3R - 334

GENERAL CORRESPONDENCE

YEAR(S):
1991 - 1990

GAS COMPANY OF NEW MEXICO

JOHN RENNER
VICE PRESIDENT
SAN JUAN OPERATIONS

August 28, 1991

Mr. Fred Armenta
766 Rd. 4990
Bloomfield, New Mexico 87413

Dear Mr. Armenta:

RE: Mercury Remediation

Gas Company of New Mexico (GCNM) is reviewing concerns about the Mercury Remediation Project that you expressed to me Tuesday. I understand the concerns to be as follows:

GCNM remediation crews entered your property for the purpose of completing the mercury remediation prior to notifying you of the intent or purpose of the visit.

During the remediation process the crews removed the meter house and the meter from the run and did not replace them.

The crews left contaminated soil in a pile at the southeast corner of the leased property.

The crews left clean fill dirt in a pile just south of the meter run.

The crews left black plastic at the site, that has since blown to other locations on your property.

Based on my understanding of your concerns, we have initiated the following actions:

GCNM has reviewed the information available on the site visit to your location and found that Mr. Glynn Graham of Hulcher Services discussed with you the purpose and method of clean-up.

The meter house was indeed removed and set aside but the meter was not removed during the remediation and the well was called in to be turned back on within 1 hour after the site was remediated.

GCNM sent the remediation project manager, Gary Williams, and a GCNM remediation field supervisor, Joe Jacques, to the site. They conducted air sampling on the above mentioned pile and the

old meter house. The results of the sampling indicated that no mercury vapors were present. While on site they also removed four small pieces of plastic that were found around the area.

GCNM will remove the small pile of clean soil that was left unused on site.

GCNM removed the fiberglass pan and wooden skid that was left on the site.

The meter house will be replaced shortly. A new base is being fabricated.

GCNM has contacted the New Mexico Environment Department, to request that they participate in the review process.

It is GCNM's desire to conduct this project in a manner acceptable to the regulatory agencies and the citizens of the San Juan Basin. With this in mind we appreciate your concern and your inquiry and hope that the actions we have described above will meet with your approval.

Sincerely,

John Renner
Vice President
Gas Transmission Operations

cc: Mr. Ed Horst, NMED Santa Fe, NM
Mr. Dave Boyer, OCD Santa Fe, NM
Mr. Dave Tomko, NMED Farmington, NM

GNM Meter Run At The
Meridian Armenta #1 After
Mercury Meter & Soil Removal
Sec 27-29N-10W E-26571

1 SOIL REMOVED FROM THE MERIDIAN OIL CO. ARMENTA #1 ONM METER RUN. POSSIBLE MERCURY CONTAMINATION SEC 27-29N-10W 8-26-91

NEW MEXICO OIL CONSERVATION DIVISION
FIELD TRIP REPORT

OIL CONSERVATION DIVISION
RECEIVED
'91 AUG 22 AM 8 01

Name Charles Gholson Date 8-26-91 Miles 282 District 3

Time of Departure 8 AM Time of Return 1 PM Car No. 11307

In the space below indicate the purpose of the trip and the duties performed, listing wells or leases visited and any action taken.

Signature _____

INSPECTION	CLASSIFICATION	FACILITY	HOURS	QUARTER HOURS
O	U	O	2	
M	O	A	3	

ONE WELL - 32N-11W. ERNIE BUSCH & I WENT WEST OF CEDAR HILL TO CHECK FOR POSSIBLE SOURCES OF GAS DETECTED AT THE SURFACE ON AND NEAR THE KIMBARK OPERATING CO. HORTON #9 LOCATION. CHECKED BRADENHEAD PRESSURE, 20PSI. OPENED SAME. IFLOWED A STEADY, MODERATE AMOUNT OF GAS. LEFT FLOWING 15 MINUTES. NO ABATEMENT. WILL DIG OUT WELLHEAD & CHECK FOR LEAKS. THEN PROBE & TEST FOR GAS SURFACING OUTSIDE SURFACE PIPE.

2 WELLS - 29N - 10W - EAST OF BLOOMFIELD IN RESPONSE TO A LANDOWNERS COMPLAINT THAT AMOCO PROD. CO. HAD AN UNREPORTED OIL SPILL AT THE ROMERO GC A-1-A. F.G. ARMENTA (LANDOWNER) SAID THAT ON THE EVENING OF 8-22-91 THE SEPARATOR OIL DUMP LINE DEVELOPED A LEAK WHERE IT DUMPS TO STORAGE TANK. OIL ALLEGEDLY SPRAYED ONTO THE TANK, INSIDE & ON FIREWALL & ON AN ALFALFA HAY FIELD. TANK IS OIL STAINED. NO OIL VISIBLE ON HAY OR FIRE-WALL. WILL CONTACT AMOCO AS TO WHY SPILL WAS NOT REPORTED IF ONE DID IN FACT OCCUR.

Mileage		Per Diem		Hours	
UIC		UIC		UIC	
RFA		RFA		RFA	
Other	92	Other	—	Other	5

TYPE INSPECTION REQUIRED

H - Housekeeping
P - Plugging
C - Plugging Cleanup
T - Well Test
R - Repair/Workover
F - Waterflow
B - Blowout or Spill
W - Water Contamination
O - Other

INSPECTION CLASSIFICATION

U - Underground Injection Control - any inspection of or related to injection project, facility, or well or resulting from injection into any well. (SWD, Salary injection and production wells, water floods, or pressure tests, surface injection equipment, plugging, etc.)

R - Inspections relating to Reclamation Fund Activity

O - Other - Inspections not related to injection or the reclamation fund

E - Indicates some form of enforcement action in the field (give immediately below the letter U, R, or O)

NATURE OF SPECIFIC WELL OR FACILITY INSPECTED

D - Drilling
P - Production
I - Injection
C - Combined production/injection operations
S - SWD
U - Underground Storage
G - General Operation
F - Facility or Location
M - Meeting
O - Other

I ALSO WENT TO THE MERIDIAN OIL CO. ARMENTA #1 ON THE SAME FARM TO CHECK ANOTHER COMPLAINT THAT SOIL REMOVED FROM BENEATH A GAS CO. OF N. MEX. MERCURY METER HAD BEEN LEFT ~~PILED~~ ON LOCATION. ABOUT 2 YARDS OF SOIL WHICH APPARENTLY CAME FROM BENEATH THE METER WAS PILED NEARBY. I REFERED THE MATTER TO DAVE BOYER FOR FURTHER INVESTIGATION.

GAS COMPANY OF NEW MEXICO

OIL CONSERVATION DIVISION
RECEIVED
'90 AUG 27 AM 9 50

STEVEN C. EMRICK
Chief Engineer - Gas Operations

August 23, 1990

Mr. Dave Boyer
Chief, Environmental Bureau
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87504

Dear Mr. Boyer:

Thank you very much for your correspondence, dated August 15, 1990. The Gas Company of New Mexico is extremely appreciative of the timeliness in which you responded to our need for clarification on the jurisdiction of mercury contamination. We have written to Ms. Sisneros as you suggested and will plan on submitting our remediation plan to the EID.

The OCD has always been helpful in assisting GCNM in compliance issues, and we hope to continue our relationship of cooperation.

Sincerely,

Steven Emrick

SE:mt

cc: Bill Real
Henry Narvaez - Keleher & McLeod

New Mexico Health and Environment Department

August 23, 1990

Steven Emrick
Chief Engineer
Gas Company of New Mexico
P.O. Box 26400
Albuquerque, NM 87125

Dear Mr. Emrick:

I have received your communication of August 8, 1990 regarding mercury contamination at meter houses. We appreciate your attention to this matter. Described below is our opinion regarding regulatory authority for this problem and how we can arrive at a satisfactory resolution and remediation.

As you are probably aware, authority for the regulation of hazardous waste as that term is defined in 40 CFR Part 261 rests solely with the EID. I assume Gas Co. of NM is asking the Oil Conservation Division for approval of your remediation plan because you believe this problem is exempted from hazardous waste regulation per the oil and gas exemption at 40 CFR 261.4 (b) (5). This is not the case. Spilled mercury is not within the scope of this exemption. EID Director Richard Mitzelfelt confirmed this opinion with U.S. EPA officials.

At this time, I request that you submit for our approval a plan to remediate the mercury spill sites. Upon approval, we will require the Gas Co. of NM to enter into a written agreement with the EID to implement the plan as approved.

Please call me at (505) 827-2923 if I can assist you in the development of an acceptable remediation plan or answer other questions. I look forward to working with you in the future.

Sincerely,

Bill Blankenship
Enforcement Supervisor
Hazardous Waste Bureau

cc: Tracy Hughes, Office of General Counsel
David Boyer, Oil Conservation Division
David Schafersman, BLM

— ENVIRONMENTAL IMPROVEMENT DIVISION —
Harold Runnels Building
1190 St. Francis Dr.
Santa Fe, New Mexico 87503

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87504
(505) 827-5800

August 15, 1990

Mr. Steve Emrick, Chief Engineer
Gas Company of New Mexico
P. O. Box 26400
Albuquerque, New Mexico 87125

RE: Notice of Mercury Contamination

Dear Mr. Emrick:

The Oil Conservation Division (OCD) has received your letter of August 8, 1990 reporting spills of mercury and proposing to establish a remediation program to mitigate the effects of the spills.

Recent correspondence (attached) between Environmental Improvement Division (EID) and Bureau of Land Management (BLM) have clarified jurisdictional responsibilities with EID determining that such spills are under the jurisdiction of EID's Hazardous Waste Program. Consequently, OCD will no longer review remediation proposals but will continue to require reporting of such spills under State rule and reporting of actions taken to remediate the problem.

EPNG has recently received EID approval to continue its investigation and remediation program and a copy of that approval also is attached.

You should contact Ms. Kathleen Sisneros, Hazardous Waste Bureau Chief at 827-2211 to report this information and for further information on necessary remediation.

Sincerely,

David G. Boyer, Hydrogeologist
Environmental Bureau Chief

DGB/sl

Enclosures

cc: Kathleen Sisneros, NMEID
W. J. LeMay, Director OCD
A. Lockwood, Secretary, EMNRD

GAS COMPANY OF NEW MEXICO

OIL CONSERVATION DIVISION
RECEIVED
'90 AUG 10 AM 8 47

August 8, 1990

Mr. Dave Boyer
Chief, Environmental Bureau
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87504

Re: Notice of Mercury Contamination

Dear Mr. Boyer,

We are submitting this written notice on behalf of the Gas Company of New Mexico ("GCNM") regarding possible mercury contamination at some of GCNM's meter houses. GCNM owns or operates approximately 1200-1400 meter houses that use or have used mercury meters in the past. All of GCNM's well sites are located in the State of New Mexico. Approximately 131 meter houses contain visible mercury contamination. We are attaching, for your information, a list setting forth the locations of these 131 meter houses.

These releases occurred at unknown times, over a 30-40 year period, and are of unknown quantities. The releases occurred from the use of natural gas metering facilities which incorporate a mercury manometer, used for the recording of differential pressure. These devices were the industry standard at the time.

GCNM is in the process of establishing a program that will accurately identify any and all locations where mercury contamination could exist, the extent of contamination and the best method for remediation of all contaminated sites. We will propose this program to the State Oil Conservation Division (OCD) for your approval. We are also reporting to the SARA Bureau and notifying the EID, the BLM and the EPA.

GCNM has identified, through preliminary investigation, four meter sites that appear to have quantities of mercury that are reportable under Federal regulations.

P.O. Box 26400, Albuquerque, New Mexico 87125, (505) 888-8200

The four locations are:

Well Name	Location	Calculated Release Qty. Min.- Max (lbs)
Scott E Federal #3	Sec.23 T27N R11W	7.04 -21.0
Fullerton Federal #2	Sec.15 T27N R11W	.07 - 1.0
Fullerton Federal #3	Sec.14 T27N R11W	.05 - 1.2
Fullerton Federal #4	Sec.14 T27N R11W	7.8 - 11.58

GCNM has excavated and packaged the contaminated soil from these sites.

If you require any further information, please write to me at the address listed below, or call me at 888-8360.

Sincerely,

Steven Emrick

Steven Emrick
Chief Engineer

cc: Henry Narvaez - Keleher & McLeod
Bill Real - GCNM

MERCURY PRESENT IN METER HOUSES

WELL NAME	STATION #	Unit Section Township Range
Reid #3	7060-03	(M) 07-28-09
Hancock #5	2147-02	(D) 01-27-12
Mudge #A-2	2441-02	(C) 18-27-11
Fullerton Federal #3	2187-02	(L) 14-27-11
Fullerton Federal#4	2188-02	(D) 14-27-11
E. Scott Federal #3	2501-02	(O) 23-27-11
Douthit #4	2139-02	(B) 26-27-11
Hanson #2	3150-30	(L) 06-25-10
Federal #F-2	2366-30	(H) 04-27-10
Cain #10	2093-30	(M) 15-28-10
Zachry #2	6071-03	(N) 35-29-10
Zachry #3	6072-03	(P) 35-29-10
McClanahan #5-Y	4384-03	(E) 13-28-10
Zachry #1	6070-03	(N) 12-28-10
AXI Apache #L-5	2325-05	(A) 26-25-04
Breech A-179	2046-05	(J) 09-26-06
Breech A-131	2042-05	(B) 09-26-06
State A-295	2521-05	(J) 16-26-06
Kaime #1	2342-05	(B) 20-26-06
Jicarilla 102-2	2334-04	(G) 09-26-04
Jicarilla 102-3	2335-04	(K) 09-26-04
Breech A-181	2047-05	(L) 10-26-06
Breech A-136-E	5735-30	(O) 10-26-06
Breech D-185	2057-05	(L) 11-26-06
Breech D-140	2027-30	(A) 11-26-06
Scott C-1	2507-05	(L) 13-26-06
Jicarilla A-8	3408-21	(E) 23-26-04
Jicarilla E-4	7031-04	(A) 22-26-04
Jicarilla A-2	7012-04	(M) 14-26-04
Jicarilla E-7	7108-30	(P) 15-26-04
Jicarilla C-2	7020-04	(M) 11-26-04
Breech A-127	2040-05	(B) 08-26-06
Breech A-125	3435-74	(D) 08-26-06
Breech E-81	2063-05	(L) 05-26-06
Scott B-1	2506-05	(D) 05-26-06
Breech 221	2030-05	(D) 13-26-07
Breech E-83	2065-05	(J) 05-26-06
Breech E-85	2067-05	(L) 04-26-06
AXI Apache A-3	2282-01	(M) 10-23-05
AXI Apache A-2	2281-01	(M) 09-23-05
AXI Apache A-5	2287-01	(A) 09-23-05
Cooper #1	2104-06	(C) 18-29-11
Omler #7	2465-06	(J) 26-28-10
Whitley #2	2561-05	(M) 09-27-09
A.D. Hudson #2	2271-06	(D) 29-27-09
Garland #3	5761-74	(M) 27-29-11
Aztec #3	2018-06	(E) 14-28-11
Navajo Indian #B-2	6019-05	(D) 19-27-08
Starr #1	6057-01	(A) 06-26-08
Starr #2	6058-01	(C) 05-26-08

MERCURY PRESENT IN METER HOUSES
PAGE 2

WELL NAME	STATION #	LOCATION
Newsom A-2	6038-01	(N) 04-26-08
Newsom B-6	6042-01	(G) 07-26-08
Newsom #12	6035-01	(P) 07-26-08
Newsom #B-3	6039-01	(L) 08-26-08
Newsom #B-5	6041-01	(G) 17-26-08
Newsom #11	6034-01	(D) 17-26-08
Newsom #4-R	9686-01	(G) 18-26-08
Newsom #3	6026-01	(J) 18-26-08
Newsom #2	6025-01	(M) 17-26-08
Newsom #7	6030-01	(I) 17-26-08
Ruthven #1	6052-01	(N) 16-26-08
Newsom #B-4	6040-01	(M) 15-26-08
Newsom #6	6029-01	(A) 20-26-08
Newsom #5	6028-01	(A) 19-26-08
Newsom #8	6031-01	(G) 29-26-08
Nickson #7	6049-01	(I) 22-26-08
Hodges #6	6010-01	(D) 27-26-08
Hodges #5	6009-01	(L) 28-26-08
Newsom #1	6024-01	(P) 29-26-08
Hodges #3	6007-01	(J) 34-26-08
Nickson #6	6048-01	(M) 23-26-08
Hodges #7	6011-01	(K) 22-26-08
Newsom #A-1	6037-01	(P) 15-26-08
N.M. Federal #N-5	2588-30	(M) 07-30-12
Kimbark Horton #4	4119-21	(M) 27-32-12
Hubbard #1	4126-21	(B) 22-32-12
Decker #1	4036-21	(L) 14-32-12
Culpepper Martin #7	4022-21	(B) 28-38-12
Culpepper Martin #1	4015-21	(M) 21-32-12
Reid #1	2210-21	(M) 18-31-12
Arnstein #1	2201-30	(K) 18-31-12
Neuman #1	2208-30	(B) 20-31-12
Southern Union #1	2192-21	(M) 19-31-12
Southern Union #1	2514-30	(M) 19-31-12
Richardson #2	4172-21	(C) 15-31-12
Richardson #7	4178-30	(J) 15-31-12
Richardson #3	4173-21	(C) 22-31-12
Richardson #6	4177-30	(I) 22-31-12
Sadie West #1	4212-21	(L) 21-31-12
Thompson #2	4196-21	(C) 28-31-12
Thompson #1	2533-21	(N) 33-31-12
Thompson #4	4198-21	(L) 27-31-12
Thompson #3	4197-21	(B) 34-31-12
East #5	4047-21	(N) 24-31-12
East #2	4045-21	(D) 23-31-12
Decker #2	4037-21	(A) 26-32-12
Dalsant #1	4029-21	(A) 24-32-12
Day State #1	4191-21	(E) 32-32-11
Patterson Com #A-1	4158-21	(O) 02-31-12
East #4	4046-21	(B) 24-31-12
Harper #1	4112-21	(I) 14-31-12

MERCURY PRESENT IN METER HOUSES
PAGE 3

WELL NAME	STATION #	LOCATION
Grenier #5	4098-21	(C) 13-31-12
Grenier #3	4096-21	(O) 13-31-12
Davis #14	4339-03	(M) 12-31-12
Grenier #4	4097-21	(D) 07-31-11
Horton #1	4117-21	(P) 07-31-11
Grenier #7	4101-03	(E) 20-31-11
Grenier #6	4100-03	(K) 20-31-11
Grenier #6	4099-21	(K) 20-31-11
Payne #4	8312-21	(H) 22-32-10
Payne #2	8017-21	(K) 21-32-10
Harrison #1	4113-21	(N) 31-32-12
Childers #1-A	4455-21	(P) 01-31-11
Payne #5	8018-21	(A) 27-32-10
Nye #5	4150-03	(C) 12-30-11
Moore #4	4144-21	(H) 05-30-08
Florance #36	4058-21	(H) 03-30-08
Howell #2	4121-21	(G) 10-30-08
Archuleta #1	4003-21	(N) 19-30-08
Jacques #2	4131-21	(A) 25-30-09
Florance #20	9617-30	(B) 24-30-09
Florance #35	4072-21	(A) 18-30-08
Florance #44	4087-21	(H) 31-30-08
Florance #40	4076-21	(G) 21-30-08
Florance #39	4075-21	(B) 35-30-08
Florance #45	4088-21	(G) 22-30-08
Florance #38	4074-21	(L) 14-30-08
Florance #48	4061-21	(A) 23-30-08
Florance #23	4082-21	(A) 24-29-09
Florance #31	4056-21	(A) 12-29-08
Florance #46	4059-21	(H) 29-30-08
Florance #30	4084-21	(M) 01-29-08

GAS COMPANY OF NEW MEXICO

March 9, 1990

Mr. Dave Boyer
Oil Conservation Division
State of New Mexico
P.O. Box 2088
Santa Fe, NM 87504

Dear Mr. Boyer:

Attached for your review are four Leak/Spill notification forms concerning four Gas Company of New Mexico meter houses where mercury has been discovered in the soil.

Also included is a draft of a plan to excavate and analyze the soil within the meter houses to determine the amount and depth of contamination.

Per our phone conservation, we will move the barrels of contaminated soil to a secure facility and initiate a search for a permanent storage facility.

If you have any questions concerning the plan or forms please call.

Sincerely,

Dennis R. Robinson
Loss Control Administrator
888-8364

DRR/jl
Enclosure

ENVIRONMENTAL
SERVICES
1626 Propps NE
Albuquerque NM 87112
(505) 271-2074

DRAFT

Pilot Plan for Excavation and Analysis of Soil from Mercury Meter Sites in the San Juan Basin

Prepared for

Gas Company of New Mexico

Wed, Jan 17, 1990

Pilot Plan
for Excavation and Analysis of
Soil from Mercury Meter Sites
in the San Juan Basin

Summary

Gas Company of New Mexico (GCNM) owns a large number of sites (possibly as many as 2200 sites) at which mercury gas meters are, or have been, installed. There is reason to believe that mercury has escaped from the meters at some of these sites. The number of sites at which mercury has escaped, and the quantity of mercury which has escaped, is unknown.

In order to evaluate the quantity of mercury which has been released, and to assess the feasibility of recovering the mercury, a pilot study will be conducted in which the soil at a limited number of sites will be excavated and analyzed. The selected sites are alleged to have liquid mercury present on the surface of the soil, and are therefore believed to be representative "worst case" sites.

A plan is presented here for excavating and sampling the soil from these sites. The pilot plan is presented as two parts; Part One is an overview of the procedure, and Part Two is the specific field procedures to be followed for the sampling.

Part One
Overview

Description of Sites

Mercury meters have been in use for measuring gas flow in natural gas gathering lines for many years. The use of mercury meters is declining as they are replaced with dry meters; however, a number of these old meters are in use, and a larger number of metering sites once held mercury meters. It is estimated that Gas Company of New Mexico owns approximately 2200 meter houses in northwest New Mexico, acquired from Southern Union Gas, which could have, at one time, housed a mercury meter.

These meter houses vary in age and construction, but have features in common. A typical meter house is rectangular, measuring between 4' by 6', to about 6' by 8'; and is 6' to 7' tall. They are always fully enclosed on all four sides, and are roofed. The above-ground portion of the gas gathering pipeline typically penetrates the meter house walls at the ends of the structure, at a height of from several inches to a few feet above the ground. The meter is installed above the gas pipeline, next to a flanged fitting. A door is fitted on one of the long sides of the meter house. Most meter houses are unfloored, and rest directly on the soil. The meter houses in question vary in age from 10 or 15 years to 50+ years.

Hypotheses and Assumptions

This excavation and sampling strategy incorporates several hypotheses and assumptions about the nature of the contamination:

- It is assumed that the maximum concentration will be found in the area beneath the meter, and that mercury will always be found beneath the meter if it is found anywhere. The location beneath the meter, and other sample locations will be tested to verify this assumption.

- It is hypothesized that mercury is relatively immobile in soil, and that the contamination does not readily migrate either horizontally or vertically.

- It is hypothesized that mercury has not been transported outside of the meter houses.

These hypotheses and assumptions will be tested and verified by the pilot sampling program.

We are unaware of a specific sampling strategy designed for this particular problem. EPA sampling protocols and methodologies do provide some guidance as to suitable techniques, but are not specifically designed for this situation.

The sampling methodology presented here is based on EPA standard methods and recommendations for soil sampling, on laboratory recommendations, on experience with sampling for contaminants in soil, and on common sense. The sample locations are defined such that large spills will not go undetected, and to test the hypotheses stated above.

Excavation and Analysis Plan

For the pilot investigation, it is proposed to excavate and analyze a relatively large volume (approximately 13 cubic feet) of soil from each of the pilot sites in order to assess the extent of the mercury spillage. Soil will be excavated and/or sampled from five locations at each site, in order to evaluate the total quantity present in the soil, and the horizontal and vertical extent of mercury migration. The excavated material from each sampling location will be homogenized and sampled for analysis for total mercury. The excavated material will be retained for future analysis, if indicated.

The sampling locations will include:

The most likely location in which to discover mercury spillage, to evaluate the total quantity of mercury present in the soil.

A subsurface sample, to evaluate vertical migration of mercury.

A sample from the periphery of the suspected location of maximum concentration, to evaluate horizontal migration of mercury.

A sample from outside the meter house, to determine whether mercury has been transported outside the meter house by mechanical means.

A background sample, to determine the normal, background concentration of mercury at the site.

Other, visibly contaminated or suspected locations, if indicated by circumstances.

A protocol has been developed for conducting this sampling, to ensure that the samples are taken and handled in an appropriate manner. This protocol is presented in detail in Part Two.

Analytical Procedures

Upon receipt from the field, receipt should be acknowledged on the chain-of-custody area of the sampling form. The samples should then be submitted to a qualified laboratory for analysis. Blanks, duplicates, and known samples may be submitted as well, as a quality control.

All samples should be analyzed for total mercury, by atomic absorption. This analysis inexpensively determines the total amount of mercury present in the sample.

Data Analysis

Laboratory data from the pilot sampling program should be reviewed to determine whether the assumptions and hypotheses outlined previously are valid. Specifically, the data should be examined to determine whether or not the subsurface sample (Location 2) contains significant

levels of mercury; whether or not mercury was discovered at locations other than at location 1, and not discovered at location 1; and whether or not the highest concentrations were discovered at location 1.

Based on the presence and quantity of mercury at location 1 an effort should be made to devise a method for estimating total quantity of spilled mercury from the concentration of mercury in the soil and the estimated total volume of contaminated soil.

The results of the pilot sampling program may suggest other lines of inquiry, and other hypotheses to be tested. If so, it is possible that additional pilot sampling may be necessary.

Cost

Atomic absorption analysis will cost about $40 per sample; each site will generate at least 5 samples, for a cost of $200 per site. The total analytical cost for three sites will be about $600; a discount of 10% can be expected from theis estimated costs.

Part Two
Field Procedures

Excavation and Sampling Methodology

Each meter house is a rectangle of approximately 5' by 7', with the meter in about the center of the meter house. For the initial excavation and sampling procedures, it will be assumed that all of the meter houses are of about these dimensions, and sample locations will be defined to accommodate this typical meter house. These sample locations are illustrated on the pilot sampling form, attached in the appendix.

The procedure described here should be followed at each site to be sampled.

Materials
The following materials should be on hand:

A shovel
A hand trowel
A wheel barrow or washtub, or similar container
Sufficient barrels, drums, or plastic-lined cardboard boxes to contain approximately 14 cubic feet of soil for each site. The soil will be excavated from three locations, and should be kept segregated by location (that is, soil from different locations should not be mixed). The excavated soil will be one batch of 6 cubic feet, one batch of 7 cubic feet, and one batch of about 1 cubic foot.
At least five, cleaned, prepared one-pint sample containers per site.
Distilled water and paper towels for cleaning the sampling tools.
Normal protective clothing, including plastic or rubber gloves for handling the soil.
Sample data recording forms, and self-adhesive labels to label and seal the containers.

Documentation
The location, date, and time of beginning the sampling process should be entered on the appropriate places on the form, along with the name of the person responsible for obtaining the sample, to begin the chain-of-custody. The approximate dimensions of the meter house, the locations of openings and features, and the direction of true north should be indicated on the form. Additional sample locations should be identified on the form.

Excavation and Sampling Tools
At each sample location, the soil should be removed from the locations described below with a suitable tool, such as a shovel or hand trowel. The sampling tool should be cleaned with water and wiped with a clean paper towel prior to each use, and should be constructed of bare steel, stainless steel, polypropylene, lucite, or teflon-coated steel. It should not be chromium plated, painted, or constructed of aluminum or other non-ferrous metals.

Excavation and Sampling Locations
At each meter house, five locations will be sampled. These locations should be sampled in numerical order, beginning with location 1. At each location, the soil should be excavated or sampled, as indicated, and the sampling procedure completed and the equipment cleaned before proceeding to the next sample. The locations are as follows:

Location 1 will be located beneath the meter, approximately centered on the ground directly below the meter. This location is intended to include the area most likely to be contaminated by releases from the mercury "pot" or the pipe flange.

This location will be a square measuring approximately 2' by 2', and will be approximately 18" deep. All of the soil is to be excavated from this location, and temporarily placed into a large, open container (the wheel barrow or wash tub) for mixing and sampling, using the procedure described at the end of this document. The material will then be packed into leakproof containers such as drums and removed from the site.

If liquid mercury or other evidence of contamination is visible beneath the meter in the soil, it should be included in the soil. Loose organic material and debris resting on the surface of the soil should be excavated along with the soil. If there is visible contamination that will not be included in Location 1, as defined here, or in any of the other pre-defined sample contaminations, this visible contamination will be sampled as an additional sample location.

Location 2 will be an approximately 2' by 2' square, located at the bottom of the Location 1 excavation. This location is intended to test whether mercury has migrated downward through the soil from the surface.

Location 2 will be sampled by removing a shallow (approximately 1/2") layer of soil from the bottom of the location 1 excavation. The sampled layer should cover essentially all of the bottom surface of the excavation. Location 2 should be sampled before location 3. This material should be placed directly into the laboratory sample container.

Location 3 will be located on the ground, surrounding location 1. This location is intended to test whether mercury has migrated or been transported horizontally across or through the soil beyond the location of expected maximum concentration (location 1).

Location 3 will be a rectangular area of approximately 3' by 3', 18" deep, centered on location 1. Location 3 will be excavated after location 1 has been excavated and location 2 has been sampled.

All of the soil is excavated from location 3 by enlarging the 2' by 2' location 1 hole to a 3' by 3' hole, 18" deep. All soil from location 3 will be temporarily placed in a large, open container, as for location 1, for mixing and sampling using the procedure described in this document, then packed in leakproof drums and removed from the site.

Location 4 will be located exterior to the structure, in front of the door to the structure and immediately adjacent to the structure. This location is intended to test whether mercury has been transported from the meter house by adhering to shoe soles, etc. The location should include the area where a person exiting the meter house will first step.

Location 4 will consist of an area the width of the door and approximately 3' long. A surface sample will be obtained from this area by removing a shallow layer (1") from the surface of the ground. If the ground slopes steeply away from the location 4 site, additional area may be included in the excavation. If a large quantity of loose material is present on the surface at this location, additional material may be included in the excavation. Sampled material from location 4 will be placed temporarily in an open container for mixing and sampling, as for locations 1 and 3, then packed into a leakproof container and removed from the site.

Location 5 will be randomly selected to represent "background" conditions at the site. Location 5 will be greater than 20', but (if possible) less than 100', from the site, and will be in undisturbed terrain. Location 5 should be a location that is not normally driven-over, walked-on, or otherwise subject to human intervention. Location 5 will be a scoop of soil, penetrating at least 4" into the soil, and of approximately 1/2 pint to 1 pint in volume. This material can be placed directly into the laboratory container.

The distance and direction to location 5 should be recorded on the sampling form.

If visible contamination is present, but is not included in one of the defined sample locations, the location(s) of the visible contamination should be identified on the sample form as location(s) 6, 7, etc.

These sample locations are illustrated on the sampling form.

Sample Identification
Each sample container, and each drum of excavated material, should be labeled with a unique sample number, as described on the sample form. The sample number is generated as follows:

<last two digits of year> <Julian day> <6 unambiguous letters of location name> <2 digit sample location number>

For example, a sample taken on February 3, 1990, at Angel Peak #8, location 1, will be labeled

90 034 Angel8 01

Both the sample container, containing a one-pint sample of soil, and the drum(s) or box(s), containing up to approximately 6 cubic feet of material, should be labeled with this number.

At each site at least 5 samples will be collected. Additional samples will be collected if visible contamination is present and is not included in one of the defined samples. All samples must be

unambiguously identified, and chain-of-custody procedures followed to maintain sample integrity.

Chain-of-Custody
Each sample container and each drum or box of excavated material should have a seal placed on the lid, such that the lid cannot be opened without breaking the seal. In addition, normal chain-of-custody procedures should be followed for each sample. Each person to have custody of the samples should be identified on the sample form. The date and time each person acquired custody should also be stated on the form. The samples should be stored in a shaded location, out of direct sunlight. All samples should be forwarded to the GCNM Loss Control department in Albuquerque upon completion of the pilot sampling program. Each person to have custody of the samples during this process **must** be identified on the sample form.

Photograph Site
Each site should be photographed after sampling; the photographs should clearly indicate the locations of each sample. Identification should be included in each photograph; for example, the site name can be written in large characters on a sheet of paper and included in each photograph.

Mixing and Sampling Technique

A substantial volume of material will be removed from locations 1, 3, and 4. This material must be reduced in volume before being submitted for analysis. This should be done for the material from each of these three locations, using the following mixing and sampling technique:

All of the excavated material from the location should be placed in a large, open, dry container, such as a wash tub or wheel barrow. The container should be clean and dry, and in good repair.

The excavated material should be thoroughly mixed with a clean shovel, ensuring that the mixing includes material in the corners of the container.

After mixing, a small sample of the material should be taken from the center of the pile of material, by scooping deeply into the pile and lifting up with the sampling tool. This first sample should half-fill the laboratory sample container.

The material in the container should then be thoroughly re-mixed with a shovel.

After re-mixing, a second scoop of material should be obtained, as above, by scooping deeply into the center of the pile, and lifting up with the sampling tool. This second sample should fill the sample container.

After the material has been sampled, it should be packed into a leakproof container, such as a drum or a plastic bag inside a sturdy box, for removal from the site. The open mixing container and excavation and sampling tools can be cleaned and reused.

Material from locations 2 and 5 can be transferred directly into the laboratory containers and labeled and sealed. No reduction of volume will be necessary for these samples.

Appendix

Sample Form

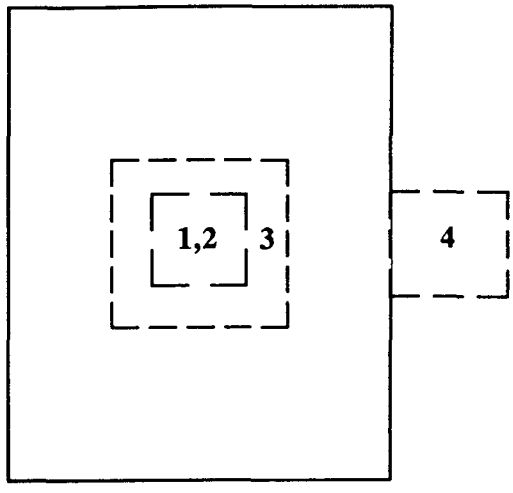
Pilot Sampling Results

Site Identification

Chain-of-Custody

Date	Time	Name

Floor plan of meter house. Locations 1, 2, and 3 centered on meter. Indicate structure dimensions and features (if any), and direction of North on illustation. Indicate additional sample locations.



Sample Data

Year	Day	Site	Location	Sample	Comments
90			01	Center, 2' X 2' X 18"	
90			02	Center, bottom of 01	
90			03	Center, 3' X 3' X 18"surrounding 01	
90			04	Outside door	
90			05	Background: Distance	Direction
90			06		
90			07		
90			08		

Comments

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STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

NOTIFICATION OF FIRE, BREAKS, SPILLS, LEAKS, AND BLOWOUTS

NAME OF OPERATOR	Gas Company of New Mexico				ADDRESS	Box 1899 Bloomfield NM.	
REPORT OF	FIRE	BREAK	SPILL X	LEAK X	BLOWOUT	OTHER*	
TYPE OF FACILITY	DRLG WELL	PROD WELL	TANK BTTY	PIPE LINE	GASO PLNT	OIL RFY	OTHER* Meter house at well
NAME OF FACILITY	Fullerton Federal #3						
LOCATION OF FACILITY (QUARTER/QUARTER SECTION OR FOOTAGE DESCRIPTION)					SEC. 14	TWP. 27N	RGE. 11W / COUNTY SanJuan
DISTANCE AND DIRECTION FROM NEAREST TOWN OR PROMINENT LANDMARK	7 miles south of Bloomfield, NM						
DATE AND HOUR OF OCCURENCE	1-12-90				DATE AND HOUR OF DISCOVERY	1-12-90	
WAS IMMEDIATE NOTICE GIVEN?	YES X	NO	NOT REQUIRED		IF YES, TO WHOM		
BY WHOM					DATE AND HOUR		
TYPE OF FLUID LOST	Elemental Mercury				QUANTITY OF LOSS	30 / 8W	VOLUME RECOVERED
DID ANY FLUIDS REACH A WATERCOURSE?	YES	NO X	QUANTITY				

IF YES, DESCRIBE FULLY**

DESCRIBE CAUSE OF PROBLEM AND REMEDIAL ACTION TAKEN**

Mercury leaked from the meter assembly at well. All free mercury and adjacent soil was removed from the meter house floor. Spills have occurred over a 30 year period.

DESCRIBE AREA AFFECTED AND CLEANUP ACTION TAKEN**

The spill was confined to the meter house itself and no other clean up action was required.

DESCRIPTION OF AREA	FARMING	GRAZING X	URBAN	OTHER* Open Range law			
SURFACE CONDITIONS	SANDY X	SANDY LOAM	CLAY	ROCKY	WET	DRY	SNOW

DESCRIBE GENERAL CONDITIONS PREVAILING (TEMPERATURE, PRECIPITATION, ETC.)**

Dry conditions, ambient temperature approx. 40°F
Heater running in meter house soil dry and damp

I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF

SIGNED [signature] TITLE Loss Conrol Spec. DATE 2-26-90

*SPECIFY **ATTACH ADDITIONAL SHEETS IF NECESSARY

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STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

NOTIFICATION OF FIRE, BREAKS, SPILLS, LEAKS, AND BLOWOUTS

NAME OF OPERATOR	Gas Company of New Mexico				ADDRESS	Box 1899 Bloomfield NM.	
REPORT OF	FIRE	BREAK	SPILL X	LEAK X	BLOWOUT	OTHER*	
TYPE OF FACILITY	DRLG WELL	PROD WELL	TANK BTTY	PIPE LINE	GASO PLNT	OIL RFY	OTHER* Meter house at well
NAME OF FACILITY	Fullerton Federal #2						
LOCATION OF FACILITY (QUARTER/QUARTER SECTION OR FOOTAGE DESCRIPTION)					SEC. 15	TWP. 27N	RGE. 11W COUNTY SanJuan
DISTANCE AND DIRECTION FROM NEAREST TOWN OR PROMINENT LANDMARK	7 miles south of Bloomfield, NM						
DATE AND HOUR OF OCCURENCE	1-12-90				DATE AND HOUR OF DISCOVERY	1-12-90	
WAS IMMEDIATE NOTICE GIVEN?	YES X	NO	NOT REQUIRED		IF YES, TO WHOM		
BY WHOM					DATE AND HOUR		
TYPE OF FLUID LOST	Elemental Mercury				QUANTITY OF LOSS	30 / 8W	VOLUME RECOVERED
DID ANY FLUIDS REACH A WATERCOURSE?	YES	NO X	QUANTITY				

IF YES, DESCRIBE FULLY**

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SURFACE CONDITIONS	SANDY X	SANDY LOAM	CLAY	ROCKY	WET	DRY	SNOW

DESCRIBE GENERAL CONDITIONS PREVAILING (TEMPERATURE, PRECIPITATION, ETC.)**

Dry conditions, ambient temperature approx. 40°F
Heater running in meter house soil dry and damp

I HEREBY CERTIFY THAT THE INFORMATION ABOVE IS TRUE AND COMPLETE TO THE BEST OF MY KNOWLEDGE AND BELIEF

SIGNED Ted Stiffle TITLE Loss Conrol Spec. DATE 2-26-90

*SPECIFY **ATTACH ADDITIONAL SHEETS IF NECESSARY

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ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
P. O. BOX 2088
SANTA FE, NEW MEXICO 87501

NOTIFICATION OF FIRE, BREAKS, SPILLS, LEAKS, AND BLOWOUTS

NAME OF OPERATOR	Gas Company of New Mexico				ADDRESS	Box 1899 Bloomfield NM.	
REPORT OF	FIRE	BREAK	SPILL X	LEAK X	BLOWOUT	OTHER*	
TYPE OF FACILITY	DRLG WELL	PROD WELL	TANK BTTY	PIPE LINE	GASO PLNT	OIL RFY	OTHER* Meter house at well
NAME OF FACILITY	Scott E Federal #3						
LOCATION OF FACILITY (QUARTER/QUARTER SECTION OR FOOTAGE DESCRIPTION)					SEC. 23	TWP. 27N	RGE. 11W / COUNTY SanJuan
DISTANCE AND DIRECTION FROM NEAREST TOWN OR PROMINENT LANDMARK	7 miles south of Bloomfield, NM						
DATE AND HOUR OF OCCURENCE	1-12-90				DATE AND HOUR OF DISCOVERY	1-12-90	
WAS IMMEDIATE NOTICE GIVEN?	YES X	NO	NOT REQUIRED		IF YES, TO WHOM		
BY WHOM					DATE AND HOUR		
TYPE OF FLUID LOST	Elemental Mercury				QUANTITY OF LOSS	30 / 8W	VOLUME RECOVERED
DID ANY FLUIDS REACH A WATERCOURSE?	YES	NO X	QUANTITY				

IF YES, DESCRIBE FULLY**

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SURFACE CONDITIONS	SANDY X	SANDY LOAM	CLAY	ROCKY	WET	DRY	SNOW

DESCRIBE GENERAL CONDITIONS PREVAILING (TEMPERATURE, PRECIPITATION, ETC.)**

Dry conditions, ambient temperature approx. 40°F
Heater running in meter house soil dry and damp

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SIGNED Ted Tyler TITLE Loss Conrol Spec. DATE 2-26-90

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ENERGY AND MINERALS DEPARTMENT

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NAME OF OPERATOR	Gas Company of New Mexico				ADDRESS	Box 1899 Bloomfield NM.	
REPORT OF	FIRE	BREAK	SPILL X	LEAK X	BLOWOUT	OTHER*	
TYPE OF FACILITY	DRLG WELL	PROD WELL	TANK BTTY	PIPE LINE	GASO PLNT	OIL RFY	OTHER* Meter house at well
NAME OF FACILITY	Fullerton Federal #4						
LOCATION OF FACILITY (QUARTER/QUARTER SECTION OR FOOTAGE DESCRIPTION)					SEC. 14	TWP. 27N	RGE. 11W / COUNTY SanJuan
DISTANCE AND DIRECTION FROM NEAREST TOWN OR PROMINENT LANDMARK	7 miles south of Bloomfield, NM						
DATE AND HOUR OF OCCURENCE	1-12-90				DATE AND HOUR OF DISCOVERY	1-12-90	
WAS IMMEDIATE NOTICE GIVEN?	YES X	NO	NOT REQUIRED		IF YES, TO WHOM		
BY WHOM					DATE AND HOUR		
TYPE OF FLUID LOST	Elemental Mercury				QUANTITY OF LOSS 30 / BW	VOLUME RECOVERED	
DID ANY FLUIDS REACH A WATERCOURSE?	YES	NO X	QUANTITY				

IF YES, DESCRIBE FULLY**

DESCRIBE CAUSE OF PROBLEM AND REMEDIAL ACTION TAKEN**

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Heater running in meter house soil dry and damp

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