areas indicate the thickness of free phase hydrocarbons.

3535 East 30th St., 87402-8801, P.O. Box 4289, Farmington, New Mexico 87499-4289, Telephone 505-326-9700, Fax 505-326-9833

The well development details and analytical results of the May 12 sampling event are included in Attachment #3. PNM collected the April 14 samples and BR does not have copies of the laboratory reports. In addition to the BTEX components, the water was also analyzed for New Mexico Water Quality Control Commission (WQCC) metals and cations and anions pursuant to your April 7 letter.

PNM had all the monitoring wells surveyed for location and groundwater elevation on January 12, 1998. The direction and magnitude of the hydraulic gradient, using this data, is shown in Attachment #4. The map, which was provided to BR from PNM, also details the analytical results of the sampling events up through April 14, 1998. The most recent monitor wells (MW-9 and MW-10) have not been surveyed for location or elevation yet and are not included on this groundwater contour map.

Ongoing Remediation/Investigation

The excavation created during BR's source removal work in December 1997 remains open to allow air to contact the groundwater. This should continue the improvement of the quality of groundwater. PNM sampled the water from this excavation in February 1998 and total BTEX was 4920 ppb. No further sampling has taken place.

In addition to the source removal work that BR performed in the southeast corner of the location, BR has tested both our well bore and the underground flowline from the well to our separation equipment for mechanical integrity. Both tests showed we have mechanical integrity with no indication of leakage.

Conclusions

The water quality of the upgradient well (MW#1) indicates the likelihood that groundwater contamination is not coming from an off site source. The quality of the water from the monitoring well, located approximately 50 feet south of the location, has been tested four times and is within water quality standards.

The groundwater in MW-3 and the recently installed MW-9 has shown to be below regulatory limits. This indicates that the potential plume is relatively narrow and does not travel to the west. The fact that water was not encountered in TPW-3 indicates that the potential plume does not leave location to the east.

The BTEX level in MW-4, located near BR's excavation, continues to drop. Since the last sample prior to our source removal work, the BTEX level in MW-4 has dropped over 70 percent (from 3477.0 ppb to 1024.8 ppb). The BTEX level dropped a little over 10 percent in less than a month between the last two sampling events. It appears that the source removal in the southeast portion of the location is having a positive impact on groundwater.

Less than five inches of free phase hydrocarbons were detected in MW-8 during the April (4.44") and May (3.48") sampling events. BR anticipates the level of free phase will continue to decrease and the groundwater will clean up over time due to the source removal work.

The recently installed MW-10, located near PNM's operations, had 1.41 feet of free phase hydrocarbons on May 12, 1998. Attachment #5 shows an approximate cross section from MW-4 to PNM's MW-2 (including MW-8 and MW-10). The cross section shows that the elevation of the hydrocarbons in MW-10

is less than the level in PNM's MW-2. The progressively increased thickness of "free product" towards PNM's operations implicates at a minimum either an active source of free phase hydrocarbons or unresolved soil contamination. Depending on the source of this hydrocarbon, it can clearly migrate in a contrary direction to groundwater flow until it reaches a static level. Based upon the close proximity to PNM's equipment and that the free phase hydrocarbons are at a lower elevation, BR feels the contamination present in MW-10 is directly related to the contamination under and around PNM's operations.

Plan of Action

Given the continued improvement shown in MW-4, BR's plans are to continue to leave the source removal excavation open for a period of time while we monitor the contaminant levels in the monitor wells.

As the downward trend of contaminant levels continues to progress in the wells near Burlington's source removal area, the excavation will be backfilled with clean soils. A monitoring well will then be installed in the source area. Water quality from the source well and the other monitor wells will be tested periodically to show improvement in water quality.

The Hampton 4M location continues to require monitoring and potentially further remediation. BR's source removal in the southeast corner of the location should continue to have a positive impact on the situation. If you have questions or additional information is needed, please contact me at (505) 326-9841.

Sincerely,

Ed Hasely
Sr. Staff Environmental Representative

Enclosures: Attachment #1: Hampton 4M Site Diagram
Attachment #2: Geologic Logs and Well Completion Diagrams
Attachment #3: Well Development Laboratory Results
Attachment #4: Groundwater Contour Map
Attachment #5: Cross Section from MW-4 to MW-2

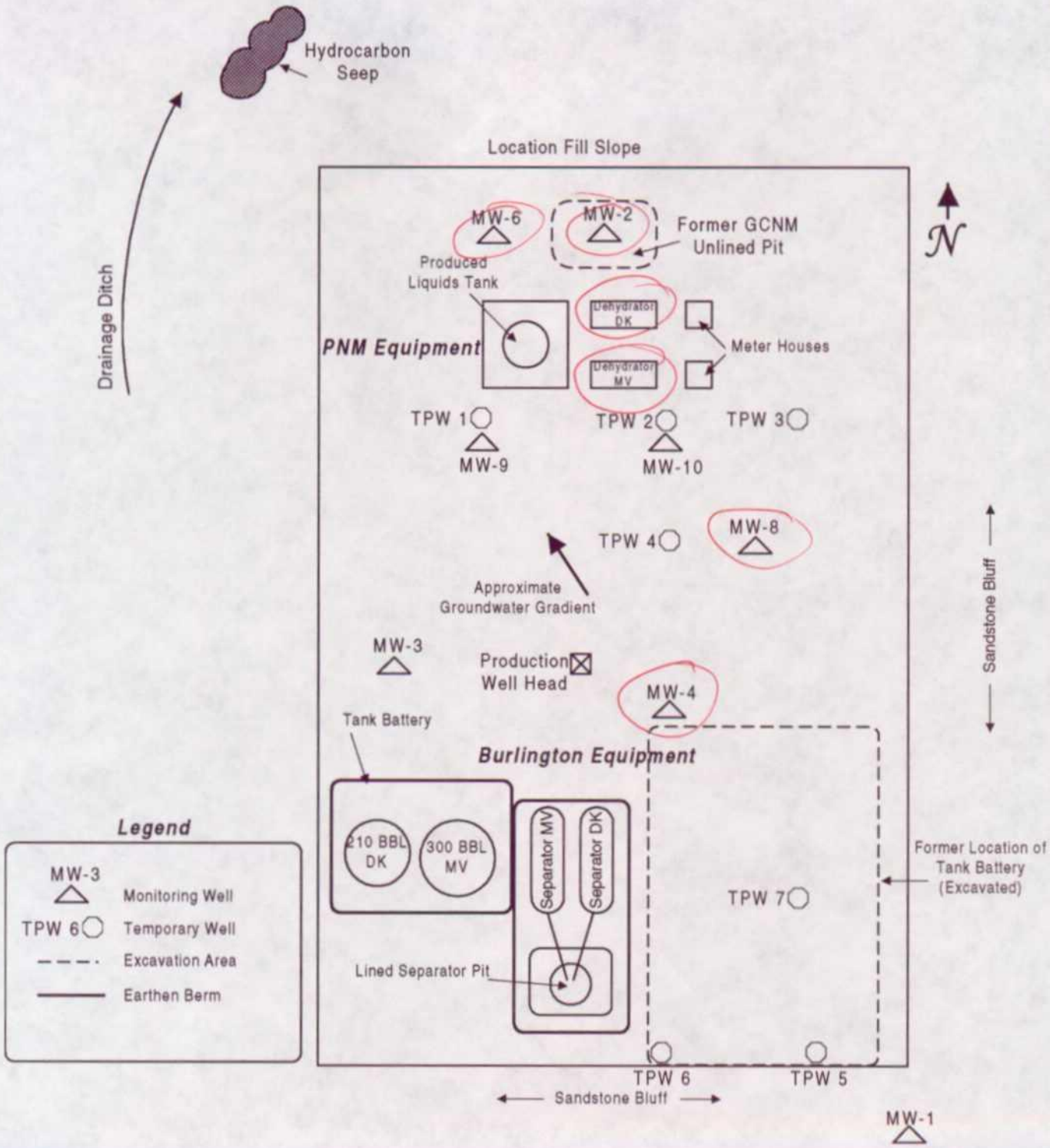
cc: Denny Foust - NMOCD Aztec
Johnny Ellis - BR
Ken Raybon - BR
Bruce Gantner - BR
John Bemis - BR
Denver Bearden - PNM Farmington
Maurene Gannon - PNM Albuquerque
Hampton 4M File

S: / grndwatr/facility/hampton/985ocd.doc

ATTACHMENT #1

SITE DIAGRAM

Hampton 4M Site Diagram



ATTACHMENT #2

GEOLOGIC LOGS
AND
WELL COMPLETION DIAGRAMS

RECORD OF SUBSURFACE EXPLORATION

Borehole # BH-1-511
Well # MW9
Page 1 of

PHILIP SERVICES CORP.
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Project Number 19584 Phase 6000.77
Project Name Burlington Resources Hampton 4M
Project Location Hampton 4M

Elevation
Borehole Location LTR: S: T: R: S. of Production Pit
GWL Depth 22.7' BGS
Drilled By K. PADILLA
Well Logged By C. CHANCE
Date Started 5/11/98
Date Completed 5/11/98

Drilling Method 4 1/4 ID HSA
Air Monitoring Method PID

Depth (Feet)	Sample Number	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: PPM BZ	BH	S/HS	Drilling Conditions & Blow Counts
0										
5	1	5-7	24	Lt Br clayey SAND, f-med sand, tr coarse, loose, dry			0	0	0/0	0905hrs
10	2	10-12	18	Lt Br silty SAND, med-coarse sand, loose, dry			0	0	0/0	0911
15	3	15-17	18	Br sandy CLAY, mod vf sand, low plastic, stiff, dry			0	0	0/0	0918hrs
20	4	20-	12	Br clayey SAND, vF-F sand, dense, moist			0	0	0/0	0925hrs
25	5	25-	6	Gry weathered SANDSTONE med sand, poorly cemented, tr clay moist			0	0	0/0	0939
30	6	30-32	24	Gry SAND, coarse, well sorted v dense, saturated			0	0	NA	0952
35				TDB 33.5						
40										

Comments: GW@22.7' @ 0952 hrs. GW@22.7 after setting 10 min. Will set well @ ~ 33' BGS

Geologist Signature Coy Chance

MONITOR WELL INSTALLATION FORM

Borehole # BH1-511
Well # MW9
Page 1 of 1

Philip Services Corp.
4000 Monroe Rd.
Farmington, NM 87401
(505) 326-2262 FAX (505) 326-2388

Project Name BR HAMPTON 4M
Project Number 19584 Phase 6000
Site Location Hampton 4M

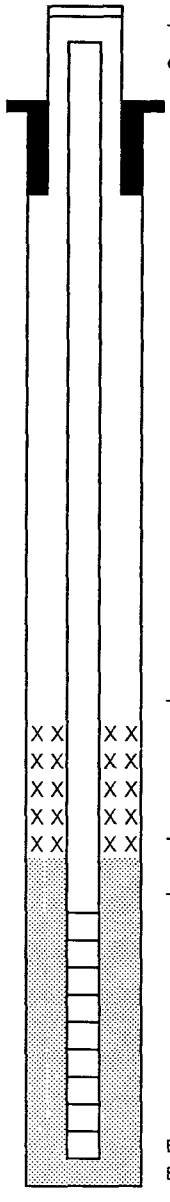
Elevation
Well Location S. of Production Pit
GWL Depth 22.7'
Installed By K PADILLA

Date/Time Started 5/11/98
Date/Time Completed 5/11/98

On-Site Geologist C CHANCE
Personnel On-Site
Contractors On-Site
Client Personnel On-Site ED Hasley

Depths in Reference to Ground Surface

Item	Material	Depth (feet)
Top of Protective Casing		0
Bottom of Protective Casing		1
Top of Permanent Borehole Casing		NA
Bottom of Permanent Borehole Casing		NA
Top of Concrete		0
Bottom of Concrete		1
Top of Grout		1
Bottom of Grout		13
Top of Well Riser		.3 ~~0~~
Bottom of Well Riser		~~018~~ 18
Top of Well Screen		18
Bottom of Well Screen		33
Top of Peltonite Seal		13
Bottom of Peltonite Seal		15
Top of Gravel Pack		15
Bottom of Gravel Pack		33
Top of Natural Cave-In		33
Bottom of Natural Cave-In		33.5
Top of Groundwater		22.7
Total Depth of Borehole		33.5



Top of Protective Casing 0
Top of Riser (survey elev.) -.3
Ground Surface 0
Top of Seal 13
Top of Gravel Pack 15
Top of Screen 18
Bottom of Screen 33
Bottom of Borehole 33.5

Comments Set well @ 33' BGS. Seal hydrated w/ 10 gal potable water. Set as Flush mount w/ locking well cap + padlock

Geologist Signature Cory Chance

MWINSTAL.wk1

RECORD OF SUBSURFACE EXPLORATION

Borehole # BH-2-511
Well # MW10
Page 1 of

PHILIP SERVICES CORP.
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Project Number 19584 Phase 6000.77
Project Name Burlington Resources Hampton 4M
Project Location Hampton 4M

Elevation
Borehole Location LTR: S: T: R: S. of Dehy
GWL Depth 24.7'
Drilled By K. PADILLA
Well Logged By C. CHANCE
Date Started 5/11/98
Date Completed 5/11/98

Drilling Method 4 1/4 ID HSA
Air Monitoring Method PID

Depth (Feet)	Sample Number	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: PPM BZ	BH	S/HS	Drilling Conditions & Blow Counts
0										
5	1	5-7	24	Br silty SAND, f-med sand, abnt silt, loose, dry			0	0	0/0	1213 hr
10	2	10-12	12	Br silty SAND, f-med sand, tr coarse, mod silt, dense, dry			0	0	0/0	1218 hr
15	3	15-16	6	Redish Br/Gry SAND, med-coarse, sand, mod silt, tr cementation, dense, dry			0	0	5/33	1228 hr
20	4	20 21	8	Redish br/Gry clayey SAND, F-med sand, dense, dry			0	0	39/43	1235 hr
25	5	25-26	4	Gry SAND, med-coarse, wll sorted, v. dense, saturated			0	220	5 cmc / 66	1245 hr
	6	26-27	5	Grysilty CLAY, V stiff, non-plastic, dry AA					5/667	Hard drlg 1307 hr
30				TOB 27'						
35										
40										

Comments: GW@24.7 after setting 10 min. Will set well @27'.

Geologist Signature Cory Chance

MONITOR WELL INSTALLATION FORM

Borehole # BH2-511
Well # MW10
Page 1 of 1

Philip Services Corp.
4000 Monroe Rd.
Farmington, NM 87401
(505) 326-2262 FAX (505) 326-2388

Project Name BR HAMPTON 4M
Project Number 19584 Phase 6000
Site Location Hampton 4M

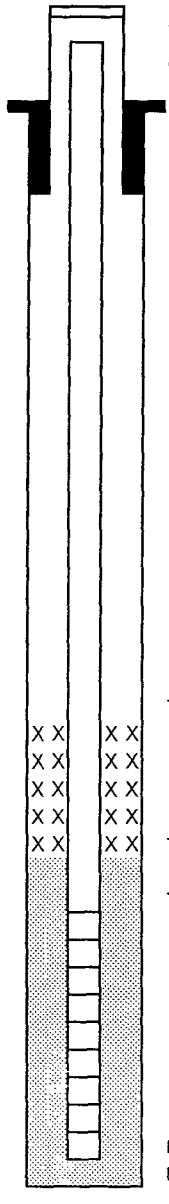
Elevation
Well Location S. of Derby
GWL Depth 24.7
Installed By K PADILLA

Date/Time Started 5/11/98
Date/Time Completed 5/11/98

On-Site Geologist C CHANCE
Personnel On-Site
Contractors On-Site
Client Personnel On-Site ED Hasley

Depths in Reference to Ground Surface

Item	Material	Depth (feet)
Top of Protective Casing		0
Bottom of Protective Casing		1
Top of Permanent Borehole Casing		NA
Bottom of Permanent Borehole Casing		NA
Top of Concrete		0
Bottom of Concrete		1
Top of Grout		1
Bottom of Grout		11
Top of Well Riser		.3
Bottom of Well Riser		17
Top of Well Screen		17
Bottom of Well Screen		27
Top of Peltonite Seal		11
Bottom of Peltonite Seal		13.6
Top of Gravel Pack		13.6
Bottom of Gravel Pack		27
Top of Natural Cave-In		27
Bottom of Natural Cave-In		27
Top of Groundwater		24.7
Total Depth of Borehole		27



Top of Protective Casing 0
Top of Riser (survey elev.) .3
Ground Surface 0
Top of Seal 11
Top of Gravel Pack 13.6
Top of Screen 17
Bottom of Screen 27
Bottom of Borehole 27

Comments Well set @ 27' BGS. Seal hydrated w/ 10 gal potable water. Well set w/ flush mount vault, well cap & padlock

Geologist Signature Cory Chancy

MWINSTAL.wk1

ATTACHMENT #3

WELL DEVELOPMENT
and
LABORATORY RESULTS

PHILIP ENVIRONMENTAL

WELL OBSERVATION DATA

Serial No. WOD-

Page 1 of 1

Project Name BR Hampton 4M

Project No. 19584

Project Manager R. Thompson

Phase.Task No.

Client Company Burlington Resources

Date 5/12/98

Site Name Hampton 4M

Depth Measurement Instrument Type Keck

Well or Piezometer	Time	Reason Not Measured	Depth to Floating Product (feet)	TOR Depth to Water (feet)	Depth to Sinking Product (feet)	Total well Depth (feet)	Floating Product Thickness (feet)	Sinking Product Thickness (feet)	Comments
MW-1			—	41.98	—	47.69			
MW-4			—	16.67	—	34.29			
MW-8			17.93	18.22	—	NA	.29		
MW-9			—	21.79	—	33.08			
CMC 5/28/98 ~~MW-10~~			~~23.09~~	~~21.68~~		27.0	1.41		
MW-10			21.68	23.09	—	27.0	1.41		

Post-it® Fax Note 7671 | Date | # of pages ▶ 1

To ED Hasely | From Cory Chance

Co./Dept. | Co.

Phone # | Phone #

Fax # 326 9725 | Fax #

Reason Not Measured: D = Dry; O = Obstructed; N = Not Accessible

Comments All depths measured to Top of Riser (TOR)

Signature [signature] Date 5/28/98 Reviewer Date

PHILIP ENVIRONMENTAL

Well Number MW-1

☐ Development ☑ Purging

WELL DEVELOPMENT AND PURGING DATA

Serial No. WDPD-

Project Name BR Hampton 4M Project Manager Thompson Project No. 19584

Client Company Burlington Resources Phase.Task No.

Site Name Site Address

Development Criteria

☑ 3 to 5 Casing Volumes of Water Removal
☐ Stabilization of Indicator Parameters
☐ Other

Methods of Development

Pump	Bailer
☐ Centrifugal	☑ Bottom Valve
☐ Submersible	☐ Double Check Valve
☐ Peristaltic	☐ Stainless-steel Kemmerer

☐ Other

Water Volume Calculation

Initial Depth of Well (feet) 47.69'
Initial Depth to Water (feet) 41.98
Height of Water Column in Well (feet) 5.71
Diameter (inches): Well 2" Gravel Pack

Item	Water Volume in Well: Cubic Feet	Water Volume in Well: Gallons	Gallons to be Removed
Well Casing		.93	~~.93~~ 2.79
Gravel Pack			
Drilling Fluids			
Total			2.79

Instruments

	Serial No. (If applicable)
☑ pH Meter	
☐ DO Monitor	
☑ Conductivity Meter	
☑ Temperature Meter	
☐ Other	

Water Disposal

On ground on site

Water Removal Data

Date	Time	Development Method: Pump	Development Method: Bailer	Removal Rate (gal/min)	Intake Depth (feet)	Ending Water Depth (feet)	Water Volume Removed (gallons): Increment	Water Volume Removed (gallons): Cumulative	Product Volume Removed (gallons): Increment	Product Volume Removed (gallons): Cumulative	Temperature (°C)	pH	Conductivity (mmhos/cm) X10	Dissolved Oxygen (mg/L)	Comments
5/12/98	0850		✓				1	1			14.1	6.24	294		Lt Br
	0854						1	2			13.6	6.27	268		sl cleaner
	0859						1	3			13.5	6.29	267		AA

Circle the date and time that the development criteria are met.

Comments

Developer's Signature(s) Cory Chance Date 5/12/98 Reviewer Date

PHILIP ENVIRONMENTAL Water Sampling Data

Location No. MW-1

Serial No. WSD-

Group List Number

Sample Type: ☑ Groundwater ☐ Surface Water ☐ Other _____ Date 5/12/98

Project Name BR Hampton 4M Project No. 19584

Project Manager R. Thompson Phase.Task No. _____

Site Name Hampton 4M

Sampling Specifications

Requested Sampling Depth Interval (feet) Top 3'

Requested Wait Following Development/Purging (hours) NA

Initial Measurements

Time Elapsed From Final Development/Purging (hours) NA

Initial Water Depth (feet) 41.98

Nonaqueous Liquids Present (Describe) NA

Water Quality/Water Collection

DO = Dissolved Oxygen; Cond. = Conductivity

Date	Time	Sampler Initials	Water Quality Readings: Temp. (°C)	pH	DO (mg/L)	Cond. (µmhos/cm)	Water Collection Data: Volume Removed (gallons)	Removal Rate (gal/min)	Pump Intake Depth (feet)	Bail	Final Water Depth (feet)	Notes – (Explain in Comments Below)
		SEE Development FORM										

Sample Containers

Container Type: G = Clear Glass; A = Amber Glass; P = Plastic; V = VOA Vial (Glass); O = Other (Specify)

Preservatives: H = HCl; N = HNO_3; S = H_2SO_4; A = NaOH; O = Other (Specify); – = None

Analytical Parameter List	Container: Number	Type	Volume (mL)	Field Filtered: Yes	No	Preserved	Cooled During Collection: Yes	No	Comments
BTEX	2	V	40		✓	–	✓		
Metals	1	P	250		✓	HNO_3	✓		
Cation/Anion	1	P	1000		✓	–	✓		

Filter Type _____ Chain-of-Custody Form Number C3192

Comments _____

Signature _____ Date 5/12/98 Reviewer _____ Date _____

Form A0202 Rev. 02/24/94

FARMINGTON LABORATORY
807 S. CARLTON
FARMINGTON, NM 87499-1289
(505) 326-2588

Water Analysis

Burlington Resources, Inc.

Sample ID:	MW - 1	Date Reported:	05/20/98
Matrix:	Water	Date Sampled:	05/12/98
Lab ID:	9805054-01	Date Received:	05/12/98

Parameter	Analytical Result	Units
General		
pH	4.78	s.u.
Conductivity	2,790	µmohs/cm
Specific Gravity	1.005	
TDS (calc)	3,100	mg/L
TDS (Measured)	3,330	mg/L
Cations		
Hardness	2,100	mg/L
Calcium	600	mg/L
Magnesium	147	mg/L
Sodium	113	mg/L
Potassium	7.0	mg/L
Anions		
Alkalinity	12.5	mg/L
Carbonate	1.0	mg/L
Bicarbonate	11.5	mg/L
Hydroxide	<1.0	mg/L
Chloride	47.5	mg/L
Sulfate	2,180	mg/L
Data Validation		**Acceptable Limits**
% Difference cations/anions meq/l	0.20	+/- 2 - 5 %
TDS Ratio	1.1	1.0 - 1.2

Danica Garman, Lab Manager

FARMINGTON LABORATORY
807 S. CARLTON
FARMINGTON, NM 87499-1289
(505) 326-2588

Certificate of Analysis No. 9805054-01

Philip Environmental
4000 Monroe Rd
Farmington, NM 87401
Attn: Robert Thompson

Date: 05/20/98

Project:	BR Hampton 4M	Project No:	19584
Site:	Farmington	Matrix:	Water
Sampled By:	C. Chance	Date Sampled:	05/12/98
Sample ID:	MW - 1	Date Received:	05/12/98

Analytical Data

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Benzene	ND	1.0	µg/L
Toluene	ND	1.0	µg/L
Ethylbenzene	ND	1.0	µg/L
Total Xylene	ND	1.0	µg/L
Total Volatile Aromatic Hydrocarbons	ND		µg/L

Surrogate	% Recovery
1,4,Difluorobenzene	107
4-Bromofluorobenzene	97

Method 8020A***
Analyzed by: VHZ
Date: 05/14/98

ND-Not Detected

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th Ed
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

Danica Carman, Lab Director

FARMINGTON LABORATORY
807 S. CARLTON
FARMINGTON, NM 87499-1289
(505) 326-2588

Certificate of Analysis No. 9805054-01

Philip Environmental
4000 Monroe Rd.
Farmington, NM 87401
Attn: Robert Thompson

Date: 05/20/98

Project:	BR Hampton 4M	Project No:	19584
Site:	Farmington	Matrix:	Water
Sampled By:	C. Chance	Date Sampled:	05/12/98
Sample ID:	MW - 1	Date Received:	05/12/98

Analytical Data

PARAMETER	RESULTS	Detection Limit	UNITS
Dissolved Metals			
Arsenic	ND	0.1	mg/L
Barium	0.006	0.005	mg/L
Cadmium	ND	0.005	mg/L
Chromium	ND	0.01	mg/L
Copper	ND	0.01	mg/L
Iron	4.50	0.02	mg/L
Lead	ND	0.05	mg/L
Manganese	3.12	0.005	mg/L
Selenium	ND	0.1	mg/L
Silver	ND	0.01	mg/L
Method 6010B ***			
Analyzed by: JM			
Date: 5/19/98			
Mercury	ND	0.0002	mg/L
Method 7470A ***			
Analyzed by: AG			
Date: 5/15/98			

ND-Not Detected

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Daniea Carman, Lab Manager

PHILIP ENVIRONMENTAL

Well Number MW-4

☐ Development ☑ Purging

WELL DEVELOPMENT AND PURGING DATA

Serial No. WDPD-

Project Name BR Hampton 4M | Project Manager R. Thompson | Project No. 19584

Client Company Burlington Resources | Phase.Task No.

Site Name Hampton 4M | Site Address

Development Criteria

☑ 3 to 5 Casing Volumes of Water Removal
☐ Stabilization of Indicator Parameters
☐ Other

Water Volume Calculation

Initial Depth of Well (feet) 34.29
Initial Depth to Water (feet) 16.67
Height of Water Column in Well (feet) 17.62
Diameter (inches): Well 2 Gravel Pack

Item	Water Volume in Well		Gallons to be Removed
	Cubic Feet	Gallons	
Well Casing		2.8	8.6
Gravel Pack			
Drilling Fluids			
Total			8.6

Instruments

Serial No. (If applicable)

☑ pH Meter — Oyster
☐ DO Monitor
☑ Conductivity Meter
☑ Temperature Meter
☐ Other

Methods of Development

Pump	Bailer
☐ Centrifugal	☑ Bottom Valve
☐ Submersible	☐ Double Check Valve
☐ Peristaltic	☐ Stainless-steel Kemmerer

☐ Other

Water Disposal

On site

Water Removal Data

Date	Time	Development Method: Pump	Development Method: Bailer	Removal Rate (gal/min)	Intake Depth (feet)	Ending Water Depth (feet)	Water Volume Removed (gallons): Increment	Water Volume Removed (gallons): Cumulative	Product Volume Removed (gallons): Increment	Product Volume Removed (gallons): Cumulative	Temperature (°C)	pH	Conductivity (mmhos/cm) x10	Dissolved Oxygen (mg/L)	Comments
5/12/98	0936						2.5	2.5			13.8	6.20	242		Black, sl silty
	~~0944~~						2.5	5.0			13.9	6.55	250		AA
	0951						2.5	7.0			13.9	6.67	268		AA
	0958						2.0	9.0			14.0	6.75	298		AA less silt
		-		-				-							

Circle the date and time that the development criteria are met.

Comments

Developer's Signature(s) Cory Champ Date 5/12/98 Reviewer Date

PHILIP ENVIRONMENTAL Water Sampling Data

Location No. MW-4

Serial No. WSO-

Group List Number

Sample Type: ☑ Groundwater ☐ Surface Water ☐ Other Date 5/12/98

Project Name BR Hampton 4M Project No. 19584

Project Manager R. Thompson Phase.Task No.

Site Name Hampton 4M

Sampling Specifications

Requested Sampling Depth Interval (feet) ~~NA~~ Top 3'

Requested Wait Following Development/Purging (hours) NA

Initial Measurements

Time Elapsed From Final Development/Purging (hours)

Initial Water Depth (feet) 16.67

Nonaqueous Liquids Present (Describe) NA

Water Quality/Water Collection

DO = Dissolved Oxygen; Cond. = Conductivity

Date	Time	Sampler Initials	Water Quality Readings: Temp. (°C)	pH	DO (mg/L)	Cond. (µmhos/cm)	Water Collection Data: Volume Removed (gallons)	Removal Rate (gal/min)	Pump Intake Depth (feet)	Bail	Final Water Depth (feet)	Notes (Explain in Comments Below)
			SEE			Develop & Purge						
						FORM						

Container Type: G = Clear Glass; A = Amber Glass; P = Plastic; V = VOA Vial (Glass); O = Other (Specify)

Sample Containers

Preservatives: H = HCl; N = HNO_3; S = H_2SO_4; A = NaOH; O = Other (Specify); — = None

Analytical Parameter List	Container: Number	Type	Volume (mL)	Field Filtered: Yes	No	Preserved	Cooled During Collection: Yes	No	Comments
BTEX	2	V	40		✓	—	✓		
Metals	1	P	250		✓	HNO3	✓		
Anion/Cations	1	P	1000		✓	—	✓		

Filter Type Chain-of-Custody Form Number C-3192

Comments

Signature Cory Chang Date 5/12/98 Reviewer Date

Form A0202 Rev. 02/24/94

FARMINGTON LABORATORY
807 S. CARLTON
FARMINGTON, NM 87499-1289
(505) 326-2588

Water Analysis

Burlington Resources, Inc.

Sample ID:	MW - 4	Date Reported:	05/20/98
Matrix:	Water	Date Sampled:	05/12/98
Lab ID:	9805054-02	Date Received:	05/12/98

Parameter	Analytical Result	Units
General		
pH	7.07	s.u.
Conductivity	3,280	µmohs/cm
Specific Gravity	1.006	
TDS (calc)	3,480	mg/L
TDS (Measured)	3,950	mg/L
Cations		
Hardness	2,300	mg/L
Calcium	620	mg/L
Magnesium	183	mg/L
Sodium	179	mg/L
Potassium	5.0	mg/L
Anions		
Alkalinity	183	mg/L
Carbonate	15.7	mg/L
Bicarbonate	167	mg/L
Hydroxide	<1.0	mg/L
Chloride	45.0	mg/L
Sulfate	2,340	mg/L
Data Validation		**Acceptable Limits**
% Difference cations/anions meq/l	0.20	+/- 2 - 5 %
TDS Ratio	1.1	1.0 - 1.2

Danica Carman, Lab Manager

FARMINGTON LABORATORY
807 S. CARLTON
FARMINGTON, NM 87499-1289
(505) 326-2588

Certificate of Analysis No. 9805054-02

Philip Environmental
4000 Monroe Rd
Farmington, NM 87401
Attn: Robert Thompson

Date: 05/20/98

Project:	BR Hampton 4M	Project No:	19584
Site:	Farmington	Matrix:	Water
Sampled By:	C. Chance	Date Sampled:	05/12/98
Sample ID:	MW - 4	Date Received:	05/12/98

Analytical Data

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Benzene	1000	10.0	µg/L
Toluene	1.8	1.0	µg/L
Ethylbenzene	20	1.0	µg/L
Total Xylene	3.0	1.0	µg/L
Total Volatile Aromatic Hydrocarbons	1024.8		µg/L

Surrogate	% Recovery
1,4,Difluorobenzene	107
4-Bromofluorobenzene	93

Method 8020A***
Analyzed by: VHZ
Date: 05/15/98

ND-Not Detected

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th Ed
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

Danica Carman, Lab Director

FARMINGTON LABORATORY
807 S. CARLTON
FARMINGTON, NM 87499-1289
(505) 326-2588

Certificate of Analysis No. 9805054-02

Philip Environmental
4000 Monroe Rd.
Farmington, NM 87401
Attn: Robert Thompson

Date: 05/20/98

Project:	BR Hampton 4M	Project No:	19584
Site:	Farmington	Matrix:	Water
Sampled By:	C. Chance	Date Sampled:	05/12/98
Sample ID:	MW - 4	Date Received:	05/12/98

Analytical Data

PARAMETER	RESULTS	Detection Limit	UNITS
Dissolved Metals			
Arsenic	ND	0.1	mg/L
Barium	0.009	0.005	mg/L
Cadmium	ND	0.005	mg/L
Chromium	ND	0.01	mg/L
Copper	ND	0.01	mg/L
Iron	4.87	0.02	mg/L
Lead	ND	0.05	mg/L
Manganese	5.80	0.005	mg/L
Selenium	ND	0.1	mg/L
Silver	ND	0.01	mg/L
Method 6010B ***			
Analyzed by: JM			
Date: 5/19/98			
Mercury	0.0002	0.0002	mg/L
Method 7470A ***			
Analyzed by: AG			
Date: 5/15/98			

ND-Not Detected

Notes:
*Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Danica Carman, Lab Manager

PHILIP ENVIRONMENTAL

Well Number MW-9

☑ Development ☐ Purging

WELL DEVELOPMENT AND PURGING DATA

Serial No. WDPD-

Page 1 of 1

Project Name BR Hampton 4M

Project Manager R Thompson

Project No. 19584

Client Company Burlington Resources

Phase.Task No.

Site Name Hampton 4M

Site Address

Development Criteria

☑ 3 to (5) Casing Volumes of Water Removal
☐ Stabilization of Indicator Parameters
☐ Other

Methods of Development

Pump	Bailer
☐ Centrifugal	☑ Bottom Valve
☐ Submersible	☐ Double Check Valve
☐ Peristaltic	☐ Stainless-steel Kemmerer

☐ Other

Water Volume Calculation

Initial Depth of Well (feet) 33.08
Initial Depth to Water (feet) 21.79
Height of Water Column in Well (feet) 11.29
Diameter (inches): Well 2" Gravel Pack

Item	Water Volume in Well: Cubic Feet	Water Volume in Well: Gallons	Gallons to be Removed
Well Casing		1.8	~~5.5~~ 9
Gravel Pack			
Drilling Fluids			
Total			~~5.5~~ 9

Instruments

Serial No. (If applicable)

☑ pH Meter
☐ DO Monitor
☑ Conductivity Meter
☑ Temperature Meter
☐ Other

Water Disposal

On Site

Water Removal Data

Date	Time	Development Method: Pump	Development Method: Bailer	Removal Rate (gal/min)	Intake Depth (feet)	Ending Water Depth (feet)	Water Volume Removed (gallons): Increment	Water Volume Removed (gallons): Cumulative	Product Volume Removed (gallons): Increment	Product Volume Removed (gallons): Cumulative	Temperature (°C)	pH	Conductivity (mmhos/cm) X10	Dissolved Oxygen (mg/L)	Comments
5/12/98	1034						2.5	2.5			15.1	6.67	260		1st Br
	1041						2.5	5.0			15.5	6.65	262		AA
	1050						2.5	7.5			15.2	6.67	269		AA
	1059						2.5	10.0			16.5	6.70	260		AA

Circle the date and time that the development criteria are met.

Comments

Developer's Signature(s) Cory Chase Date 5/12/98 Reviewer Date

PHILIP ENVIRONMENTAL Water Sampling Data

Location No. MW-9

Serial No. WSD-

Group List Number

Sample Type: ☑ Groundwater ☐ Surface Water ☐ Other Date 5/12/98

Project Name BR Hampton 4M Project No. 19584

Project Manager R. Thompson Phase.Task No.

Site Name Hampton 4M

Sampling Specifications

Requested Sampling Depth Interval (feet) ~~NA~~ Top 3'

Requested Wait Following Development/Purging (hours) NA

Initial Measurements

Time Elapsed From Final Development/Purging (hours)

Initial Water Depth (feet) 21.79

Nonaqueous Liquids Present (Describe) NA

Water Quality/Water Collection

DO = Dissolved Oxygen; Cond. = Conductivity

Date	Time	Sampler Initials	Water Quality Readings: Temp. (°C)	pH	DO (mg/L)	Cond. (µmhos/cm)	Water Collection Data: Volume Removed (gallons)	Removal Rate (gal/min)	Pump Intake Depth (feet)	Bail	Final Water Depth (feet)	Notes (Explain in Comments Below)
			SEE			Develop & Purge						
						FORM						

Container Type: G = Clear Glass; A = Amber Glass; P = Plastic; V = VOA Vial (Glass); O = Other (Specify)

Preservatives: H = HCl; N = HNO_3; S = H_2SO_4; A = NaOH; O = Other (Specify); — = None

Sample Containers

Analytical Parameter List	Container: Number	Type	Volume (mL)	Field Filtered: Yes	No	Preserved	Cooled During Collection: Yes	No	Comments
BTEX	2	V	40		✓	—	✓		
Metals	1	P	250		✓	HNO3	✓		
Anion/Cations	1	P	1000		✓	—	✓		

Filter Type Chain-of-Custody Form Number C-3192

Comments

Signature Greg Chaney Date 5/12/98 Reviewer Date

FARMINGTON LABORATORY
807 S. CARLTON
FARMINGTON, NM 87499-1289
(505) 326-2588

Water Analysis

Burlington Resources, Inc.

Sample ID:	MW - 9	Date Reported:	05/20/98
Matrix:	Water	Date Sampled:	05/12/98
Lab ID:	9805054-03	Date Received:	05/12/98

Parameter	Analytical Result	Units
General		
pH	6.14	s.u.
Conductivity	3,530	µmohs/cm
Specific Gravity	1.006	
TDS (calc)	3,710	mg/L
TDS (Measured)	4,080	mg/L
Cations		
Hardness	2,450	mg/L
Calcium	560	mg/L
Magnesium	256	mg/L
Sodium	166	mg/L
Potassium	9.0	mg/L
Anions		
Alkalinity	92.5	mg/L
Carbonate	19.4	mg/L
Bicarbonate	73.1	mg/L
Hydroxide	<1.0	mg/L
Chloride	272	mg/L
Sulfate	2,390	mg/L
Data Validation		**Acceptable Limits**
% Difference cations/anions meq/l	2.52	+/- 2 - 5 %
TDS Ratio	1.1	1.0 - 1.2

Danica Carman, Lab Manager

FARMINGTON LABORATORY
807 S. CARLTON
FARMINGTON, NM 87499-1289
(505) 326-2588

Certificate of Analysis No. 9805054-03

Philip Environmental
4000 Monroe Rd
Farmington, NM 87401
Attn: Robert Thompson

Date: 05/20/98

Project:	BR Hampton 4M	Project No:	19584
Site:	Farmington	Matrix:	Water
Sampled By:	C. Chance	Date Sampled:	05/12/98
Sample ID:	MW - 9	Date Received:	05/12/98

Analytical Data

PARAMETER	RESULTS	DETECTION LIMIT	UNITS
Benzene	6.7	1.0	µg/L
Toluene	1.1	1.0	µg/L
Ethylbenzene	ND	1.0	µg/L
Total Xylene	2.7	1.0	µg/L
Total Volatile Aromatic Hydrocarbons	10.5		µg/L

Surrogate	% Recovery
1,4,Difluorobenzene	100
4-Bromofluorobenzene	93

Method 8020A***
Analyzed by: VHZ
Date: 05/15/98

ND-Not Detected

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th Ed
***Ref: Test Methods for Evaluating Solid Waste, EPA SW846, 3rd Ed.

Danica Carman, Lab Director

FARMINGTON LABORATORY
807 S. CARLTON
FARMINGTON, NM 87499-1289
(505) 326-2588

Certificate of Analysis No. 9805054-03

Philip Environmental
4000 Monroe Rd.
Farmington, NM 87401
Attn: Robert Thompson

Date: 05/20/98

Project:	BR Hampton 4M	Project No:	19584
Site:	Farmington	Matrix:	Water
Sampled By:	C. Chance	Date Sampled:	05/12/98
Sample ID:	MW - 9	Date Received:	05/12/98

Analytical Data

PARAMETER	RESULTS	Detection Limit	UNITS
Dissolved Metals			
Arsenic	ND	0.1	mg/L
Barium	0.024	0.005	mg/L
Cadmium	ND	0.005	mg/L
Chromium	ND	0.01	mg/L
Copper	ND	0.01	mg/L
Iron	6.38	0.02	mg/L
Lead	ND	0.05	mg/L
Manganese	9.90	0.005	mg/L
Selenium	ND	0.1	mg/L
Silver	ND	0.01	mg/L
Method 6010B ***			
Analyzed by: JM			
Date: 5/19/98			
Mercury	0.0002	0.0002	mg/L
Method 7470A ***			
Analyzed by: AG			
Date: 5/15/98			

ND-Not Detected

Notes: *Ref: Methods for Chemical Analysis of Water and Wastes, 1983, EPA
**Ref: Standard Methods for Examination of Water & Wastewater, 18th ed.

QUALITY ASSURANCE: These analyses are performed in accordance with EPA guidelines for quality assurance.

Danica Carman, Lab Manager

9805054

PHILIP

Chain of Custody Record

4000 Monroe Road
Farmington, NM 87401
(505) 326-2262 Phone
(505) 326-2388 FAX

COC Serial No. C 3192

Project Name BR Hampton 4M

Project Number 19584 Phase . Task 6000 .771

Samplers CM Chance

Laboratory Name SPL

Laboratory Location Farmington

Sample Number (and depth)	Date	Time	Matrix	Total Number of Bottles	Type of Analysis and Bottle: BTEX 8020	WQCC Metals	Cations/Anions	Comments
MW-1	5/12/98	0910	Water	4	✓	✓	✓	
MW-4	↓	1010	↓	4	✓	✓	✓	
MW-9	↓	1110	↓	4	✓	✓	✓	

Chr 5/12/98

Relinquished by:

Signature	Date	Time
Cory Chance	5/12/98	

Received By:

Signature	Date	Time
Tamara Cyrus	5/12	1:50

Samples Iced: ☑ Yes ☐ No

Preservatives (ONLY for Water Samples)

- ☐ Cyanide ..... Sodium hyroxide (NaOH)
- ☐ Volatile Organic Analysis ..... Hydrochloric acid (HCl)
- ☐ Metals ..... Nitric acid (HNO_3)
- ☐ TPH (418.1) ..... Sulfuric acid (H_2SO_4)
- ☐ Other (Specify) _____
- ☐ Other (Specify) _____

Carrier: Hand Delivered

Airbill No.

Shipping and Lab Notes: Invoice: ED Hasley
Burlington Resources
PO Box 4289
Farmington NM 87499

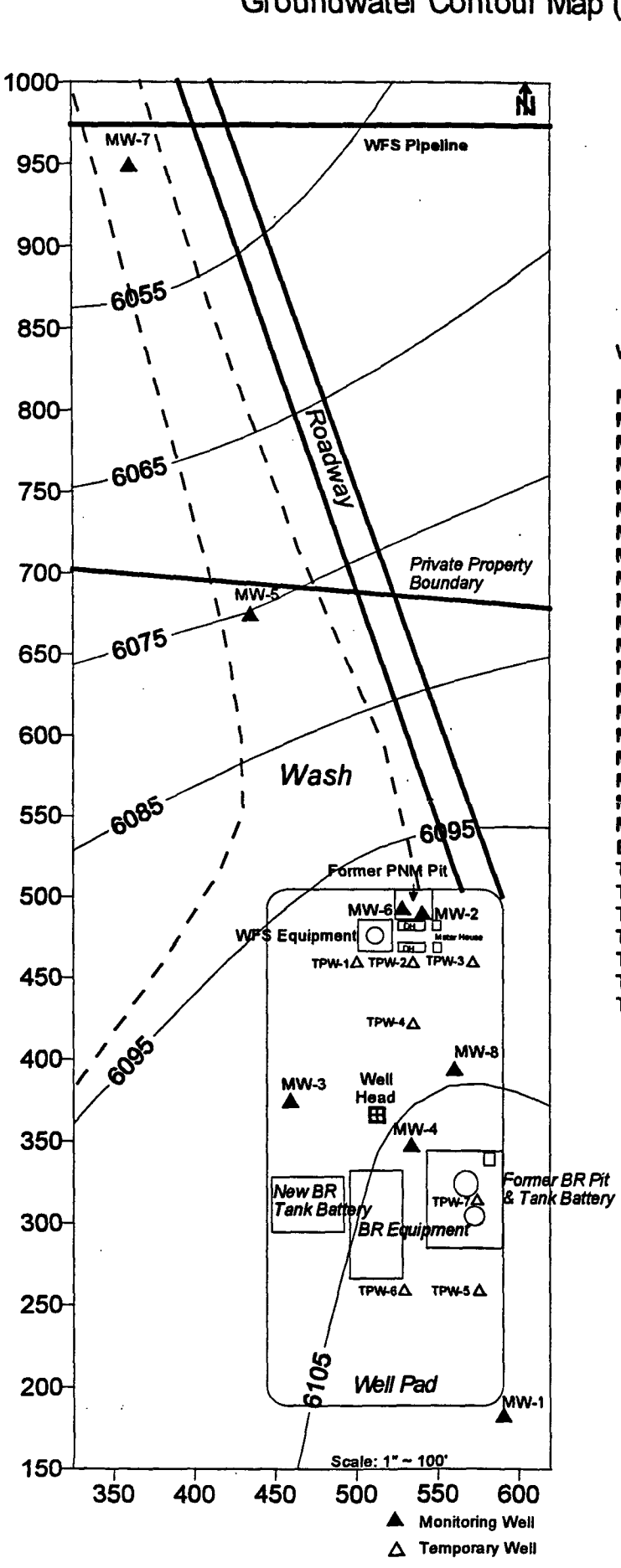
Send results to Robert Thompson at above address

PE-176 4/95

ATTACHMENT #4

GROUNDWATER CONTOUR MAP

Hampton 4M Site Map and Analytical Results (Concentrations in ppb)
Groundwater Contour Map (January,1998)



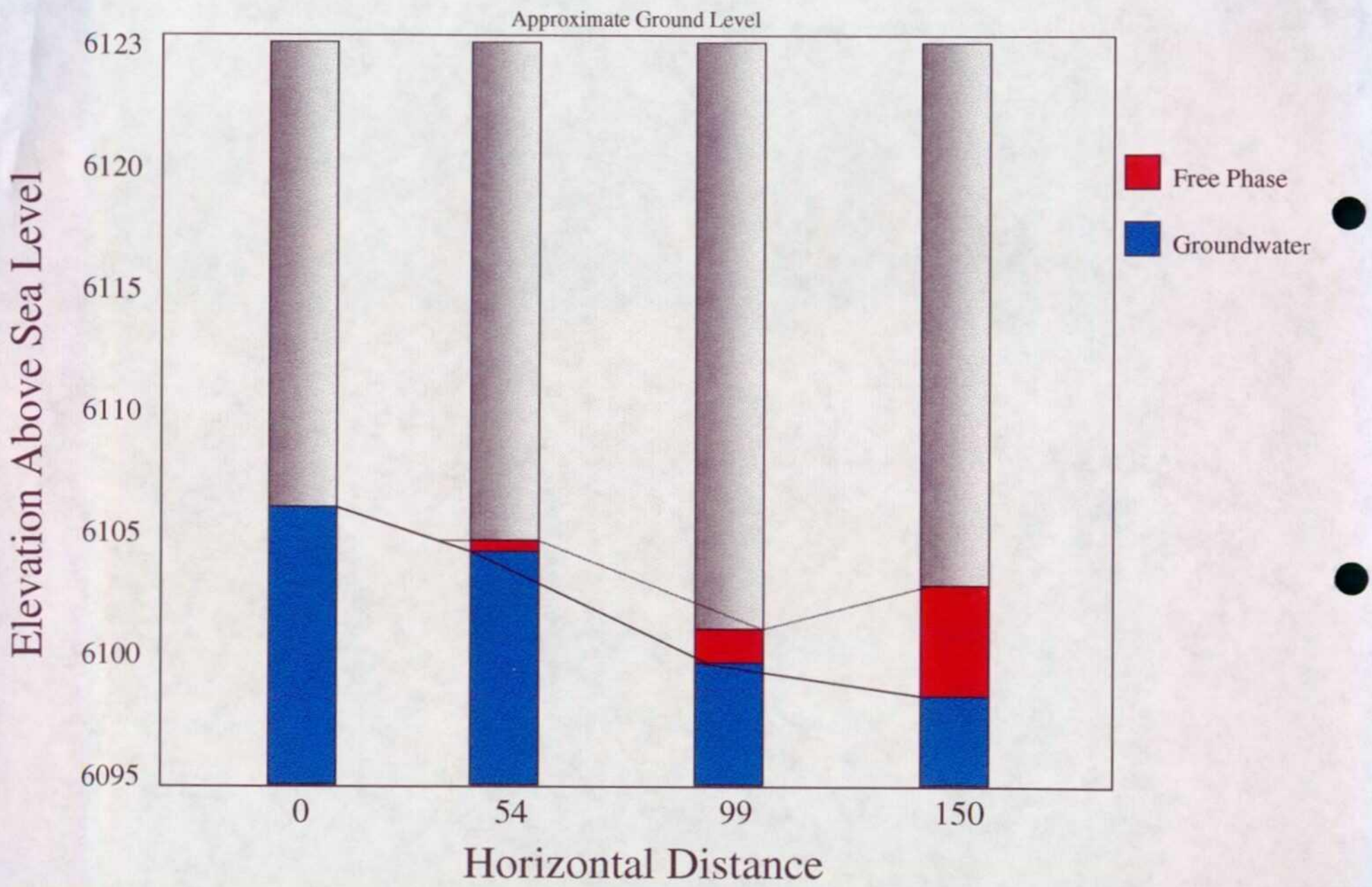
Well #	Date	B	T	E	X
MW-1	10/30/97	2.4	2.3	<0.2	1.1
MW-1	1/12/98	4.3	3.3	0.2	1
MW-1	4/14/98	1	1.3	<0.5	<1.5
MW-2	1/12/98	4.41 feet of product			
MW-2	4/14/98	2.59 feet of product			
MW-3	1/31/97	<0.2	<0.2	<0.2	<0.2
MW-3	1/12/98	<0.2	<0.2	<0.2	<0.2
MW-3	4/14/98	<0.5	<0.5	<0.5	<1.5
MW-4	1/31/97	811.7	1420.5	31.0	388.1
MW-4	1/12/98	1251	6	81	24
MW-4	4/14/98	1100	7.2	28	12
MW-5	10/29/97	5934	10024	709	8188
MW-5	1/12/98	7521	11213	779	8436
MW-5	4/14/98	7000	11000	720	7800
MW-6	1/12/98	4.71 feet of product			
MW-6	4/14/98	Product Recovery (pump in well)			
MW-7	1/12/98	780	246	258	3942
MW-7	4/14/98	820	340	190	2450
MW-8	1/12/98	6410	17301	693	9397
MW-8	4/14/98	0.37 feet of product			
EB-Well	11/25/97	<0.2	<0.2	<0.2	<0.2
TPW-1	6/5/97	20	<1.0	<1.0	<1.0
TPW-2	6/9/97	2.48 feet of product			
TPW-3	6/5/97	No Groundwater Water			
TPW-4	6/6/97	2000	57	3100	810
TPW-5	6/6/97	5800	460	16000	7000
TPW-6	6/6/97	1600	48	3400	690
TPW-7	6/6/97	5300	620	18000	9300

Ham210map.srf rev4/19/98

ATTACHMENT #5

CROSS SECTION FROM MW-4 TO MW-2

CROSS SECTION FROM MW-4 TO MW-2



BURLINGTON RESOURCES

SAN JUAN DIVISION

April 29, 1998

Certified: P 103 693 193

Bill Olson
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

RE: Hampton 4M - Groundwater Contamination
Unit Letter N, Section 13, Township 30N, Range 11W

Dear Mr. Olson

This letter is to confirm our recent conversation that the deadline for Burlington Resources' report on the subject project has been postponed from May 8, 1998 to May 29, 1998. This will allow us adequate time to install the required monitor wells, do a round of sampling from all monitor wells, and prepare a report on the remediation and investigation actions.

If you have questions or additional information is needed, please contact me at (505) 326-9841.

Sincerely,

Ed Hasely
Sr. Staff Environmental Representative

cc: Denny Foust - NMOCD Aztec
Johnny Ellis - BR
Bruce Gantner - BR
Hampton 4M File

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

April 7, 1998

CERTIFIED MAIL
RETURN RECEIPT NO. Z-235-437-253

Mr. Ed Hasely
Burlington Resources
P.O. 4289
Farmington, New Mexico 87499-4289

RE: GROUND WATER CONTAMINATION
HAMPTON 4M WELL SITE

Dear Ms. Gannon:

The New Mexico Oil Conservation Division (OCD) has reviewed Burlington Resources (BR) January 30, 1998 "HAMPTON 4M - GROUNDWATER CONTAMINATION, UNIT LETTER N, SECTION 13, TOWNSHIP 30N, RANGE 11W". This document contains the results of BR's recent investigation and remedial actions at the Hampton 4M well site near Aztec, New Mexico. The document also recommends an action plan for remediation and monitoring of contaminated ground water related to BR's operations.

The investigation and remedial actions taken to date are satisfactory, however, the OCD notes that BR did not analyze ground water samples from the monitor wells for New Mexico Water Quality Control Commission (WQCC) metals and cations and anions pursuant to the OCD's November 124, 1997 work plan approval conditions.

The remedial action plan as contained in the above referenced document is approved with the following conditions:

1. BR will install 2 additional monitor wells at the locations of former temporary boreholes TPW-1 and TPW-2 for the purposes of monitoring the downgradient limits of BR's ground water plume. The monitor wells will be installed and constructed in accordance with the procedures outlined in BR's September 19, 1997 prior work plan.

2. BR will sample and analyze ground water from all of the monitor wells for concentrations of benzene, toluene, ethylbenzene, xylene (BTEX), WQCC metals and cations and anions using EPA approved methods and quality assurance/quality control procedures.

3. BR will submit a report on the remediation and investigation actions to the OCD by May 8, 1998. The report will contain:

   a. A description of all activities conducted including conclusions and recommendations.

   b. A water table elevation map showing all monitor well locations and relevant site features and the direction and magnitude of the hydraulic gradient.

   c. Geologic logs and well completion diagrams for each monitor well.

   d. The laboratory analytical results of all soil and water quality sampling including the quality assurance/quality control data.

   e. The disposition of all wastes generated.

   f. A long term ground water monitoring plan.

Pleased be advised that OCD approval does not relieve BR of liability if BR fails to adequately remediate or define the extent of contamination related to BR's activities. In addition, OCD approval does not relieve BR of responsibility for compliance with any other federal, state, local or tribal laws and regulations.

If you have any questions, please call me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrologist
Environmental Bureau

xc: Denny Foust, OCD Aztec District Off
Maureen Gannon, PNM
J. Burton Everett

Z 235 437 253

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STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

March 13, 1998

CERTIFIED MAIL
RETURN RECEIPT NO. Z-235-437-244

Ms. Maureen Gannon
PNM
Alvarado Square, MS 0408
Albuquerque, New Mexico 87158

RE: GROUND WATER CONTAMINATION
HAMPTON 4M WELL SITE

Dear Ms. Gannon:

The New Mexico Oil Conservation Division (OCD) has been reviewing the investigation and remedial actions related to PNM's former dehy pit at Burlington Resources Hampton 4M well site near Aztec, New Mexico.

The investigation and remedial actions taken to date are satisfactory. However, the OCD is concerned about the migration of contaminated ground water onto downgradient private lands and the presence of private water wells downgradient of the site. Therefore, the OCD requires that PNM take additional remedial actions within 30 days to remove the remaining source areas with free phase hydrocarbons in the vicinity of and immediately downgradient of the dehy pit.

If you have any questions, please call me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

xc: Denny Foust, OCD Aztec District O
Ed Hasely, Burlington, Resources
J. Burton Everett

PS Form **3800**, April 1995

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STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

March 11, 1998

Mr. J. Burton Everett
Everett Investment
P.O. Box 476
Aztec, New Mexico 87410

RE: GROUND WATER CONTAMINATION
HAMPTON 4M WELL SITE

Dear Mr. Everett:

The New Mexico Oil Conservation Division (OCD) has reviewed your February 23, 1998 correspondence notifying the OCD that contaminated ground water has migrated onto your property from Burlington Resources Hampton 4M well site near Aztec, New Mexico.

The OCD has been working with the Public Service Company of New Mexico (PNM) and Burlington Resources to remediate contaminated soils and ground water at the site. Because you are directly impacted by the contamination the OCD will copy you on all correspondence related to the site. If you are interested in reviewing the actions taken to date, all of the information related to the remedial actions are on file at the OCD Aztec Office.

If you have any questions or concerns, please call me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrologist
Environmental Bureau

xc: Denny Foust, OCD Aztec District Office
Maureen Gannon, PNM
Ed Hasely, Burlington, Resources

Bill Olson

BURLINGTON RESOURCES

SAN JUAN DIVISION

March 4, 1998

J. Burton Everett
P.O. Box 476
Aztec, New Mexico 87410

RE: Hampton 4M Gas Well
Unit Letter N, Section 13, Township 30N, Range 11W

Dear Mr. Everett:

In response to your letter dated February 23, 1998, I am not aware of the test results referenced in your letter and would appreciate it if you would provide me with a copy of the test results that Mr. Bearden brought to your attention. P.N.M. sampled your water well and indicated to me that the laboratory results showed the water met drinking water standards.

Burlington Resources has been and is currently working with P.N.M. and the New Mexico Oil Conservation Division concerning the necessary cleanup of the Hampton 4M location. As part of the cleanup effort, Burlington excavated and removed approximately 1000 cubic yards of soil from the location in December, 1997. We will continue to cooperate with companies and agencies to properly address any problems.

If you have questions or additional information is needed, please contact me at (505) 326-9841.

Sincerely,

Ed Hasely
Sr. Staff Environmental Representative

Cc: Maureen Gannon – PNM
Denny Foust – NMOCD

3535 East 30th St., 87402-8801, P.O. Box 4289, Farmington, New Mexico 87499-4289, Telephone 505-326-9700, Fax 505-326-9833

February 23, 1998
PO Box 476
Aztec, New Mexico 87410

To Whom It May Concern:

Re: Hydrocarbon pollutants affecting private property

Location: Downstream (north) from Hampton 4 M gas well in
San Juan County, New Mexico
South of State Rd. #173 approximately 2 miles east of
Aztec.

Mr. Denver Bearden brought me test results that show a serious problem exists as to various hydrocarbon components that are very high. The problem has existed for several years and warrants immediate attention.

Please cooperate with any and all agencies, companies and personnel necessary to effect necessary results.

Your very truly,

J. Burton Everett General Partner
Everett Investment
A New Mexico limited partnership

cc: Mr. Ed Hasely
c/o Burlington Resources

Diana Luck
c/o P.N.M.

Denny Foust
New Mexico Oil Conservation div.

BURLINGTON RESOURCES

SAN JUAN DIVISION

January 30, 1998

Certified: P 103 693 179

Bill Olson
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 85704

RE: Hampton 4M - Groundwater Contamination
Unit Letter N, Section 13, Township 30N, Range 11W

Dear Mr. Olson

As requested in your November 24, 1997 letter, the following is a status report on the soil/groundwater investigation and remediation activities that have been conducted at the Hampton 4M gas production location. This report addresses the activity up gradient of PNM's former dehydrator pit as detailed in Burlington Resources' Soil and Groundwater Investigation Work Plan dated September 19, 1997. Details on the initial investigation work were submitted to you on July 30, 1997 and will not be repeated in this report. A site diagram showing the location of the discussed monitoring wells and soil excavation is included in Attachment #1.

Up Gradient Monitoring Well Information

Archaeological clearance and landowner approval was obtained on October 17, 1997 to drill a monitoring well off the existing well pad. On October 29, 1997, Philip Services Corporation drilled and completed an up gradient monitoring well located approximately 50 feet south of the southeast corner of the production location. The geologic logs and well completion diagram for this well (MW #1) are included in Attachment #2. Analytical results of a water sample collected on October 30, 1997 and again on January 12, 1998 showed the water to be clean (below regulatory limits). The laboratory results are included in Attachment #3.

On Site Source Investigation/Remediation

As discussed in the Work Plan, the source investigation work in the southeast corner of location required the use of a D-8 dozer due to the hard layers of sandstone. On December 3, 1997, the dozer began by ripping and pushing non-impacted soil to the south side of location. After approximately four feet of clean soil had been removed to the south, a small area of impacted soils was uncovered in the former location of the produced hydrocarbon storage tanks. A screen of this soil with a PID registered a reading of 900 parts per million (ppm). At that time, the dozer began ripping and pushing the soil to the north side of the excavation.

Due to the fact that a dozer was being used to excavate the contaminated soils, non-impacted soils could not easily be segregated from the contaminated soils. The dozer, unlike a backhoe, could not pick and choose the soils to be stockpiled. For this reason, soils stockpiled to the north of the excavation included a large percentage of clean soil mixed with a smaller percentage of contaminated soils. The entire stockpile was treated as contaminated soil.

3535 East 30th St., 87402-8801, P.O. Box 4289, Farmington, New Mexico 87499-4289, Telephone 505-326-9700, Fax 505-326-9833

Excavation work continued on December 4, 1997. At approximately the 14-foot level, all four walls and the bottom of the excavation were sampled for heated headspace PID readings. All except the west wall had readings greater than the NMOCD's pit closure guideline of 100 ppm. The excavation work resumed and at approximately the 15-foot level, samples were again collected. The readings at this depth were all less than 100 ppm and a composite showed a reading of 44 ppm on the PID. The PID readings for both depths are detailed in Table 1.

Table 1
Hampton 4M Excavation
Heated Headspace PID Readings (ppm)

Depth (ft)	South Wall	West Wall	North Wall	East Wall	Bottom
14	526	51.0	273	388	195
15	5.4	51.0	49.0	15.0	38.0

At this time, the dozer work was discontinued. The final excavation was approximately 60 feet long, 30 feet wide and 15 feet deep. Due to the need for the dozer to ramp into the excavation, additional dirt had to be moved. Again, this additional dirt could not be segregated from the impacted soil and was treated as contaminated.

Soil samples were collected from the excavation for laboratory analysis on December 4, 1997. The samples were sent to Onsite Laboratory and analyzed for Benzene, Toluene, Ethlybenzene and Total Xylenes (BTEX) by USEPA Method 8020 and Total Petroleum Hydrocarbons (TPH) by USEPA Method 8015 modified for gasoline and diesel range hydrocarbons. The results were all less than NMOCD cleanup standards for soils and are included in Attachment #3.

After the excavation was left open for a few hours, groundwater seeped into the excavation. No free phase hydrocarbons were observed. Over the next week, approximately 100 barrels of water were removed from the excavation and properly disposed. Thirty barrels were removed on December 5 and seventy barrels were removed on December 11, 1997. Due to the soil disturbance from the dozer work, it was felt a water sample would not be representative of actual groundwater. For this reason, no samples of the water were collected from the excavation.

Waste Disposal

The impacted soils that were stockpiled to the north of the excavation were transported to nearby Burlington Resources locations and landfarmed. Impacted soils, totaling approximately 1000 cubic yards, were trucked to the Nye SRC #14, Nye SRC #4 and Hampton #5 well site locations . These landfarms will be periodically disked to promote natural bio-degradation until TPH and BTEX levels are less than NMOCD cleanup standards.

The water that was removed from the excavation was disposed in Burlington Resources' McGrath SWD located in Section 34 – T30N – R12W, San Juan County, New Mexico.

Additional Monitoring Wells

As requested in your November 24, 1997 letter, an additional monitoring well was installed midway between MW-4 and TPW-3. The new well, identified as MW-8, was drilled and completed on December 11, 1997 by Philip Services Corporation. The geologic logs and well completion diagrams are included in Attachment #2. Analytical results of a water sample collected on January 12, 1998 showed the water was high in dissolved BTEX components (total BTEX of 33,801 ppb). The laboratory results are included in Attachment #3.

The excavation has been left open to promote remediation; therefore, the required source monitoring well has not yet been installed. Once the excavation is backfilled, the monitoring well will be installed in the source area near the former location of temporary monitor well TPW-7.

Existing Monitoring Well Sampling

Two existing monitoring wells (MW-3 and MW-4) that are located up gradient of PNM's former dehydrator discharge pit were sampled on January 12, 1998. The water from MW-3, which is located near the west edge of location, continued to be non-detect for BTEX components. The water from MW-4, located immediately down gradient of the excavation, still had high BTEX, but the level dropped to less than half of the May 1, 1997 sample. This reduction in contaminant levels may be directly related to the remediation efforts (source removal) that have taken place to date. Table 2 shows the results of the past sampling of these two monitoring wells.

Table 2
Groundwater Sampling Summary
BTEX (ppb)

	1/31/97	5/1/97	1/12/98
MW-3	ND	ND	ND
MW-4	2651	3470	1361

PNM had all the monitoring wells surveyed for location and groundwater elevation on January 12, 1998. The direction and magnitude of the hydraulic gradient, using this most recent data, has not yet been determined. Burlington and/or PNM will provide you with a map showing the details of the recent surveys when it becomes available.

Conclusions

The water quality of the up gradient well (MW#1) indicates that groundwater contamination is not coming from an off site source. The quality of the water from the monitoring well, located approximately 50 feet up gradient of the location, has been tested twice and is within water quality standards.

The recent excavation work done at the Hampton 4M confirmed a second source of groundwater contamination in the southeast corner of the location. The dozer work in the southeast corner of the location revealed hydrocarbon impacted soils to a depth of 15 feet, which is the approximate depth to groundwater. Source removal has been completed. The contaminated soils in this area of Burlington

Resources' former tank battery have all been excavated and taken off location. The source removal appears to be effective as shown by the decrease in dissolved BTEX in monitoring well MW-4.

No evidence has been found indicating that Burlington Resources' operations in the southeast corner of the location have contributed to the free phase hydrocarbons near PNM's former dehydrator pit. High concentrations of dissolved phase hydrocarbons have been found near Burlington's operations, but no free phase. Free phase hydrocarbons have not been found in any of the temporary monitoring wells or completed monitoring wells in Burlington's area of operation. The excavation, which has been open to the groundwater for over a month, has also not shown any evidence of free phase hydrocarbons.

Plan of Action

To address the groundwater contamination associated with Burlington Resources' operations in the southeast corner of the location, plans are to leave the excavation open for a period of time while we monitor the contaminant levels in the down gradient wells. Both MW-4 and the recently drilled MW-8 are located to allow good monitoring immediately down gradient of Burlington's source removal area.

Once a downward trend of contaminant levels is established in the two wells directly down gradient of Burlington's source removal area, the excavation will be backfilled with clean soils. A monitoring well will then be installed in the source area. Water quality from the source well and the down gradient wells will be monitored periodically to show improvement in water quality.

The unique characteristics of the Hampton 4M location pose challenges of site characterization and remediation. Burlington Resources feels that continued groundwater monitoring will show a decrease in contaminant levels up gradient of PNM's former dehydrator pit as a result of the source removal in the southeast corner of the location. If you have questions or additional information is needed, please contact me at (505) 326-9841.

Sincerely,

Ed Hasely
Sr. Staff Environmental Representative

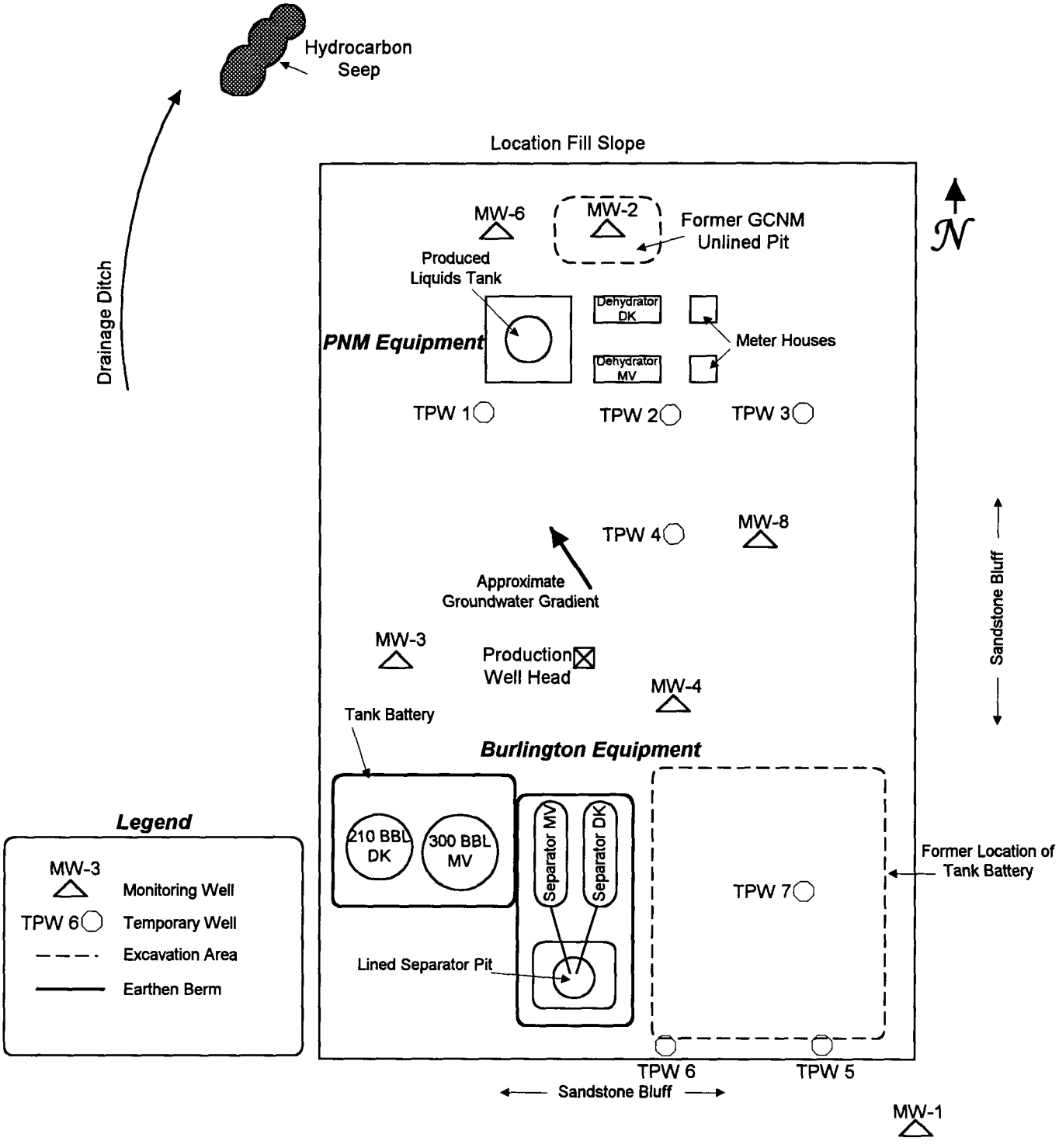
Enclosures: Attachment #1: Hampton 4M Site Diagram
Attachment #2: Geologic Logs and Well Completion Diagrams
Attachment #3: Laboratory Results

cc: Denny Foust - NMOCD Aztec
Johnny Ellis - BR
Ken Raybon - BR
Keith Baker - BR
Denver Bearden - PNM Farmington
Maurene Gannon - PNM Albuquerque
Hampton 4M File

ATTACHMENT #1

SITE DIAGRAM

Hampton 4M Site Diagram



ATTACHMENT #2

GEOLOGIC LOGS
AND
WELL COMPLETION DIAGRAMS

RECORD OF SUBSURFACE EXPLORATION

Borehole # BH-3
Well # MW-1
Page 1 of 2

PHILIP SERVICES CORP.
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Project Name PNM HAMPTON 4M
Project Number 18839 Phase 6000
Project Location HAMPTON 4M

Elevation
Borehole Location SE Corner of Wellpad on hill
GWL Depth 38.85' BGS
Logged By CM CHANCE
Drilled By K Padilla
Date/Time Started 10/29/97
Date/Time Completed 10/29/97

Well Logged By CM CHANCE
Personnel On-Site D CHARLEY
Contractors On-Site
Client Personnel On-Site

Drilling Method 4 1/4 ID HSA
Air Monitoring Method PID

Depth (Feet)	Sampl Numbe	Sample Interval	Sample Type & Recover (Inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: PPM BZ	BH	S	Drilling Conditions & Blow Counts
0										
5										
10										
15										
20	1	18-20	10	Lt Gry/Br weathered SANDSTONE Poorly Cemented, f-med sand, V. dense, dry			0		0/1	1341 hr
25	2	23-25	12	Br weathered SANDSTONE, Poorly cemented, vf-F sand, V. dense, dry			0		0/1	1351 hr
30	3	28-30	8	Lt Gry weathered SANDSTONE Fairly cemented, f-med sand, V. dense, dry			0		48/5	1418 hr
35	4	33-35	6	AA					0/1	GW @ 38.85'
40	5	38-40	4	Lt Gry weathered SANDSTONE, Poorly cemented, f-med sand, dense, wet					9/1	

Comments: Location is ~20' above well pad. Will drill to 20' before sampling. GW @ 38.85' BGS. Will drill 5' more & install well.

Geologist Signature Cory Chance

RECORD OF SUBSURFACE EXPLORATION

Borehole # BH-3
Well # MW-1
Page 2 of 2

PHILIP SERVICES CORP.
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Project Name PNM HAMPTON 4M
Project Number 18839 Phase 6000
Project Location HAMPTON 4M

Elevation
Borehole Location
GWL Depth 38.85'
Logged By CM CHANCE
Drilled By K Padilla
Date/Time Started 10/29/97
Date/Time Completed 10/29/97

Well Logged By CM CHANCE
Personnel On-Site D CHARLEY
Contractors On-Site
Client Personnel On-Site

Drilling Method 4 1/4 ID HSA
Air Monitoring Method PID

Depth (Feet)	Sampl Numbe	Sample Interval	Sample Type & Recover (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: PPM BZ	BH	S	Drilling Conditions & Blow Counts
40										
45				TDB 43.8'						
50										
55										
60										
65										
70										
75										
80										

Comments:

Geologist Signature Cm Chance

10/31/97)-DRILLOG.XLS

MONITOR WELL INSTALLATION FORM

Borehole # 3
Well # MW-1
Page 1 of 1

Philip Services Corp.
4000 Monroe Rd.
Farmington, NM 87401
(505) 326-2262 FAX (505) 326-2388

Project Name PNM HAMPTON 4M
Project Numb 18839 Phase 6000
Site Location HAMPTON 4M

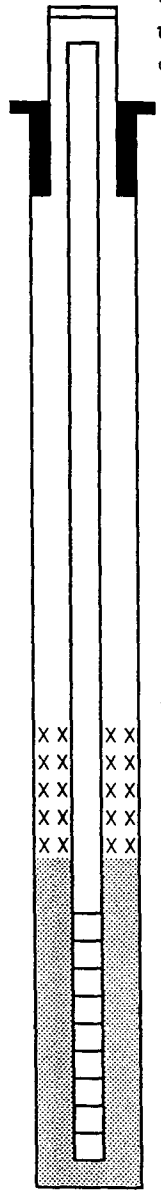
Elevation
Well Location
GWL Depth 38.85' BGS
Installed By K PADILLA

Date/Time Started 10/29/97
Date/Time Complete 10/29/97

On-Site Geologist C CHANCE
Personnel On-Site D CHARLEY
Contractors On-Site
Client Personnel On-Site

Depths in Reference to Ground Surface

Item	Material	Depth (feet)
Top of Protective Casing		+3.1
Bottom of Protective Casing		1.8
Top of Permanent Borehole Casing		~~NA~~ +3
Bottom of Permanent Borehole Casing		~~NA~~ 2
Top of Concrete		NA
Bottom of Concrete		NA
Top of Grout		0
Bottom of Grout		23.5
Top of Well Riser	30' 2"X10'	+3
Bottom of Well Riser	PVC riser	28.5
Top of Well Screen	15' 2"X10'	28.5
Bottom of Well Screen	0.01 slot	43.5
Top of Peltonite Seal	hole plug	23.5
Bottom of Peltonite Seal		25.5
Top of Gravel Pack	10-20 silica	25.5
Bottom of Gravel Pack	SAND	43.5
Top of Natural Cave-In		43.5
Bottom of Natural Cave-In		43.8
Top of Groundwater		38.8
Total Depth of Borehole		43.8



Top of Protective Casing ~~NA~~ +3.1'
Top of Riser (survey elev.) +3
Ground Surface 0

Top of Seal 23.5
Top of Gravel Pack 25.5
Top of Screen 28.5
Bottom of Screen 43.5
Bottom of Borehole 43.8

Comments Set well @ 43.5' BGS. Hydrate seal w/ 10 gal potable water. Padlock & locking well cap on well. Well completed

Geologist Signature Cory Chancy

RECORD OF SUBSURFACE EXPLORATION

Borehole # BH-6
Well # MW8
Page 1 of 1

PHILIP SERVICES CORP.
4000 Monroe Road
Farmington, New Mexico 87401
(505) 326-2262 FAX (505) 326-2388

Project Name PNM HAMPTON 4M
Project Number 18929 Phase 1001
Project Location HAMPTON 4M

Elevation
Borehole Location Center of Site
GWL Depth ~20' BGS
Logged By CM CHANCE
Drilled By K Padilla
Date/Time Started 12/11/97
Date/Time Completed 12/11/97

Well Logged By CM CHANCE
Personnel On-Site D CHARLEY, P Archuleta
Contractors On-Site
Client Personnel On-Site M. Sikeliaos, M. Bannon

Drilling Method 4 1/4 ID HSA
Air Monitoring Method PID

Depth (Feet)	Sample Numbe	Sample Interval	Sample Type & Recovery (inches)	Sample Description Classification System: USCS	USCS Symbol	Depth Lithology Change (feet)	Air Monitoring Units: PPM BZ	BH	S/HS	Drilling Conditions & Blow Counts
0										
5										
10	1	10-12	18	Br/Gry mottled CLAY, dry, stiff, low-med plastic					2/1	1507h
15	2	14-16	24	Redish Br silty SAND, F-med sand, dense, sl moist					305/38	1520h
	3	16-18	24	Gry/Redish Br clayey SAND, vf-f sand, sl moist, med dense					206/42	1530h
	4	18-19	12	Gry/Redish Br CLAY, dry, low plastic, interbedded siltstone					112/34	1538h
20	5	20-21	12	Gry silty SAND, vf-f sand, moist, med dense					24/1	1544h
	6	22-23	4	Gry silty CLAY, stiff, high plastic, dry					0	1550
25				TOB 25'						
30										
35										
40										

Comments: Note: Sample #6 may have only been stiff. Only 4" of recovery. Will set 2" well @ 25' BGS

Geologist Signature Cory Chancy

MONITOR WELL INSTALLATION FORM

Philip Services Corp.
4000 Monroe Rd.
Farmington, NM 87401
(505) 326-2262 FAX (505) 326-2388

Borehole # BH6
Well # MW 8
Page ___ of ___

Project Name PNM Hampton 4M
Project Number 18929 Phase 1001.77
Site Location Hampton 4M

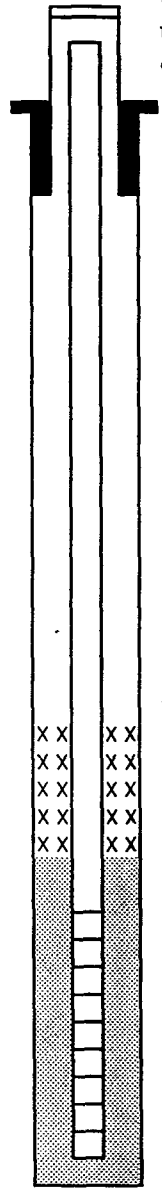
Elevation ___
Well Location Center of Site
GWL Depth ~20' BGS
Installed By K PADILLA

Date/Time Started 12/11/97
Date/Time Complete 12/11/97

On-Site Geologist C CHANCE
Personnel On-Site D Charley, P. Archuleta
Contractors On-Site ___
Client Personnel On-Site M. Sikorianec, M. Gomez

Depths in Reference to Ground Surface

Item	Material	Depth (feet)
Top of Protective Casing		+3" NA
Bottom of Protective Casing		9" NA
Top of Permanent Borehole Casing		NA
Bottom of Permanent Borehole Casing		NA
Top of Concrete		NA
Bottom of Concrete		NA
Top of Grout		NA
Bottom of Grout		NA
Top of Well Riser		0
Bottom of Well Riser		10
Top of Well Screen		10
Bottom of Well Screen		25
Top of Peltonite Seal		0
Bottom of Peltonite Seal		8
Top of Gravel Pack		8
Bottom of Gravel Pack		25
Top of Natural Cave-In		25
Bottom of Natural Cave-In		25
Top of Groundwater		~20'
Total Depth of Borehole		25



Top of Protective Casing +3"
Top of Riser (survey elev.) 0
Ground Surface 0
Top of Seal 0
Top of Gravel Pack 8
Top of Screen 10
Bottom of Screen 25
Bottom of Borehole 25

Commen Well completed as surface mount. Locking well cap + padlock placed on well. Seal hydrated w/ 5gal potable water.

Geologist Signature [signature]

MWINSTAL.wk1

ATTACHMENT #3

LABORATORY RESULTS

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:	*Denver Bearden*	Date:	5-Nov-97
Company:	*PNM Gas Services*	COC No.:	*7080*
Address:	*603 W. Elm*	Sample No.:	*16700*
City, State:	*Farmington, NM 87401*	Job No.:	*2-1000*

Project Name:	***PNM Gas Services - Hamptom 4M***				
Project Location:	***9710301030; MW-1***				
Sampled by:	MS	Date:	30-Oct-97	Time:	10:30
Analyzed by:	HR	Date:	4-Nov-97		
Sample Matrix:	*Liquid*				

Burlington's well -

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene	2.4	ug/L	0.2	ug/L
Toluene	2.3	ug/L	0.2	ug/L
Ethylbenzene	ND	ug/L	0.2	ug/L
m,p-Xylene	1.1	ug/L	0.2	ug/L
o-Xylene	ND	ug/L	0.2	ug/L
TOTAL	5.8	ug/L		

ND - Not Detected at Limit of Quantitation

Method - *SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography*

Approved By:

Date: 11/5/97

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

QUALITY ASSURANCE REPORT

for EPA Method 8020

Date Analyzed: 4-Nov-97

Internal QC No.: 0559-STD
Surrogate QC No.: 0556-STD
Reference Standard QC No.: 0529/30-QC

Method Blank

Parameter	Result	Unit of Measure
Average Amount of All Analytes In Blank	<0.2	ppb

Calibration Check

Parameter	Unit of Measure	True Value	Analyzed Value	RPD	Limit
Benzene	ppb	20.0	20.7	4	15%
Toluene	ppb	20.0	21.3	6	15%
Ethylbenzene	ppb	20.0	21.2	6	15%
m,p-Xylene	ppb	40.0	40.3	1	15%
o-Xylene	ppb	20.0	21.1	5	15%

Matrix Spike

Parameter	1- Percent Recovered	2 - Percent Recovered	Limit	RPD	Limit
Benzene	92	86	(39-150)	3	20%
Toluene	96	87	(46-148)	3	20%
Ethylbenzene	97	92	(32-160)	4	20%
m,p-Xylene	94	88	(35-145)	4	20%
o-Xylene	95	92	(35-145)	2	20%

Surrogate Recoveries

Laboratory Identification	S1 Percent Recovered	S2 Percent Recovered	Laboratory Identification	S1 Percent Recovered	S2 Percent Recovered
Limit Percent Recovered	(70-130)		Limit Percent Recovered	(70-130)	
16699-7080	95				
16700-7080	95				
					(RE)
					11/5/97

S1: Flourobenzene

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:	*Denver Bearden*	Date:	23-Jan-98
Company:	*PNM Gas Services*	COC No.:	*7086*
Address:	*603 W. Elm*	Sample No.:	*17304*
City, State:	*Farmington, NM 87401*	Job No.:	*2-1000*

Project Name:	***PNM Gas Services - Hampton 4M***				
Project Location:	***9801121030; MW-1***				
Sampled by:	MS/MG/RD/RB	Date:	12-Jan-98	Time:	10:30
Analyzed by:	DC	Date:	21-Jan-98		
Sample Matrix:	*Liquid*				

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene	4.3	ug/L	0.2	ug/L
Toluene	3.3	ug/L	0.2	ug/L
Ethylbenzene	0.2	ug/L	0.2	ug/L
m,p-Xylene	0.7	ug/L	0.2	ug/L
o-Xylene	0.3	ug/L	0.2	ug/L
TOTAL	8.8	ug/L		

ND - Not Detected at Limit of Quantitation

Method - *SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography*

Approved By:
Date: 1/23/98

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:	*Denver Bearden*	Date:	23-Jan-98
Company:	*PNM Gas Services*	COC No.:	*7086*
Address:	*603 W. Elm*	Sample No.:	*17309*
City, State:	*Farmington, NM 87401*	Job No.:	*2-1000*

Project Name:	***PNM Gas Services - Hampton 4M***				
Project Location:	***9801121300; MW-8***				
Sampled by:	MS/MG/RD/RB	Date:	12-Jan-98	Time:	13:00
Analyzed by:	DC	Date:	21-Jan-98		
Sample Matrix:	*Liquid*				

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene	6410	ug/L	20	ug/L
Toluene	17301	ug/L	20	ug/L
Ethylbenzene	693	ug/L	20	ug/L
m,p-Xylene	7612	ug/L	20	ug/L
o-Xylene	1785	ug/L	20	ug/L
TOTAL	33801	ug/L		

ND - Not Detected at Limit of Quantitation

Method - *SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography*

Approved By:
Date: 1/23/98

ON SITE TECHNOLOGIES, LTD.

OFF: (505) 325-5667 LAB: (505) 325-1556

QUALITY ASSURANCE REPORT

for EPA Method 8020

Date Analyzed: 21-Jan-98

Internal QC No.: 0559-STD
Surrogate QC No.: 0567-STD
Reference Standard QC No.: 0529/30-QC

Method Blank

Parameter	Result	Unit of Measure
Average Amount of All Analytes In Blank	<0.2	ppb

Calibration Check

Parameter	Unit of Measure	True Value	Analyzed Value	RPD	Limit
Benzene	ppb	30.0	30.6	2	15%
Toluene	ppb	30.0	30.8	3	15%
Ethylbenzene	ppb	30.0	31.4	5	15%
m,p-Xylene	ppb	60.0	59.7	0	15%
o-Xylene	ppb	30.0	31.1	4	15%

Matrix Spike

Parameter	1- Percent Recovered	2 - Percent Recovered	Limit	RPD	Limit
Benzene	102	92	(39-150)	2	20%
Toluene	108	105	(46-148)	2	20%
Ethylbenzene	108	105	(32-160)	3	20%
m,p-Xylene	104	102	(35-145)	3	20%
o-Xylene	110	107	(35-145)	2	20%

Surrogate Recoveries

Laboratory Identification	S1 Percent Recovered	S2 Percent Recovered	Laboratory Identification	S1 Percent Recovered	S2 Percent Recovered
Limit Percent Recovered	(70-130)		Limit Percent Recovered	(70-130)	
17304-7086	101		17310-7086	100	
17305-7086	102				
17306-7086	100				
17307-7086	100				
17308-7086	101				
17309-7086	101				

S1: Flourobenzene

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:	*Scott Pope*	Date:	12-Dec-97
Company:	*Philip Environmental*	COC No.:	*G3687*
Address:	*4000 Monroe Road*	Sample No.:	*17042*
City, State:	*Farmington, NM 87401*	Job No.:	*2-1000*

Project Name:	***Burlington Resources - Hampton 4M***				
Project Location:	***B.R.O.G. 01***				
Sampled by:	DB	Date:	4-Dec-97	Time:	13:00
Analyzed by:	DC/HR	GRO Date:	9-Dec-97		
Sample Matrix:	*Soil*	DRO Date:	11-Dec-97		

Laboratory Analysis

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Gasoline Range Organics (C5 - C9)	ND	mg kg	0.5	mg/kg
Diesel Range Organics (C10 - C28)	ND	mg kg	5	mg/kg

ND - Not Detected at Limit of Quantitation

Quality Assurance Report

GRO QC No.: 0554-STD

DRO QC No.: 0555-STD

Continuing Calibration Verification

Parameter	Method Blank	Unit of Measure	True Value	Analyzed Value	RPD	RPD Limit
Gasoline Range (C5 - C9)	ND	ppb	1,801	1,869	3.7	15%
Diesel Range (C10 - C28)	ND	ppm	200	195	2.4	15%

Matrix Spike

Parameter	1- Percent Recovered	2 - Percent Recovered	Limit	RPD	RPD Limit
Gasoline Range (C5-C9)	93	92	(80-120)	0	20%
Diesel Range (C10-C28)	95	98	(75-125)	3	20%

Method: *SW-846 EPA Method 8015A mod. - Nonhalogenated Volatile Hydrocarbons by Gas Chromatography*

Approved by:

Date: 12/12/97

OFF: (505) 325-5667

ON SITE
TECHNOLOGIES, LTD.

LAB: (505) 325-1556

ANALYTICAL REPORT

Attn:	*Scott Pope*	Date:	10-Dec-97
Company:	*Philip Environmental*	COC No.:	*G3687*
Address:	*4000 Monroe Road*	Sample No.:	*17042*
City, State:	*Farmington, NM 87401*	Job No.:	*2-1000*

Project Name:	***Burlington Resources - Hampton 4M***				
Project Location:	***B.R.O.G. 01***				
Sampled by:	DB	Date:	4-Dec-97	Time:	13:00
Analyzed by:	DC	Date:	8-Dec-97		
Sample Matrix:	*Soil*				

Laboratory Analysis

Parameter	Results as Received	Unit of Measure	Limit of Quantitation	Unit of Measure
Benzene	3	ug/kg	1	ug/kg
Toluene	6	ug/kg	1	ug/kg
Ethylbenzene	1	ug/kg	1	ug/kg
m,p-Xylene	17	ug/kg	1	ug/kg
o-Xylene	3	ug/kg	1	ug/kg
TOTAL	31	ug/kg		

ND - Not Detected at Limit of Quantitation

Method - *SW-846 EPA Method 8020A Aromatic Volatile Organics by Gas Chromatography*

Approved by:
Date: 12/10/97

OFF: (505) 325-5667

ON SITE TECHNOLOGIES, LTD.

LAB: (505) 325-1556

QUALITY ASSURANCE REPORT

for EPA Method 8020

Date Analyzed: 8-Dec-97

Internal QC No.: 0559-STD
Surrogate QC No.: 0556-STD
Reference Standard QC No.: 0529/30-QC

Method Blank

Parameter	*Result*	*Unit of Measure*
Average Amount of All Analytes In Blank	<1.0	ppb

Calibration Check

Parameter	*Unit of Measure*	*True Value*	*Analyzed Value*	*RPD*	*Limit*
Benzene	ppb	60.0	62.9	5	15%
Toluene	ppb	60.0	64.8	8	15%
Ethylbenzene	ppb	60.0	63.0	5	15%
m,p-Xylene	ppb	120.0	123.2	3	15%
o-Xylene	ppb	60.0	63.0	5	15%

Matrix Spike

Parameter	*1- Percent Recovered*	*2 - Percent Recovered*	*Limit*	*RPD*	*Limit*
Benzene	96	97	(39-150)	1	20%
Toluene	98	99	(46-148)	1	20%
Ethylbenzene	97	98	(32-160)	1	20%
m,p-Xylene	95	95	(35-145)	0	20%
o-Xylene	97	97	(35-145)	1	20%

Surrogate Recoveries

Laboratory Identification	*S1 Percent Recovered*	*S2 Percent Recovered*	*Laboratory Identification*	*S1 Percent Recovered*	*S2 Percent Recovered*
Limit Percent Recovered	(70-130)		*Limit Percent Recovered*	(70-130)	
17042-G3687	92				
				JHR	(HE)
				12/12/97	12/10/97

S1: Flourobenzene

PHILIP ENVIRONMENTAL

Chain of Custody Record — Nonchemical Samples

210 West Sand Bank Road
P.O. Box 230
Columbia, IL 62236-0230

(618) 281-7173 Phone
(618) 281-5120 FAX

COC Serial No. G 3687

Project Name Burlington Pits Hampton 4M

Project Number 18959 Phase . Task 8000 . 77

Samplers David Brown

Lab Name ONSITE

Location Farmington

Sample Number	Date	Time	Matrix	Analysis Type: BTX	Analysis Type: TPH				Comments
B.R.O.G. 01	12-4-97	13:00	SOIL	X	X				17042-63687

Relinquished by:

Signature	Date	Time
David Brown	12-4-97	15:05

Received By:

Signature	Date	Time
[signature]	12/4/97	1505

Carrier: Airbill No.

Shipping and Lab Notes:

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

November 24, 1997

CERTIFIED MAIL
RETURN RECEIPT NO. P-410-431-231

Mr. Craig A. Bock
Burlington Resources
P.O. Box 4289
Farmington, New Mexico 87499-4289

RE: GROUND WATER CONTAMINATION
HAMPTON 4M WELL SITE

Dear Mr. Bock:

The New Mexico Oil Conservation Division (OCD) has reviewed Burlington Resources' (BR) September 19, 1997 "SOIL AND GROUNDWATER INVESTIGATION WORK PLAN, HAMPTON 4M - UNIT LETTER N, SECTION 13, TOWNSHIP 30N, RANGE 11W". This document contains BR's work plan to determine the extent of soil and ground water contamination related to BR's activities at the Hampton 4M well site near Aztec, New Mexico.

The above referenced work plan is approved with the following conditions:

1. The soil source remediation activities will be completed by December 19, 1997.

2. After completion of the soil source remediation activities BR will install two additional monitoring wells. One well will be located in the source area at the location of temporary monitor well TPW-7. The second monitor well will be located midway between MW-4 and TPW-3.

3. Ground water from all of the monitor wells will be sampled and analyzed for benzene, toluene, ethylbenzene, xylene (BTEX), Water Quality Control Commission (WQCC) metals and cations and anions using EPA approved methods and quality assurance/quality control procedures.

4. BR will submit a report on the remediation and investigation actions to the OCD by January 31, 1997. The report will contain:

   a. A description of all activities conducted including conclusions and recommendations.

b. A map showing the remediated areas, the monitor well locations and the direction and magnitude of the hydraulic gradient.

c. Geologic logs and well completion diagrams for each monitor well.

d. The laboratory analytical results of all soil and water quality sampling including the quality assurance/quality control data.

e. The disposition of all wastes generated.

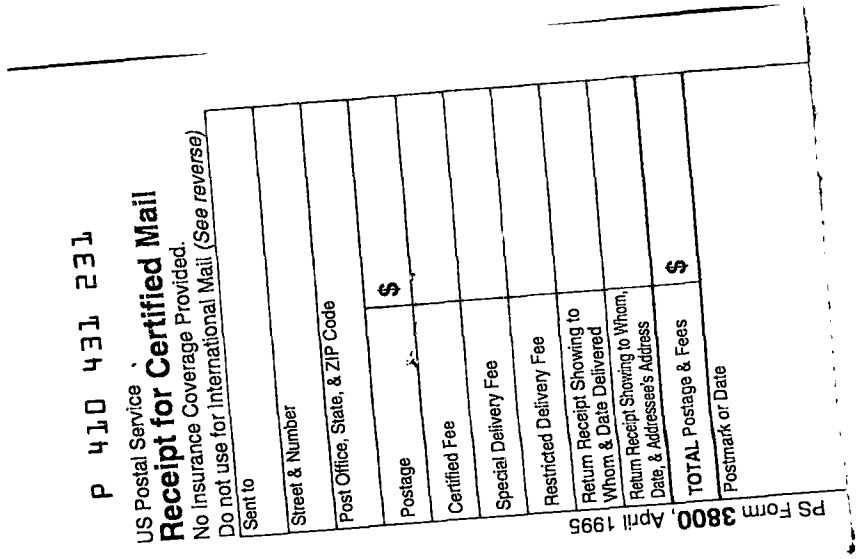
Pleased be advised that OCD approval does not relieve BR of liability if the work plan fails to adequately remediate or define the extent of contamination related to BR's activities. In addition, OCD approval does not relieve BR of responsiblity for compliance with any other federal, state, local or tribal laws and regulations.

If you have any questions, please call me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

xc: Denny Foust, OCD Aztec District Office
Maureen Gannon, PNM



BURLINGTON RESOURCES

SAN JUAN DIVISION

September 19, 1997

Certified P 358 636 572

Bill Olson
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

RE: Soil and Groundwater Investigation Work Plan
Hampton 4M - Unit Letter N, Section 13, Township 30N, Range 11W

Dear Mr. Olson

Burlington Resources (Burlington) is submitting this Soil and Ground Water Investigation Work Plan for the Hampton 4M well site. This work plan presents information on monitoring well construction, soil and ground water sampling and analysis, and the tasks to determine the upgradient extent and source of ground water contamination. As required by the NMOCD letter dated August 27, 1997, this work plan only addresses soil and ground water contamination upgradient of PNM's former dehydrator pit.

Monitoring Well Construction

Monitoring wells will typically be constructed of 4 inch diameter, Schedule 40 polyvinyl chloride (PVC) pipe which will extend to approximately 2 feet above the ground surface. The screened interval of the well will be constructed of machine slotted Schedule 40 PVC that will extend 5 feet above and 10 feet below the water table (subject to site conditions). The sand pack will consist of 10-20 silica sand which will extend to approximately 2 feet above the screened section. A bentonite seal will be installed immediately above the sand pack, and will consist of approximately 2 feet of 1/4-inch bentonite holeplug. The remaining annular space will be filled with a neat cement slurry consisting of 5% bentonite. The well be finished with a locking, above-ground well protector padlock, and a 2 feet by 2 feet by 4 inch thick concrete pad. A typical well completion diagram is provided in Figure 1.

Surface and top of casing elevations will be surveyed to the nearest 0.01 foot, as necessary, to determine ground water flow direction.

Soil and Ground Water Sampling

Ground water samples will be collected following well purging procedures (removal of a minimum of 3 well volumes, or until dry). Ground water samples will be collected using containers supplied by the laboratory with the proper preservatives. Zero headspace techniques will be used for those samples requiring analysis for volatile constituents. Collected samples will be stored on ice and delivered under chain-of custody procedures to the analytical laboratory for analyses.

Ground water samples may be analyzed for the following constituents using the referenced methods.

Total Dissolved Solids	Standard Field Methods
Benzene, Toluene, Ethylbenzene, Total Xylenes (BTEX)	EPA Method 602 or 8020
Cations/Anions	Various EPA or Standard Methods
Heavy Metals	EPA Method 6010 or 7000 Series

If a non-aqueous phase liquid is detected in any of the monitoring wells, additional samples will be collected for analysis of Polynuclear Aromatic Hydrocarbons (PAHs) using EPA Method 8100.

Additional samples may be analyzed for Dissolved Oxygen, Carbon Dioxide, pH, Conductance, Temperature, Nitrogen, and Phosphorus. Direct reading field instruments or field test kits may be used to obtain this information, as needed.

Soil samples will be collected using EPA, Standard, or NMOCD established methods. All samples will be collected using containers supplied by the laboratory. Samples collected for laboratory analyses will be stored on ice and delivered under chain of custody procedures to the analytical laboratory.

Soil samples may be analyzed for the following constituents using the referenced methods.

Total Petroleum Hydrocarbons	EPA Method 8015A Mod (C_5 to C_{28})
Benzene, Toluene, Ethylbenzene, Total Xylenes (BTEX)	EPA Method 602 or 8020A or Field Headspace Analysis (PID)

Additional samples may be analyzed for pH, Conductance, Temperature, Nitrogen, Phosphorous, and Microbial Counts. Field instruments, test kits as well as laboratory procedures may be used to obtain this information.

Task 1: Up Gradient Monitoring Well Installation

Previous investigative work has estimated the ground water flows under the site from southeast to northwest. This work has also given some insight as to the eastern and western extent of ground water contamination. The upgradient and downgradient extent of contamination has not been defined.

Upgradient borehole drilling indicates that ground water contamination exists on the southern-most edge of the location (Figure 2: Hampton 4M Site Diagram). To determine the upgradient extent of the ground water contamination, Burlington will install a monitoring well off site and upgradient of the well pad. Figure 2 shows the approximate location of the proposed monitoring well.

In the event that the ground water aquifer in question is not encountered in the proposed monitoring well, Burlington will install another well adjacent to the first well. If no ground water is encountered in either upgradient well, Burlington will conclude that ground water is isolated under the well location and no permanent wells will be installed

Any upgradient ground water that is encountered will be sampled and analyzed to determine, at a minimum, BTEX concentrations. If upgradient ground water samples contain significant levels of BTEX compounds, then Burlington may conclude that an off-site source is responsible, and will seek further guidance from the NMOCD. If, however, upgradient ground water samples contain minimal to no levels of BTEX compounds, then Burlington will conclude the source is on the well pad and will initiate Task 2.

Monitoring wells will also be installed to the north and northwest of the well pad to determine the downgradient extent of the ground water contamination. Burlington will be working in conjunction with PNM for work downgradient of PNM's former dehydrator pit. Conversations with Denver Bearden of PNM indicates that up to three downgradient wells may be needed to delineate the ground water contamination (Figure 2).

Task 2: On Site Source Investigation

Previous investigative work at the site has established that a dissolved phase BTEX component exists in the ground water under portions of the well pad. Figure 2 displays the monitoring wells and temporary wells with the BTEX concentrations found in each. As seen in Figure 2, the highest concentrations of BTEX exists in the southeast quarter of the well pad indicating the source may be located there.

Sandstone bedrock in the southeast quarter of the well pad presents a unique investigative challenge. Investigation using conventional methods, such as a boring rig, would be expensive and may not locate the source (needle in the haystack theorem). A soil vapor analysis is not feasible due the difficulty in penetrating the sandstone. Therefore, if presented with Task 2, Burlington proposes to aggressively investigate the southeast quarter of the location by using equipment capable of removing sandstone. Layers of rock will be systematically ripped and removed allowing the exposed surface to be screened using a Photo Ionization Detector (PID). The process of removal and screening will continue until the source area is located using the PID. Once located, further efforts will focus on source remediation.

Source remdiation will incorporate procedures and methods as defined in Burlington's Unlined Surface Impoundment Closure Plan and Addendums. All of which have been approved by the NMOCD.

Work Schedule

Burlington is currently working with the BLM to obtain archaeological clearance to perform the off-site well installation. Burlington will complete the site investigation as outlined in this work plan within 45 days of the receipt of archaeological clearance. If conditions arise that would prevent Burlington from meeting this schedule, Burlington may seek an extension.

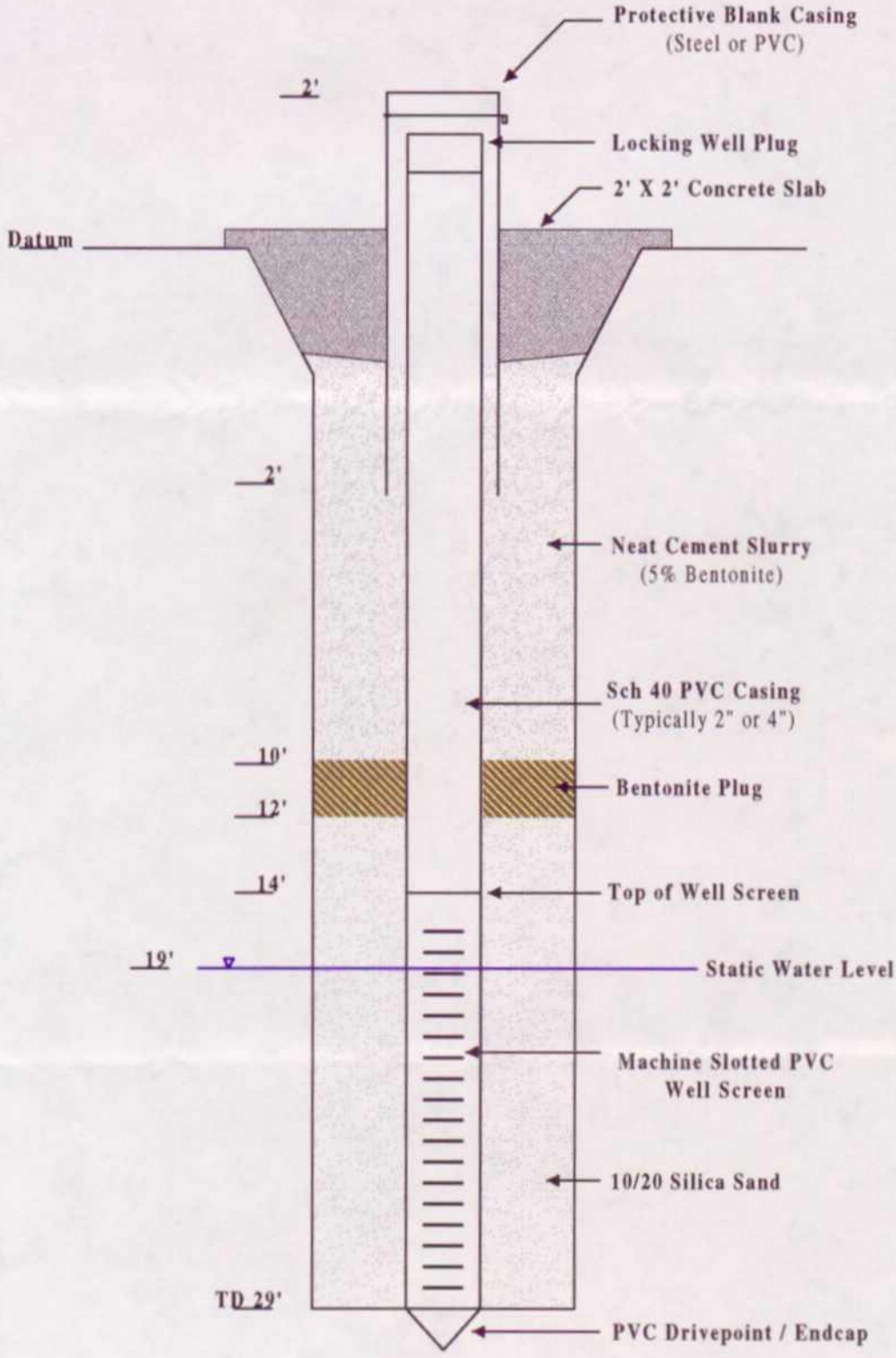
The unique characteristics of the Hampton 4M location pose challenges of site characterization and remediation. All parties working together will be the most efficient means to address the contamination at the Hampton 4M site. If further clarification is needed regarding this matter, please contact me at (505) 326-9537.

Sincerely,

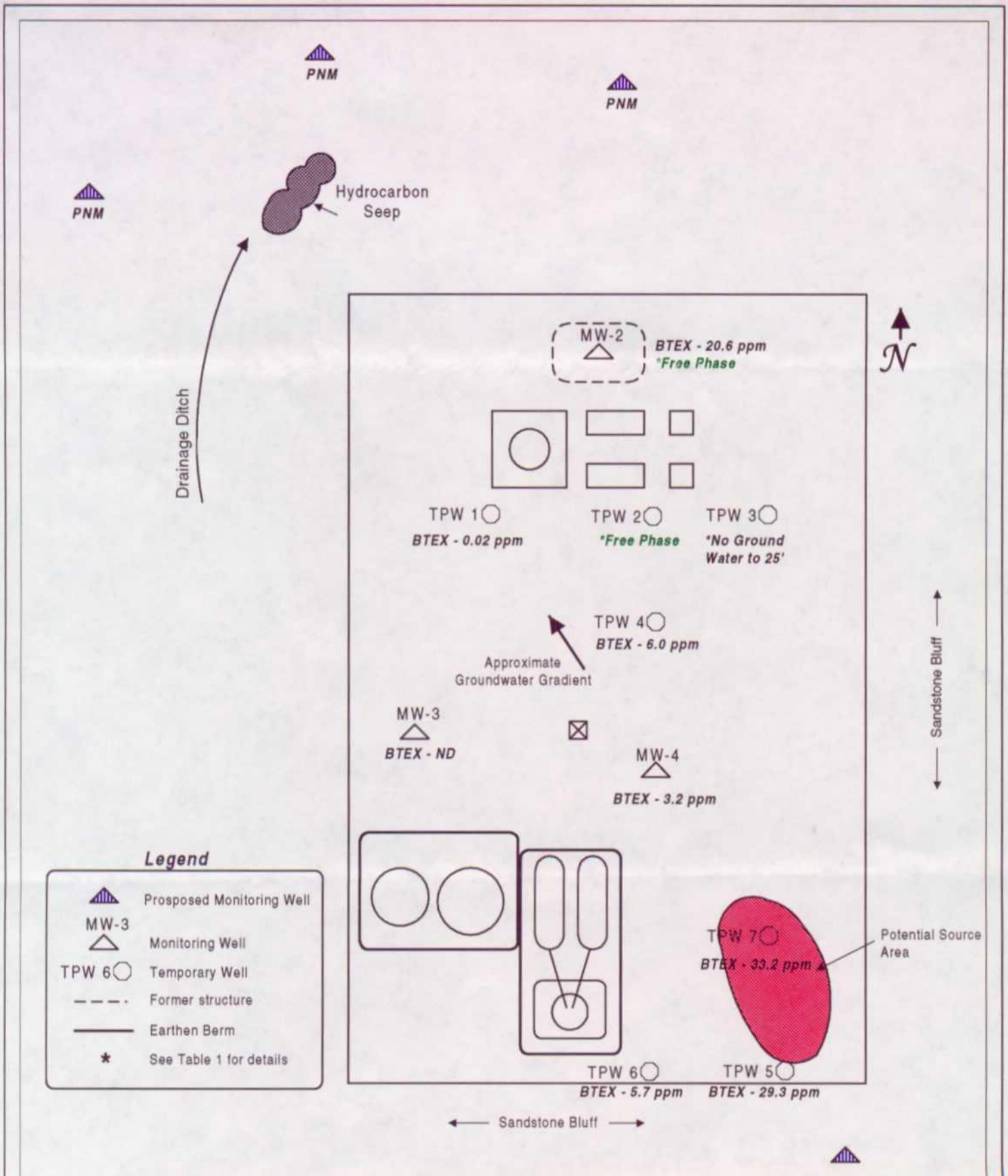
Craig A. Bock
Environmental Representative

Enclosures: Figure 1: Typical Monitoring Well Installation Diagram
Figure 2: Hampton 4M Site Diagram

cc: Denny Foust - NMOCD Aztec
Johnny Ellis - BR
Ken Raybon - BR
Keith Baker - BR
Denver Bearden - PNM Farmington
Maureen Gannon - PNM Albuquerque



Date:	9/18/97	**Figure 1: Typical Well Diagram**	**BURLINGTON RESOURCES** San Juan Division
Originated By:	CAB		



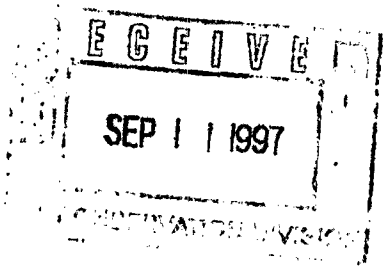
Date	9/18/97	**Figure 2: SITE DIAGRAM** Hampton 4M	**BURLINGTON RESOURCES** San Juan Division
Originated By:	CAB		
USGS 7.5 Minute Series	USGS Quadrangle Name	Aztec, NM	

BURLINGTON RESOURCES

SAN JUAN DIVISION

September 9, 1997

Certified - P 358 636 570



Bill Olson
Oil Conservation Division
2040 S. Pacheco
Santa Fe, NM 87505

Re: Work Plan Submittal Deadline
Hampton 4M Well Site

Dear Mr. Olson:

This letter is to document our phone conversation on September 9, 1997 regarding a Work Plan for the investigation of the Hampton 4M well site. An August 27, 1997 letter from the NMOCD required that Burlington Resources (Burlington) submit a Work Plan to the Santa Fe Office by September 12, 1997.

Due to the complexity of the site, you agreed that Burlington could extend the deadline for Work Plan submittal to September 19, 1997.

If my understanding of this conversation is not correct, please advise me as soon as possible. Otherwise, Burlington will continue with the understanding that the deadline has been changed. If you have any questions or would like to discuss this issue further, please feel free to contact me at (505) 326-9537.

Sincerely,

Craig A. Bock
Environmental Representative

cc: Denny Foust - NMOCD Aztec
K. Baker - BR
J. Ellis - BR
K. Raybon - BR

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File: Hampton 4M\correspondence

3535 East 30th St., 87402-8801, P.O. Box 4289, Farmington, New Mexico 87499-4289, Telephone 505-326-9700, Fax 505-326-9833

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

August 27, 1997

CERTIFIED MAIL
RETURN RECEIPT NO. P-410-431-213

Mr. Craig A. Bock
Burlington Resources
P.O. Box 4289
Farmington, New Mexico 87499-4289

RE: GROUND WATER CONTAMINATION
HAMPTON 4M WELL SITE

Dear Mr. Bock:

The New Mexico Oil Conservation Division (OCD) has reviewed Burlington Resources' (BR) August 1997 "BURLINGTON RESOURCES OIL & GAS CO. DATA SUMMARY, HAMPTON 4M PRODUCTION LOCATION". This document contains a summary of BR's recent investigation of soil and ground water contamination at BR's Hampton 4M well site near Aztec, New Mexico.

A review of the above referenced document shows that soil and ground water contamination upgradient of PNM's former dehydration pit appears to be a result of production activities related to BR's Hampton 4M well site. Therefore, the OCD requires that BR submit a detailed soil and ground water investigation work plan for the areas upgradient of PNM's former dehydration pit. The work plan will be submitted to the OCD Santa Fe Office by September 12, 1997 with a copy provided to the OCD Aztec District Office. The work plan will contain detailed information on:

1. How BR plans to conduct investigations as to the source of the contamination.

2. Proposed locations and construction plans for installation of permanent ground water monitoring points which define the extent of ground water contamination.

3. Soil and ground water sampling plans.

4. A schedule for completion of all work elements and submission of a report on the investigations.

If you have any questions, please call me at (505) 827-7154.

Sincerely,

William C. Olson
Hydrogeologist
Environmental Bureau

xc: Denny Foust, OCD Aztec District Office
Maureen Gannon, PNM

P 410 431 213

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PS Form **3800**, April 1995

Bill Olson

BURLINGTON RESOURCES

SAN JUAN DIVISION

April 15, 1997

Certified P 358 636 576

Denny Foust
Environmental Geologist
Oil Conservation Division
Aztec District Office
1000 Rio Brazos Road
Aztec, New Mexico 87410

RE: Plan of Action
Hampton 4M - Unit Ltr. N, Sec. 13, T30N, R11W

Dear Mr. Foust:

Your letter dated March 5, 1997 incorrectly cited the name of the facility as Hampton #1. Subsequent phone conversations with you indicated that the facility name on the document should have been Hampton 4M. In response to that letter (March 5, 1997), Burlington Resources Oil and Gas Co. (Burlington) is submitting this Plan of Action for the Hampton 4M Production Location.

PNM Gas Services (PNM) previously found dissolved phase hydrocarbons in their groundwater monitoring well MW-4. This well is down gradient of Burlington's operations and may indicate contamination from the activities associated with the production tanks. No groundwater contaminants were found in PNM's MW-3, which is down gradient of Burlington's separators and separator discharge pit. Please refer to the Hampton 4M Site Map and Groundwater Contour Map (Enclosures 1 and 2 respectfully).

Burlington will excavate contaminated soil from the earthen pit associated with the production tanks (tank pit) on the Southeast corner of the location. Production tanks and associated lines will be removed to aid in the excavation. Excavation of the tank pit will continue until 1) a representative sample of the excavation walls and floor indicate BTEX and TPH levels below OCD remediation levels *Unlined Surface Impoundment Closure Guidelines* (NMOCD 1993); or 2) the maximum practical extent of the excavation equipment is reached; or 3)when groundwater is encountered.

If groundwater is encountered, Burlington will assume the vertical extent of contamination has been reached. Subsequent excavation efforts will focus on the horizontal extent of contaminated soil. A groundwater monitoring well will be placed in the center of the excavation. The well will be developed and a groundwater sample will be analyzed for BTEX and TPH compounds. The NMOCD will be notified of the results.

Contaminated soils will be remediated on the surface of the location or off site on locations within the same lease. Once the soil has reached the OCD remediation levels for BTEX and TPH, it will be left on the surface of the location. The excavation will be backfilled using material from an off site location. Burlington may elect to leave the excavation open to be backfilled with the excavated soil once it has been remediated. In such a case the open excavation will be fenced.

The separator discharge pit will be assessed for contamination prior to excavation. If the assessment shows that contaminants are above OCD remediation levels then the pit will be excavated in the same manner as the tank pit. If contaminants are below OCD remediation levels, it will be concluded that the pit is clean and it did not impact groundwater at the site.

Burlington is planning to initiate remediation activities the week of 4/28/97. Events beyond Burlington's control (e.g. weather, or extent of contamination) may change the plan of action or delay the start date. Burlington will notify the NMOCD in such a case.

Please contact me at (505) 326-9537 if you need any further information regarding this issue.

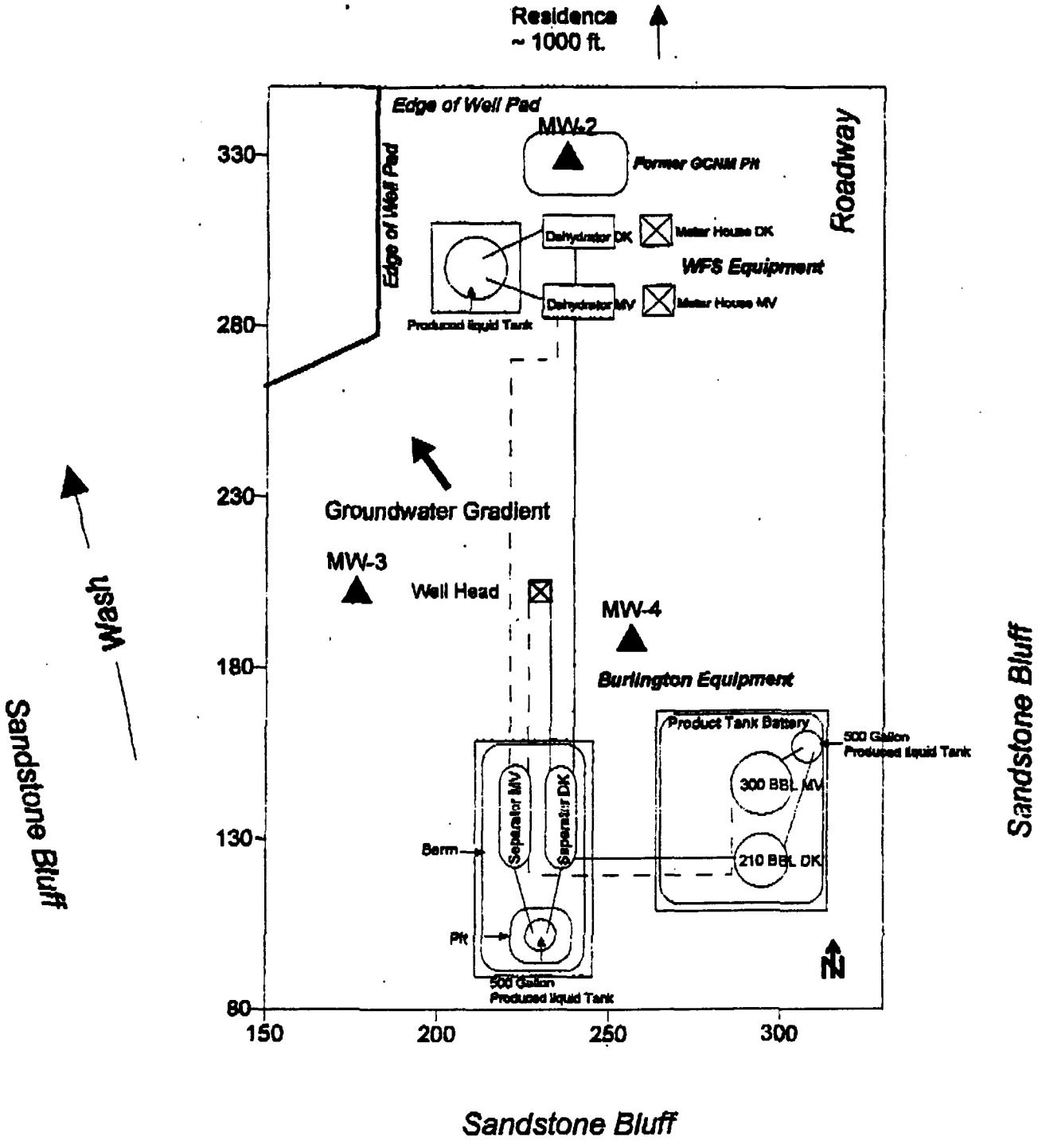
Sincerely,

Craig A. Bock
Environmental Representative

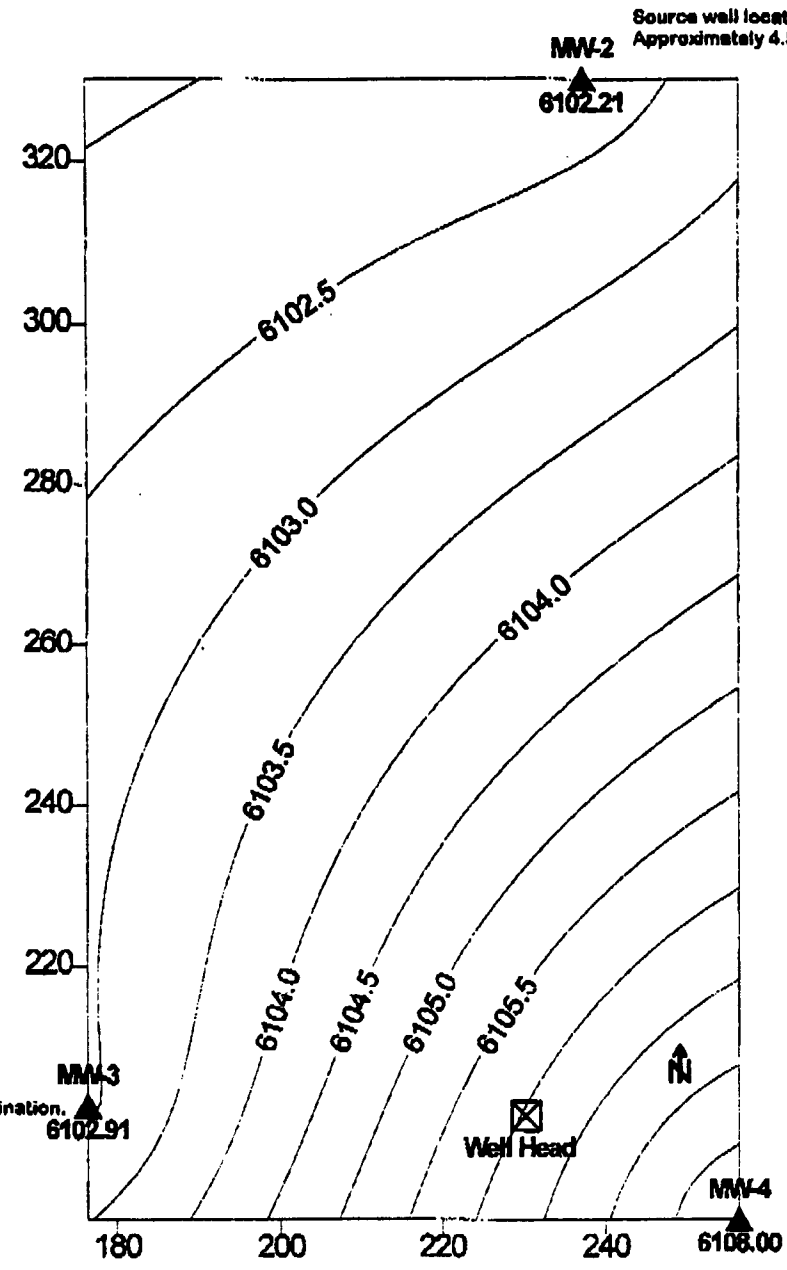
Enclosures: Enclosure 1 - Hampton 4M Site Map
Enclosure 2 - Hampton 4M Groundwater Contour Map

cc: K. Baker - BR
J. Ellis - BR
Bill Olson - NMOCD Santa Fe

HAMPTON 4M SITE MAP



Hampton 4M Groundwater Contour Map (February 1997)



NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
AZTEC DISTRICT OFFICE
1000 RIO BRAZOS ROAD
AZTEC, NEW MEXICO 87410
(505) 334-6178 Fax (505)334-6170

GARY E. JOHNSON
GOVERNOR

JENNIFER A. SALISBURY
CABINET SECRETARY

Certificate # P-471-215-187

April 8, 1997

Burlington Oil & gas Resources Company
Attn Craig Bock
PO Box 4289
Farmington NM 87499

RE: Burlington Oil & Gas Resources Company, Hampton #4M, D-13-30N-11W, 30-045-25810.

Dear Mr. Bock:

This letter replaces the letters of March 4 and 5, 1997, and shows the correct well, the Hampton #4M. The previous letters erroneously referred to the #1 well.

PNM Gas Services has identified groundwater impacts on this location near the production battery which are not related to PNM Gas Services activities. This groundwater impact is up gradient from PNM Gas Services activities. Apparently the groundwater impact on the **Southeast** corner of this location is related to Burlington's activities at the tank drain pit and production pit. Burlington is directed to address the cause and extent of the groundwater impact related to the tank drain pit and production pit on the Hampton #1 location. The Oil Conservation Division encourages cooperation between operators to alleviate the cost of remediation. Burlington will initiate activities by April 15, 1997.

Please feel free to contact this office if you have questions.

Yours truly,

Denny G. Foust
Environmental Geologist

XC: Environmental File
DGF File
Well File
Bill Olson-Santa Fe