



LABORATORY SERVICES
Natural Gas Analysis

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575.397.3713 2609 W Marland Hobbs NM 88240

H2S Analysis

HOBBS OCD

JUN 23 2014

RECEIVED

Paladin Energy
Attention: Mickey Horn
4006 Dunkirk
Midland, Texas 79707

06/12/14

H2S PPM

Lowe #1

18,500 PPM

Howard Fleet M/R

15,000 PPM

6/23/14 MTG

Leking, Geoffrey R, EMNRD

From: Leking, Geoffrey R, EMNRD
Sent: Monday, January 27, 2014 10:29 AM
To: VonGonten, Glenn, EMNRD
Cc: Chavez, Carl J, EMNRD
Subject: Partin H2S Complaint/Paladin Lowe 001 TB

Glenn

Has NMED Air Quality ever contacted NMOCD-Santa Fe regarding the above complaint? They were copied on the letter from the resident (Partin). They have never contacted District 1. Paladin was curious.

I have discussed the site with Carl. I will forward an email he sent me to you regarding the site. I spoke with Paladin today. They will install 8 monitors and the alarm set point will be 10 ppm for now. They would like to see how the monitoring goes before they move to vapor recovery. A bubble tower with an H2S scavenger was also discussed. Paladin hopes to have the resident view the monitoring setup this week and they propose that if the resident would like to buy and install his own monitor at the residence, then Paladin would share in the expense. Thank you.

Geoffrey Leking
Environmental Specialist
NMOCD-Hobbs
1625 N. French Drive
Hobbs, NM 88240
Office: (575) 393-6161 Ext. 113
Cell: (575) 399-2990
email: geoffreyr.leking@state.nm.us

Leking, Geoffrey R, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Friday, January 24, 2014 1:43 PM
To: Leking, Geoffrey R, EMNRD
Subject: RE: Partin H2S Complaint/Paladin Lowe 001 TB

Geoff:

Hi. Please see my comments in red text below. Please contact me so we may discuss.

In general, if the operator can estimate the [H2S] and flow rate Mcf to plug into the Paquil-Gifford Air Dispersion Model, they can estimate Radius of Exposures for the 100, 300 and 500 ppm in order to position detectors nearby the selected point src. location appropriately. It is good to know the prevailing wind directions, study topographic maps (general 7.5 Minute USGS Quadrangle map) to study the landscape and any low elevation where H2S has a tendency to sink and migrate close to ground level.

OCD has developed a checklist to provide operators for H2S Contingency Plans. Please click [here](#) to view OCD Training Folders with information that may be useful to you and Paladin.

For the OCD Checklist, click [here](#).

For Pasquil-Gifford Model Spreadsheet ROE Estimator, click [here](#).

For OCD Examples of H2S CPs, click [here](#).

For API Guidance, click [here](#).

Please call me so we may communicate more if you wish. If you think you need Glenn to listen in, I recommend that you give him the date and time that you will call his office, and if he is present, I am sure that he will listen in, otherwise proceed with your BPJ and Good Luck! Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Drive, Santa Fe, New Mexico 87505
Office: (505) 476-3490
E-mail: CarlJ.Chavez@State.NM.US

Website: <http://www.emnrd.state.nm.us/ocd/>

“Why Not Prevent Pollution; Minimize Waste; Reduce the Cost of Operations; & Move Forward With the Rest of the Nation?” To see how, please go to: “Pollution Prevention & Waste Minimization” at <http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental>

From: Leking, Geoffrey R, EMNRD
Sent: Friday, January 24, 2014 11:32 AM
To: Chavez, Carl J, EMNRD
Subject: RE: Partin H2S Complaint/Paladin Lowe 001 TB

Carl

Thanks again.

Geoffrey Leking
Environmental Specialist
NMOCD-Hobbs
1625 N. French Drive
Hobbs, NM 88240
Office: (575) 393-6161 Ext. 113
Cell: (575) 399-2990
email: geoffreyr.leting@state.nm.us

From: Chavez, Carl J, EMNRD
Sent: Friday, January 24, 2014 11:28 AM
To: Leking, Geoffrey R, EMNRD
Subject: RE: Partin H2S Complaint/Paladin Lowe 001 TB

Geoff:

Good morning. I'm thinking about this and will reply this afternoon. I am off on Mondays. Glenn may be able to sit in and I will copy him on my msg. to you ~ 2 p.m. today. **10 ppm is the detection limit that is used by operators to investigate potential H2S problems** with their facility. It does not put the operator into full implementation of an H2S CP, if one exists, occurs when 100 ppm H2S reaches or has the potential to impact public areas, etc. **(the operator should does some Pasquill-Gifford modeling to see what the radius of ROEs are relative to public areas, population, etc.)**

Stay tuned..... Thanks.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Drive, Santa Fe, New Mexico 87505
Office: (505) 476-3490
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From: Leking, Geoffrey R, EMNRD
Sent: Friday, January 24, 2014 8:58 AM
To: Chavez, Carl J, EMNRD
Subject: Partin H2S Complaint/Paladin Lowe 001 TB

Carl

Mickey Horn from Paladin is scheduled to come in Monday at 9:00 to discuss setting alarm concentrations at the above referenced battery as well as discussing a strategy of what the best method for alleviating any H2S emissions would be. The battery is suspected of releasing H2S which is affecting the Partin residence about a .25 to .5 mile away. The residence is located on a rise, but somehow it is receiving strong H2S odors. **(Remember that it is good when odors are present at low [H2S], because the concern is at high [H2S] the rotten egg odor cannot be smelled, to smell it means that**

it is present). The resident indicated that this has been going on for approximately 11 months. (general prevailing wind direction and wind flow over leeward side of slope- good to look at topo map landscape based on wind direction and point sources for potential explanation)

I have witnessed two H₂S surveys at the tank battery (including flare) and well head. None displayed any significant amounts of H₂S. The company has installed new hatches on the vessels and they are now flaring the gas from the battery at another battery to the east which is less in line with the residence. (good, detectors should be set to intercept any vapors near to the point source(s) on downwind side for practical application. H₂S vapor is denser than air and sinks).

They are now going to install alarms at the battery but are not sure at what concentration they should set them. In addition, they are planning on installing a vapor recovery system at the battery (good step), but wonder if some other processing should also be added. He mentioned amine treatment (this may be the next step if the problem gets worse; usually installed at Gas Plants and Refineries with high flow rate and concentration conditions) and/or injection of the gas downhole as disposal (this would be an Acid Gas Injection Well and would entail being permitted by the Engineering Bureau w/ OCD Environmental Bureau reviewing an H₂S CP). (Also, the above is good if there are public areas and population exists within ½ mile)

The site consists of the Lowe 001 wellhead, the battery which consists of two treaters, (2) 500 barrel tanks , a gun barrel, the flare and then two additional 500 barrel tanks associated with the SWD well located to the north. (good to know the formation with source of H₂S; multiple source areas and probable need to be prudent about where to set detectors (i.e., which source location poses the greatest threat relative to public areas- flare stacks can emit H₂S and SO₂ because depending on high flow rate, not all H₂S may be burned and some H₂S still present flowing downwind and SO₂ is also the burned derivative of concern) and a "poison gas" well sign to alert persons of presence of gas (assume automated to alert operator of detection ~ 10 ppm (could go 20 ppm) for corrective action)....

They are also remediating a release caused by the gun barrel running over. (what is the constituent of concern?.... well we are focused on H₂S)

Would you like to sit in by phone at the meeting on Monday? Would you have any comments that you would like to pass along today? I am going over the H₂S rules. I have not gotten through them altogether but already see that 100 ppm looks like the minimum concentration of concern? But I would think a lower number would be applicable in the situation at hand.

Thanks for any help you can provide on this matter.

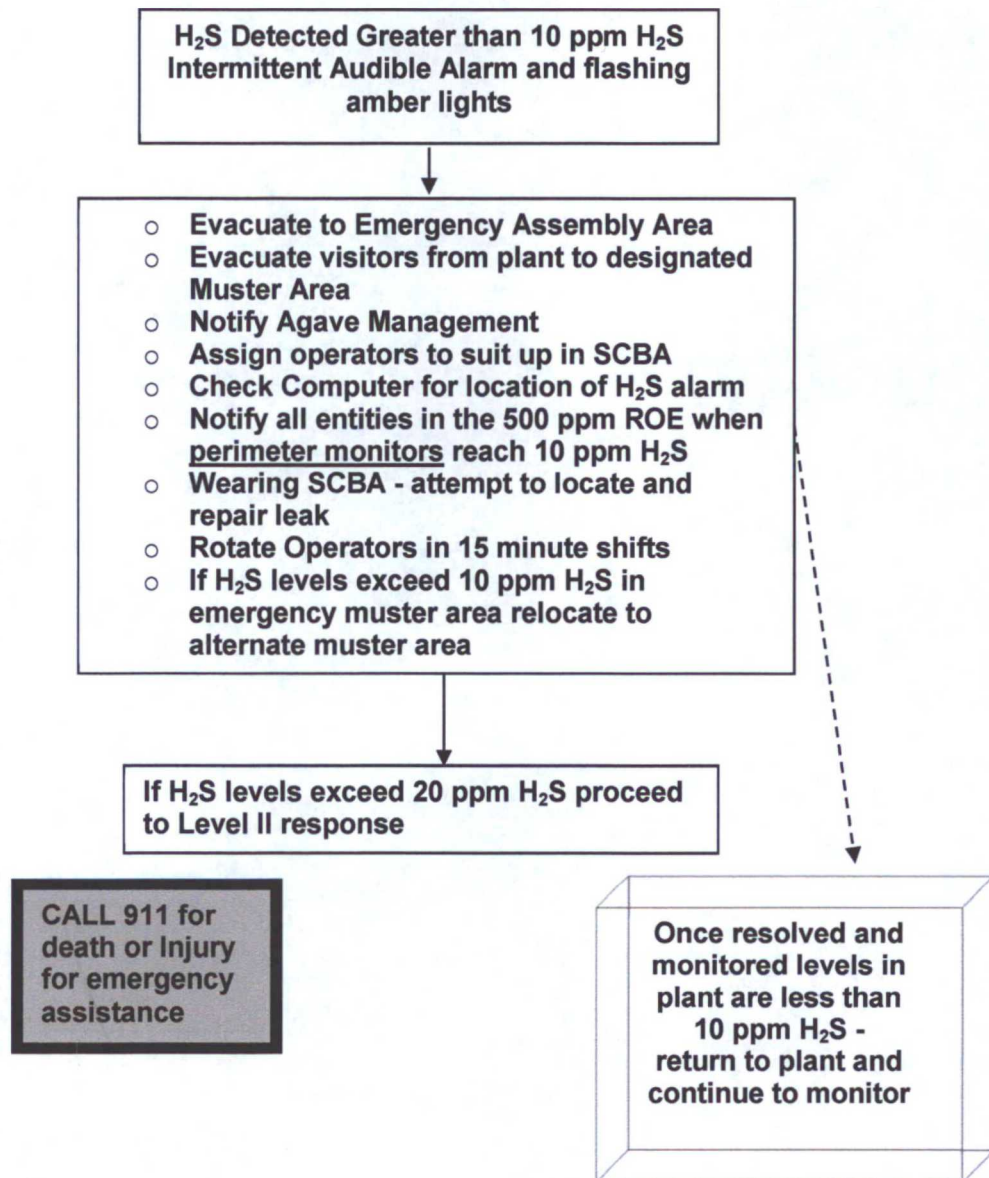
Geoff

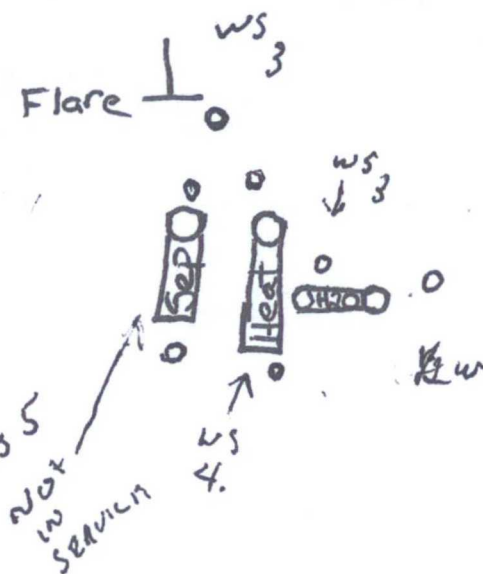
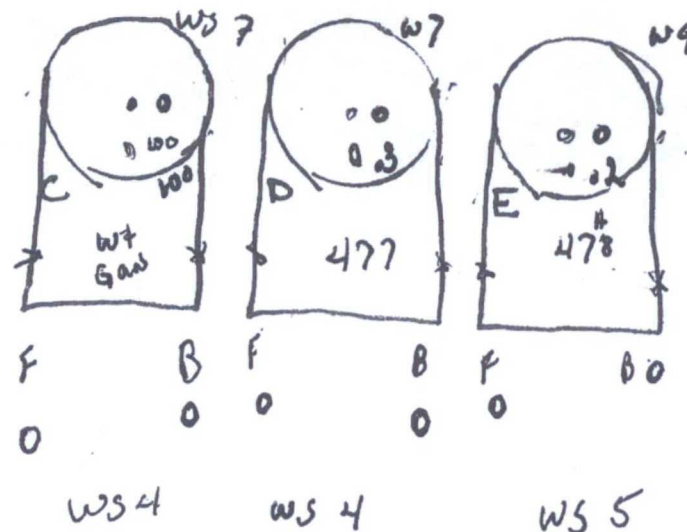
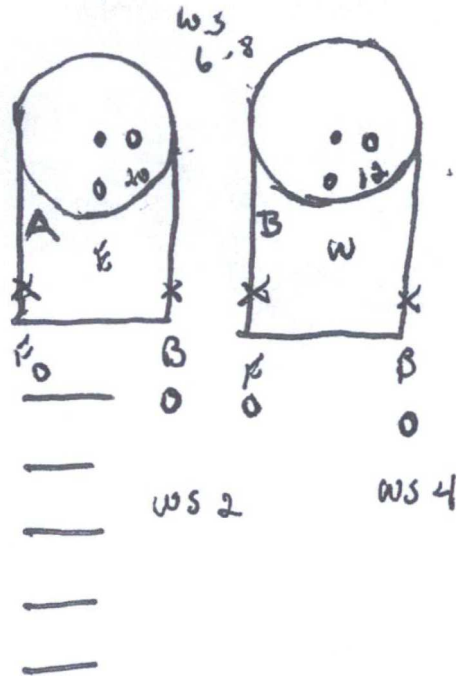
LESS THAN 20 MCF

1.3 MI AWAY

OPERATOR QUICK REFERENCE GUIDE

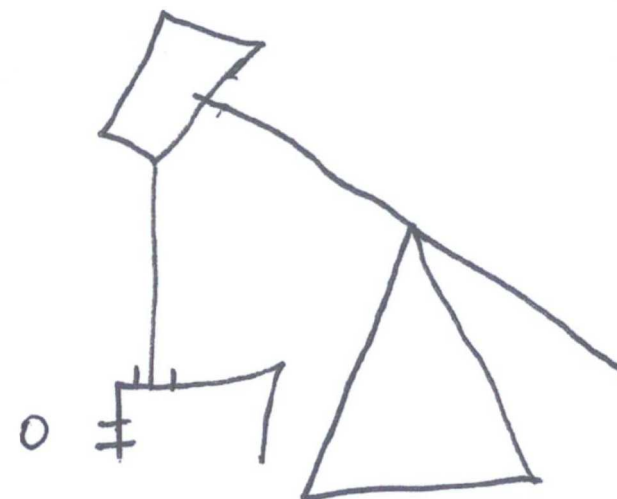
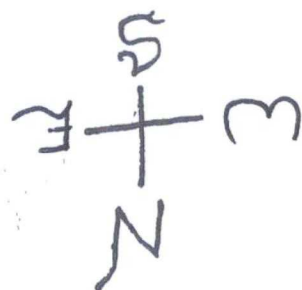
Dagger Draw Processing Plant Level 1 Response FOR PLANT OR WELLHEAD ALARMS





Paladin Lowe #1

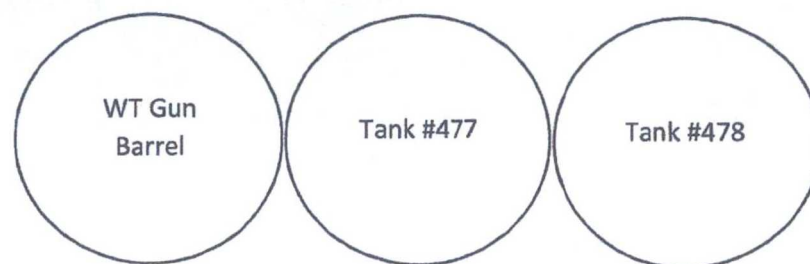
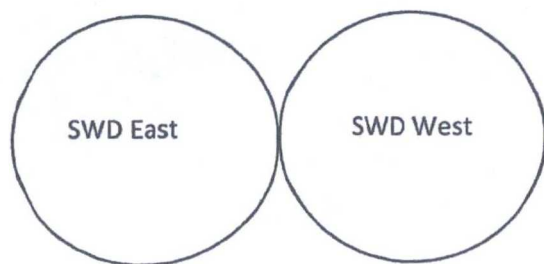
H2S SURVEY
01/09/14



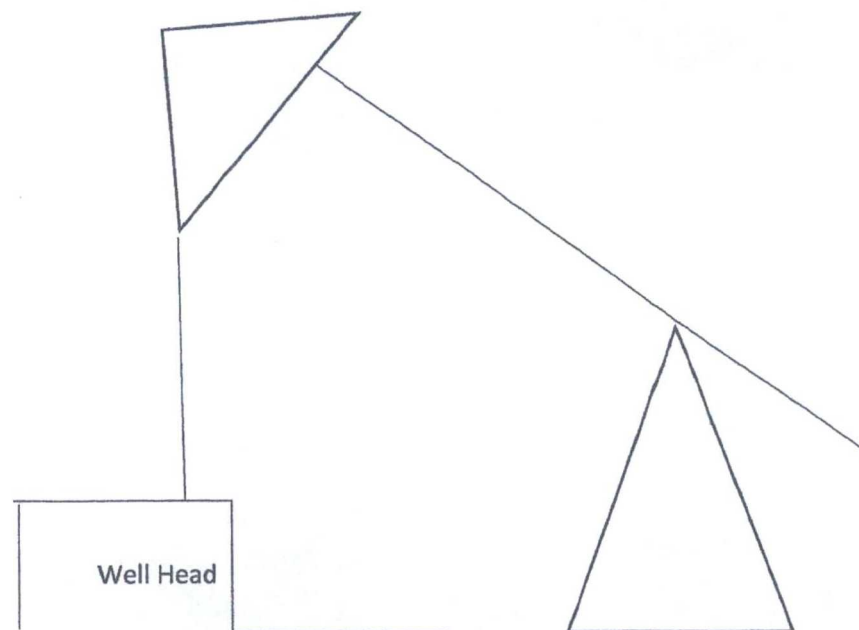
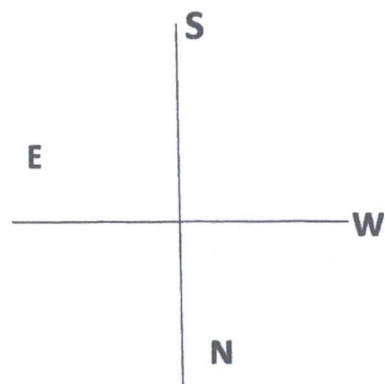
Wind speed 2 mph

Wind Direction N.E.

PALADIN LOWE 001TB
H2S SURVEY
11/09/14



Paladin Lowe #1



PALADIN LOWE 001T3
H2S SURVEY
01/09/14

HOBBS OCD

JAN 21 2014

RECEIVED

<u>Sample Point</u>	<u>Front</u>	<u>Back</u>	<u>1 ft above Hatch</u>	<u>Closed Hatch</u>	<u>Wind Speed</u>
SWD East	0 ppm	0 ppm	0 ppm	20 ppm	6-8 mph
SWD West	0 ppm	0 ppm	0 ppm	12 ppm	6-8 mph
WT Gun Barrel	0 ppm	0 ppm	0 ppm	100 ppm	7 mph
Tank #477	0 ppm	0 ppm	0 ppm	0.3 ppm	7 mph
Tank #478	0 ppm	0 ppm	0 ppm	0.2 ppm	9 mph
Separator (Not in Service)	0 ppm	0 ppm			5 mph
Heater	0 ppm	0 ppm			4 mph
Water Knock Out	0 ppm	0 ppm			3 mph
Well Head	0 ppm	0 ppm			2 mph
Flare	0 ppm	0 ppm			3 mph

Atmospheric Temperature:

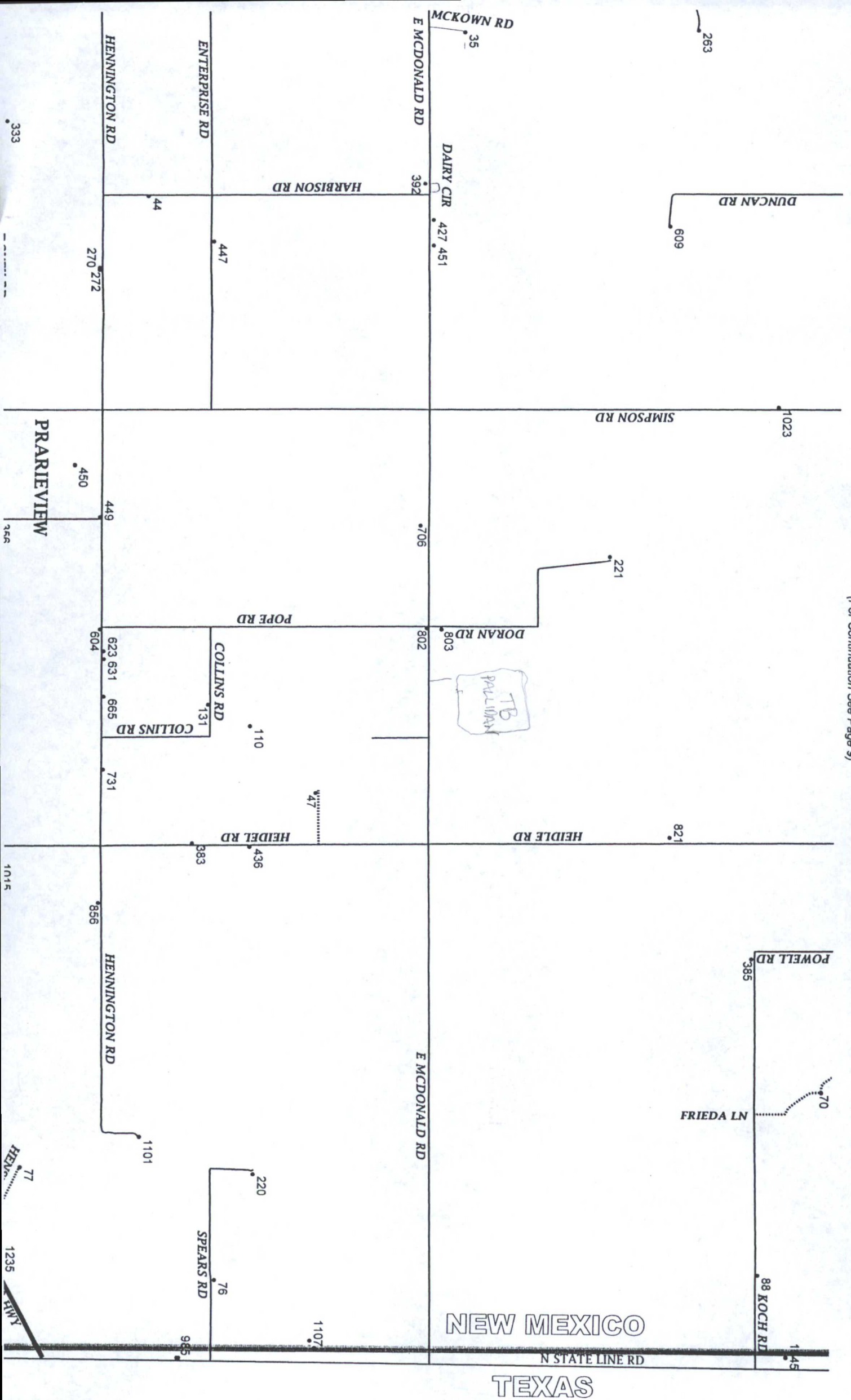
36

Wind Direction:

N.E.

PALADIN HOWE 001 TB
H2S MONITORING SURVEY
01/09/14

(For Continuation See Page 9)



HOBBS OCD

JAN 06 2014

RECEIVED

Dan and Jessica Partin

821 Heidel Highway

Tatum, NM 88267

Home phone (575) 398-3157

Dan cell (806) 841-5101

January 1, 2014

Re: Well Name LOWE No. 001, Well API # 30-025-30702, ULSTR M-25-13S-37E

Paladin Energy Corporation

10290 Monroe Drive, Suite 301

Dallas, TX 75229

Attn: VP Exploration & Production

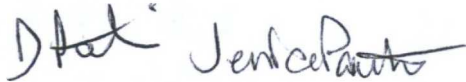
To whom it may concern:

I am writing to you concerning the air quality at our residence. My husband and I, along with our two children, live in rural Southeastern New Mexico and farm. Over the past approximately eight months, there has been increasing oil and gas development to the southwest of our house. We believe that because of the new development, our home is now polluted with Hydrogen Sulfide gas on a daily basis. I am relatively unfamiliar with oil and gas operations, but have been researching the health effects of Hydrogen Sulfide, and can say that I and my family have symptoms that agree with the research. Not only am I very concerned for our health, but the smell is extremely bothersome to us. Almost every evening, it drifts over our house and seeps in. And, I know it is the worst when we are sleeping and we just don't notice it. But, any time I wake up in the middle of the night, the smell is almost unbearable, and I wish I could get us all out of the house.

I have been living here for 10 years, and have had a benign brain tumor and over 7 melanomas. My five year old daughter has had chronic croup attacks since she was 18 months old. I know there is no proof that our environment caused our health problems, but they all correlate with the effects of Hydrogen Sulfide exposure. We don't have the option of moving at this time, so I am asking you to take the necessary steps to make our residence healthy and livable.

I am requesting that you provide us with a gas monitor with an alarm. I also think that you should solve the problem at your well site by putting in a vapor recovery system. There is also a flare at this site, and I realize that those are necessary in certain instances. I know that I don't understand much about oil and gas wells, and that is why I'm relying on you to solve this problem. I am sending a copy of this letter to the New Mexico Oil Conservation Division and the New Mexico Air Quality Bureau. We appreciate your concern in this matter and look forward to hearing from you.

Sincerely,

Handwritten signatures of Dan and Jessica Partin. The signature for Dan is on the left, and the signature for Jessica is on the right.

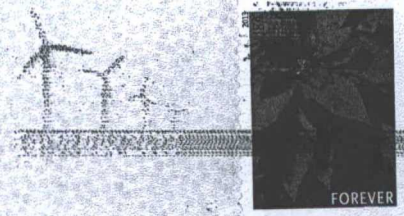
Dan and Jessica Partin

cc: NM Oil Conservation Division

NM Environment Dept. Air Quality Bureau

13
Dan and Jessica Partin
821 Heidel Highway
Tatum, NM 88267

LUBBOCK TX 794



NM Oil Conservation Dept. District 1
Attn: Compliance Officer
1625 N. French Drive
Hobbs, NM 88240

66240+9273

