

GW - 014

**Well Head
Protection Area
(WHPA)**

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Thursday, April 28, 2011 8:33 AM
To: Hill, Larry, EMNRD
Cc: VonGonten, Glenn, EMNRD; 'Patrick B. McMahon'
Subject: City of Lovington WHPA & Surface Restoration

Buddy:

Good morning. As you are aware, Daniel Sanchez appointed you, Glenn and I with fostering communication and a good working relationship with the City of Lovington in their WHPA when it relates to oil and gas.

FYI, I received a call today from Patrick McMahon related to surface restoration of some Chevron well sites and some excavations where saturated soils were removed and locations need to be closed out. One of the Chevron producing wells failed an MIT, so the City may want to test the water table for chlorides, TPH and BTEX to make sure the producing well with MIT failure did not impact the USDW. On surface restoration, they will grad a 5 pt composite from the surface for similar parameters and be on location to recommend locations based on any evident surface staining. The BLM has good surface restoration guidalines and Chevron apparently needs to satisfy them too.

The City may be scheduling a meeting w/ OCD Hobbs on the excavation closure reports for OCD input on the closure reports. If you need to communicate with Patrick, this phone number is (575) 396-5303. I told him that if there is anything he needs assistance from OCD on in the WHPA to let us know and he said he'll keep OCD posted.

Thanks.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us

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

"Why not Prevent Pollution; Minimize Waste; Reduce the Cost of Operations; & Move Forward with the Rest of the Nation?" To see how, go to "Pollution Prevention & Waste Minimization" at:

<http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental>)

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Tuesday, May 04, 2010 9:18 AM
To: 'Michael Leighton'; 'Lackey, Johnny'
Cc: VonGonten, Glenn, EMNRD; 'Moore, Darrell'; 'Meeks, Jimmy';
Christy_Franklyn@schirmereng.com; 'Whatley, Michael'; Dade, Randy, EMNRD;
christy.franklyn@schirmereng.com; swati.rao@schirmereng.com; hsnpcb@leaco.net;
Hansen, Edward J., EMNRD; Hill, Larry, EMNRD
Subject: RE: H2S Contingency Plan (GW-014)

Michael:

Thank you for the update.

Good day.....

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/ocd/index.htm>
(Pollution Prevention Guidance is under "Publications")

From: Michael Leighton [mailto:mleighton@lovington.org]
Sent: Tuesday, May 04, 2010 8:34 AM
To: Chavez, Carl J, EMNRD; 'Lackey, Johnny'
Cc: VonGonten, Glenn, EMNRD; 'Moore, Darrell'; 'Meeks, Jimmy'; Christy_Franklyn@schirmereng.com; 'Whatley, Michael';
Dade, Randy, EMNRD; christy.franklyn@schirmereng.com; swati.rao@schirmereng.com; hsnpcb@leaco.net
Subject: RE: H2S Contingency Plan

Carl, Et. Al.,
FYI

Kurt Porter is no longer Lovington's Water Superintendent. Miguel De La Cruz is now in charge of both Water and Wastewater. His email is mdelacruz@lovington.org (575) 704-9173. Our most knowledgeable water field people are Wyatt Duncan (575) 704-9171 and Darren Click (575) 704-9182 or h2o@lovington.org . ML

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Tuesday, May 04, 2010 7:15 AM
To: Lackey, Johnny
Cc: VonGonten, Glenn, EMNRD; Moore, Darrell; Meeks, Jimmy; Christy_Franklyn@schirmereng.com; Whatley, Michael;
Dade, Randy, EMNRD; christy.franklyn@schirmereng.com; swati.rao@schirmereng.com; mleighton@lovington.org;
hsnpcb@leaco.net
Subject: RE: H2S Contingency Plan

Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490

Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/ocd/index.htm>
(Pollution Prevention Guidance is under "Publications")

From: Lackey, Johnny [<mailto:Johnny.Lackey@hollycorp.com>]
Sent: Monday, May 03, 2010 9:08 AM
To: Chavez, Carl J, EMNRD
Cc: VonGonten, Glenn, EMNRD; Moore, Darrell; Meeks, Jimmy; Christy_Franklyn@schirmereng.com; Whatley, Michael; Dade, Randy, EMNRD; christy.franklyn@schirmereng.com; swati.rao@schirmereng.com; mleighton@lovington.org; hsnpcbm@leaco.net
Subject: RE: H2S Contingency Plan

Carl. Attached is Appendix D (Plant Diagram-Evacuation Routes, H2S Monitoring and Alarm Locations) for the Lovington H2S Contingency Plan. I just discovered that this drawing was not inserted in the Plan submitted on Friday.

Johnny Lackey
Environmental Manager
Navajo Refining Company, L.L.C.
Office - 575-746-5490
Cell - 972-261-8075
Fax - 575-746-5451
Johnny.Lackey@hollycorp.com

CONFIDENTIALITY NOTICE: This e-mail, and any attachments, may contain information that is confidential and proprietary. Unless the context indicates otherwise, any information contained herein is sent with the expectation that it will be treated as confidential. If you are not the intended recipient or authorized to receive this message, you must not use, forward, copy, disclose or take any action based on the information herein. If you have received this message in error, please advise the sender immediately by reply e-mail. Unless expressly stated, nothing contained in this message should be construed as a digital or electronic signature or a commitment to a binding agreement.

From: Lackey, Johnny
Sent: Friday, April 30, 2010 6:16 PM
To: 'Chavez, Carl J, EMNRD'
Cc: VonGonten, Glenn, EMNRD; Moore, Darrell; Meeks, Jimmy; Christy_Franklyn@schirmereng.com; Whatley, Michael; Dade, Randy, EMNRD; christy.franklyn@schirmereng.com; swati.rao@schirmereng.com; mleighton@lovington.org; 'hsnpcbm@leaco.net'
Subject: RE: H2S Contingency Plan

Carl. After calculating the worst case release scenario at the Navajo Lovington Refinery, it was determined that the 500 ppm ROE did not encompass a "public road" (J. "Public road" means a federal, state, municipal or county road or highway) and the 100 ppm ROE does not encompass a "public area". (I. "Public area" means a building or structure that is not associated with the well, facility or operation for which the radius of exposure is being calculated and that is used as a dwelling, office, place of business, church, school, hospital or government building, or a portion of a park, city, town, village or designated school bus stop or other similar area where members of the public may reasonably be expected to be present). See Appendix C. As you are aware, the Lovington facility is approximately 5 miles south of the city of Lovington and is surrounded by oil and gas production with no businesses or residences in close proximity to the refinery, therefore I don't think an H2S Contingency Plan is required for this facility. However, I am attaching a copy of the Final Plan for your review of the calculations performed in compliance with API RP-55 (see Appendix B) and **will await your concurrence as to the applicability of the H2S Contingency Plan Rule for the Navajo Lovington Refinery.**

Thanks,

Johnny Lackey
Environmental Manager
Navajo Refining Company, L.L.C.
Office - 575-746-5490
Cell - 972-261-8075

Fax - 575-746-5451
Johnny.Lackey@hollycorp.com

CONFIDENTIALITY NOTICE: This e-mail, and any attachments, may contain information that is confidential and proprietary. Unless the context indicates otherwise, any information contained herein is sent with the expectation that it will be treated as confidential. If you are not the intended recipient or authorized to receive this message, you must not use, forward, copy, disclose or take any action based on the information herein. If you have received this message in error, please advise the sender immediately by reply e-mail. Unless expressly stated, nothing contained in this message should be construed as a digital or electronic signature or a commitment to a binding agreement.

From: Chavez, Carl J, EMNRD [mailto:Carl.J.Chavez@state.nm.us]
Sent: Wednesday, April 28, 2010 3:21 PM
To: Lackey, Johnny
Cc: VonGonten, Glenn, EMNRD; Moore, Darrell; Meeks, Jimmy; Christy_Franklyn@schirmereng.com; Whatley, Michael; Dade, Randy, EMNRD; christy.franklyn@schirmereng.com; swati.rao@schirmereng.com
Subject: RE: H2S Contingency Plan

Approved. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/ocd/index.htm>
(Pollution Prevention Guidance is under "Publications")

From: Lackey, Johnny [mailto:Johnny.Lackey@hollycorp.com]
Sent: Wednesday, April 28, 2010 3:00 PM
To: Chavez, Carl J, EMNRD
Cc: VonGonten, Glenn, EMNRD; Moore, Darrell; Meeks, Jimmy; Christy_Franklyn@schirmereng.com; Whatley, Michael; Dade, Randy, EMNRD; christy.franklyn@schirmereng.com; swati.rao@schirmereng.com
Subject: RE: H2S Contingency Plan

Carl. I am working diligently with our consultant to finalize the Lovington H2S Contingency plan. We have the majority of the Plan complete, however due to the consultant's internal review and QA/QC, and our submittal of additional data for the worst case scenario; it appears we may not be ready to submit the Final Plan for your review by end of business today. Will you allow us an extension of 2 days to ensure I have an accurate Plan to submit for review? If you grant the extension I will submit the Plan by EOB on Friday, 4/30/10.

Thanks,

Johnny Lackey
Environmental Manager
Navajo Refining Company, L.L.C.
Office - 575-746-5490
Cell - 972-261-8075
Fax - 575-746-5451
Johnny.Lackey@hollycorp.com

CONFIDENTIALITY NOTICE: This e-mail, and any attachments, may contain information that is confidential and proprietary. Unless the context indicates otherwise, any information contained herein is sent with the expectation that it will be treated as confidential. If you are not the intended recipient or authorized to receive this message, you must not use, forward, copy, disclose or take any action based on the information herein. If you have received this message in error, please advise the sender immediately by reply e-mail. Unless expressly stated, nothing contained in this message should be construed as a digital or electronic signature or a commitment to a binding agreement.

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Thursday, April 08, 2010 8:23 AM
To: Lackey, Johnny
Cc: VonGonten, Glenn, EMNRD; Moore, Darrell; Meeks, Jimmy; Christy_Franklyn@schirmereng.com; Whatley, Michael; Dade, Randy, EMNRD
Subject: RE: H2S Contingency Plan

Johnny:

Hi. I'm sorry, due to our work load, it is difficult to pin down a date for OCD review and comments. I recommend that Navajo Refining Company (NRC) submit its H2S Contingency Plan for Lovington in its final form in order to satisfy the intent of the OCD H2S Regulations. The OCD will be reviewing them and may have comments at a later date where we can work together to resolve any outstanding issues. NRC should be looking over the OCD regulatory requirements and making sure you address them in you final report. For example, you should have reviewed the API Guidance referenced in the OCD Regulations to ensure you have also complied with the guidance. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/ocd/index.htm>
(Pollution Prevention Guidance is under "Publications")

From: Lackey, Johnny [mailto:Johnny.Lackey@hollycorp.com]
Sent: Thursday, April 08, 2010 7:54 AM
To: Chavez, Carl J, EMNRD
Cc: VonGonten, Glenn, EMNRD; Moore, Darrell; Meeks, Jimmy; Christy_Franklyn@schirmereng.com; Whatley, Michael; Dade, Randy, EMNRD
Subject: RE: H2S Contingency Plan

Carl. We are working on the Lovington Plan and should have it ready for your review by April 28, per your attached email. I was hoping to see comments on Artesia so any changes/comments could be incorporated in the Lovington Plan prior to submittal.

*Johnny Lackey
Environmental Manager
Navajo Refining Company, L.L.C.
Office - 575-746-5490
Cell - 972-261-8075
Fax - 575-746-5451
Johnny.Lackey@hollycorp.com*

CONFIDENTIALITY NOTICE: *This e-mail, and any attachments, may contain information that is confidential and proprietary. Unless the context indicates otherwise, any information contained herein is sent with the expectation that it will be treated as confidential. If you are not the intended recipient or authorized to receive this message, you must not use, forward, copy, disclose or take any action based on the information herein. If you have received this message in error, please advise the sender immediately by reply e-mail. Unless expressly stated, nothing contained in this message should be construed as a digital or electronic signature or a commitment to a binding agreement.*

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Thursday, April 08, 2010 7:24 AM
To: Lackey, Johnny

Cc: VonGonten, Glenn, EMNRD; Moore, Darrell; Meeks, Jimmy; Christy_Franklyn@schirmereng.com; Whatley, Michael; Dade, Randy, EMNRD
Subject: RE: H2S Contingency Plan

Johnny, et al.:

Good morning. Where is the Lovington Refinery H2S Contingency Plan? Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/ocd/index.htm>
(Pollution Prevention Guidance is under "Publications")

From: Lackey, Johnny [mailto:Johnny.Lackey@hollycorp.com]
Sent: Thursday, April 01, 2010 9:03 AM
To: Chavez, Carl J, EMNRD
Cc: VonGonten, Glenn, EMNRD; Moore, Darrell; Meeks, Jimmy; Christy_Franklyn@schirmereng.com; Whatley, Michael; Dade, Randy, EMNRD
Subject: RE: H2S Contingency Plan

Attached is Navajo's H2S Contingency Plan (final) for review. Wasn't clear whether you do or do not want to review DRAFT documents???

*Johnny Lackey
Environmental Manager
Navajo Refining Company, L.L.C.
Office - 575-746-5490
Cell - 972-261-8075
Fax - 575-746-5451
Johnny.Lackey@hollycorp.com*

CONFIDENTIALITY NOTICE: *This e-mail, and any attachments, may contain information that is confidential and proprietary. Unless the context indicates otherwise, any information contained herein is sent with the expectation that it will be treated as confidential. If you are not the intended recipient or authorized to receive this message, you must not use, forward, copy, disclose or take any action based on the information herein. If you have received this message in error, please advise the sender immediately by reply e-mail. Unless expressly stated, nothing contained in this message should be construed as a digital or electronic signature or a commitment to a binding agreement.*

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Wednesday, March 31, 2010 4:48 PM
To: Lackey, Johnny
Cc: VonGonten, Glenn, EMNRD; Moore, Darrell; Meeks, Jimmy; Christy_Franklyn@schirmereng.com; Whatley, Michael; Dade, Randy, EMNRD
Subject: RE: H2S Contingency Plan

Johnny:

Please send it as the final contingency plan for OCD review. The OCD does want to review draft documents. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505

Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/ocd/index.htm>
(Pollution Prevention Guidance is under "Publications")

From: Lackey, Johnny [mailto:Johnny.Lackey@hollycorp.com]
Sent: Wednesday, March 31, 2010 4:42 PM
To: Chavez, Carl J, EMNRD
Cc: VonGonten, Glenn, EMNRD; Moore, Darrell; Meeks, Jimmy; Christy_Franklyn@schirmereng.com; Whatley, Michael; Dade, Randy, EMNRD
Subject: RE: H2S Contingency Plan
Importance: High

Carl.

Attached is Navajo's DRAFT H2S Contingency Plan for your review/comment/approval. I will be sending via FedEx a hard copy of the plan also. I'm attaching the plot plan separately since the letter size doesn't show up well in the electronic version. The hard copy you will receive will include a color coded "D" sized drawing.

As we discussed, once the plan is approved, Navajo will prepare a "Public Notice" for the local newspaper to publish which will serve as notice to those that may be affected by a release from the refinery. I will send a copy of the proposed release to you for review and approval before sending to the newspaper for publishing.

The previous submittal was not intended to be the Draft Plan but to present our proposed "worst Case" scenario for your OK so we could develop the plan around that scenario.

Let me know if you need additional information or have any questions regarding this submittal.

Johnny Lackey
Environmental Manager
Navajo Refining Company, L.L.C.
Office - 575-746-5490
Cell - 972-261-8075
Fax - 575-746-5451
Johnny.Lackey@hollycorp.com

CONFIDENTIALITY NOTICE: This e-mail, and any attachments, may contain information that is confidential and proprietary. Unless the context indicates otherwise, any information contained herein is sent with the expectation that it will be treated as confidential. If you are not the intended recipient or authorized to receive this message, you must not use, forward, copy, disclose or take any action based on the information herein. If you have received this message in error, please advise the sender immediately by reply e-mail. Unless expressly stated, nothing contained in this message should be construed as a digital or electronic signature or a commitment to a binding agreement.

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Friday, March 12, 2010 4:35 PM
To: Lackey, Johnny
Cc: VonGonten, Glenn, EMNRD; Moore, Darrell; Meeks, Jimmy; Christy_Franklyn@schirmereng.com; Whatley, Michael; Dade, Randy, EMNRD
Subject: RE: H2S Contingency Plan

Johnny:

The OCD has completed a review of your proposal for the above subject plan for the Artesia Refinery, and I presume would form the basis for the plan for the Lovington Refinery.

In general, the proposal to use the "PHAST" Model to model H2S Gas does not appear to be appropriate (see link http://cfpub.epa.gov/crem/knowledge_base/crem_report.cfm?deid=196448&view=PDF) where the model primary purpose

is for simulating multi-component, reactive solute transport in 3-d saturated ground water flow systems, which is clearly not a gas transport model recommended in OCD Hydrogen Sulfide Regulations.

I notice that I don't see maps with detector locations, wind socks, location of "poison gas signs", location of units with flow where ROEs (100 and 500 ppm) would be depicted in public areas surrounding the refinery. Consequently, I am attaching the OCD's Regulations that references API Guidance, which is also not referenced in your proposal. Please take a look at the OCD Regulations and requirements and submit a H2S Contingency Plan that will address the regulations. The OCD provided an example (GW-33) from a Gas Plant that Navajo Refining Company should be using to develop a plan.

See OCD approved H2S Contingency Plan at OCD Online (GW-33) at <http://ocdimage.emnrd.state.nm.us/imaging/AEOrderFileView.aspx?appNo=pENV000GW00034>.

See attached OCD H2S Regulations to cross-check to make sure your plan addresses OCD Regulations. Also, information on the Pasquill-Gifford Model is attached to help you find another gas dispersion model or you can simply use this user friendly model to complete the plan (ROEs).

Please contact me if you have questions. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/ocd/index.htm>
(Pollution Prevention Guidance is under "Publications")

From: Lackey, Johnny [mailto:Johnny.Lackey@hollycorp.com]
Sent: Wednesday, March 10, 2010 7:53 AM
To: Chavez, Carl J, EMNRD
Cc: VonGonten, Glenn, EMNRD; Moore, Darrell; Meeks, Jimmy; 'Christy_Franklyn@schirmereng.com'; Whatley, Michael
Subject: RE: H2S Contingency Plan

Carl. Attached is Navajo's proposal for your consideration. Included in the proposal is our worst case release scenario. After your review and comments, Navajo will prepare the H2S Contingency Plan for submittal to the agency and Emergency Response organizations.

*Johnny Lackey
Environmental Manager
Navajo Refining Company, L.L.C.
Office - 575-746-5490
Cell - 972-261-8075
Fax - 575-746-5451
Johnny.Lackey@hollycorp.com*

CONFIDENTIALITY NOTICE: *This e-mail, and any attachments, may contain information that is confidential and proprietary. Unless the context indicates otherwise, any information contained herein is sent with the expectation that it will be treated as confidential. If you are not the intended recipient or authorized to receive this message, you must not use, forward, copy, disclose or take any action based on the information herein. If you have received this message in error, please advise the sender immediately by reply e-mail. Unless expressly stated, nothing contained in this message should be construed as a digital or electronic signature or a commitment to a binding agreement.*

From: Chavez, Carl J, EMNRD [mailto:CarlJ.Chavez@state.nm.us]
Sent: Friday, February 05, 2010 1:48 PM

To: Lackey, Johnny
Subject: H2S Contingency Plan

Johnny:

Hi. I have not received Navajo Refining Company's proposal that you indicated during our last meeting related to the above subject.

One recommendation that I have based on our meeting and Navajo Refining Company's concern about the ROE is attempt to provide an illustration of a real worse case scenario based on refinery controls and operations, but explain and reference in appendices the scenario that complies with OCD regulations. In this way, you can present your real worse case and address OCD regulation in the contingency plan.

Thanks.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Dept.
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Dr., Santa Fe, New Mexico 87505
Office: (505) 476-3490
Fax: (505) 476-3462
E-mail: CarlJ.Chavez@state.nm.us
Website: <http://www.emnrd.state.nm.us/ocd/index.htm>
(Pollution Prevention Guidance is under "Publications")

Confidentiality Notice: This e-mail, including all attachments is for the sole use of the intended recipient(s) and may contain confidential and privileged information. Any unauthorized review, use, disclosure or distribution is prohibited unless specifically provided under the New Mexico Inspection of Public Records Act. If you are not the intended recipient, please contact the sender and destroy all copies of this message. -- This email has been scanned by the Sybari - Antigen Email System.

Confidentiality Notice: This e-mail, including all attachments is for the sole use of the intended recipient(s) and may contain confidential and privileged information. Any unauthorized review, use, disclosure or distribution is prohibited unless specifically provided under the New Mexico Inspection of Public Records Act. If you are not the intended recipient, please contact the sender and destroy all copies of this message.

This email has been scanned using Webroot Email Security.

CONFIDENTIALITY NOTICE: This e-mail, and any attachments, may contain information that is privileged, proprietary and/or confidential. If you received this message in error, please advise the sender immediately by reply e-mail and do not retain any paper or electronic copies of this message or any attachments. Unless expressly stated, nothing contained in this message should be construed as a digital or electronic signature or a commitment to a binding agreement.

This inbound email has been scanned for malicious software and transmitted safely to you using Webroot Email Security.

Confidentiality Notice: This e-mail, including all attachments is for the sole use of the intended recipient(s) and may contain confidential and privileged information. Any unauthorized review, use, disclosure or distribution is prohibited unless specifically provided under the New Mexico Inspection of Public Records Act. If you are not the intended recipient, please contact the sender and destroy all copies of this message. -- This email has been scanned by the Sybari - Antigen Email System.

Confidentiality Notice: This e-mail, including all attachments is for the sole use of the intended recipient(s) and may contain confidential and privileged information. Any unauthorized review, use, disclosure or distribution is prohibited unless specifically provided under the New Mexico Inspection of Public Records Act. If you are not the intended recipient, please contact the sender and destroy all copies of this message. -- This email has been scanned by the Sybari - Antigen Email System.

Confidentiality Notice: This e-mail, including all attachments is for the sole use of the intended recipient(s) and may contain confidential and privileged information. Any unauthorized review, use, disclosure or distribution is prohibited unless specifically provided under the New Mexico Inspection of Public Records Act. If you are not the intended recipient, please contact the sender and destroy all copies of this message. -- This email has been scanned by the Sybari - Antigen Email System.

Confidentiality Notice: This e-mail, including all attachments is for the sole use of the intended recipient(s) and may contain confidential and privileged information. Any unauthorized review, use, disclosure or distribution is prohibited unless specifically provided under the New Mexico Inspection of Public Records Act. If you are not the intended recipient, please contact the sender and destroy all copies of this message. -- This email has been scanned by the Sybari - Antigen Email System.

Confidentiality Notice: This e-mail, including all attachments is for the sole use of the intended recipient(s) and may contain confidential and privileged information. Any unauthorized review, use, disclosure or distribution is prohibited unless specifically provided under the New Mexico Inspection of Public Records Act. If you are not the intended recipient, please contact the sender and destroy all copies of this message. -- This email has been scanned by the Sybari - Antigen Email System.

Confidentiality Notice: This e-mail, including all attachments is for the sole use of the intended recipient(s) and may contain confidential and privileged information. Any unauthorized review, use, disclosure or distribution is prohibited unless specifically provided under the New Mexico Inspection of Public Records Act. If you are not the intended recipient, please contact the sender and destroy all copies of this message. -- This email has been scanned by the Sybari - Antigen Email System.

No virus found in this incoming message.

Checked by AVG - www.avg.com

Version: 9.0.814 / Virus Database: 271.1.1/2852 - Release Date: 05/03/10 12:27:00

This is the html version of the file <http://www.nmenv.state.nm.us/wqcc/305b/2004/Pre-Draft/chapter5.doc>.
Google automatically generates html versions of documents as we crawl the web.

CHAPTER 5 GROUND WATER QUALITY MANAGEMENT IN NEW MEXICO

Sources of Ground Water Contamination

In the late 1970s, the New Mexico Environment Department (NMED) began evaluating existing information on vulnerable aquifers and major known and potential contamination sources. Evaluation of existing information by NMED has become an ongoing process as focus has shifted from identification of major potential sources of contamination to specific questions about known or suspected ground water problems. An initial inventory of known or suspected cases of groundwater contamination resulting from surface impoundments and other facilities was concluded in 1980 (1). An update, expansion and computerization of this inventory of groundwater contamination incidents of all types from all sources through 2001 are currently in progress.

In general, groundwater contamination most frequently occurs in vulnerable aquifer areas where the water table is shallow although other factors including precipitation, soil type and preferential flow pathways also affect vulnerability. Vulnerability maps, based on aquifer depth, were prepared in 1989 for all counties in the State. These county maps are available for inspection at the appropriate NMED field offices and at the NMED Underground Storage Tank Bureau office in Santa Fe. The New Mexico Energy, Minerals and Natural Resources Department developed vulnerability maps for the San Juan Basin in northwestern New Mexico in 1985 and 1992, which are available for inspection at their office in Santa Fe.

At least 1,240 ground water contamination plumes emanating from point sources, and numerous areas of widespread contamination from nonpoint sources, have been identified in the State through June 2001 (Figure 13). This contamination has impacted 191 public and 1,721 private water-supply wells (Figures 14 and 16). To date, 351 cases have received or will soon receive some degree of remediation (Figure 15). For the purpose of this report, remediation is defined as either removal of polluted ground water for beneficial use or recycling, removal of floating hydrocarbons, or purification of polluted ground water followed by reinjection or discharge to surface waters. Remedial actions include removal of floating non-aqueous-phase liquids, vapor ventilation, air sparging, bioremediation, monitored natural attenuation, and a variety of pump-and-treat, pump-and-waste, or pump-and-use methods. The above remediation activities have occurred in the past, are occurring now or are expected to occur in the near future.

Prevention of ground water contamination is clearly more cost effective and technically achievable than remediation. Approximately 12% of ground water contamination cases in the State have been caused by nonpoint sources, predominantly household septic tanks or cesspools. Figure 16 illustrates the number of wells impacted by point, nonpoint, and unknown sources of contamination. Nonpoint source contamination may be caused by diffuse sources such as large numbers of small septic tanks spread over a subdivision, residual minerals from evapotranspiration, animal feedlot operations, areas disturbed by mineral exploration and/or storage of waste products, urban runoff or application of agricultural chemicals. Point source categories are shown in Figure 17. These sources include publicly and privately owned sewage treatment plants with flows over 2,000 gallons a day, dairies, mines, food processing operations, industrial discharges, landfills and accidental spills or leaks. Ground water contamination is known to have occurred at a small percentage of facilities operating under a Ground Water Discharge Permit approved by NMED or OCD since the regulations became effective in 1977.

Source Water Protection:

Wellhead Protection Programs

The NMED Drinking Water Bureau is the primary contact for Wellhead Protection throughout New Mexico. Since its approval by EPA in 1990, the New Mexico Wellhead Protection Program (WHPP) has increased community participation in drinking water protection by providing technical assistance, identifying potential sources of contamination, and creating Wellhead Protection Areas throughout New Mexico.

In New Mexico, Wellhead Protection is a voluntary, community-based program designed to prevent pollution and protect drinking water quality. A Wellhead Protection Area (WPA) is a delineated space around a wellhead intended to reduce potential sources of contamination in that zone. Other specific wellhead protection measures include proper well construction methods and maintenance procedures, and adequate site security.

New Mexico communities have a vested interest in safeguarding their sources of drinking water. With a growing population and increased demands for safe, clean water, more communities are recognizing the need to create WPAs, enact longterm water resource plans, and implement best management practices that directly relate to the public water supply.

The WHPP became a part of the Source Water Assessment and Protection Program (SWAPP) with the 1996 Amendments to the Safe Drinking Water Act. As New Mexico's drinking water comes from ground water sources, and from streams, rivers and lakes the protection of existing water sources becomes paramount. Contamination of any of these sources results in the need for expensive treatment processes or, in some cases, the need to abandon old sources and develop alternate water supplies. The steps NMED/DWB is taking to protect New Mexico's source waters are to:

1. determine the land area around wells or intake structures having an influence on the water source;
2. identify and inventory potential sources of contamination within the designated water source areas;
3. determine the susceptibility of water supply facilities and conveyance structures to contamination;
4. report NMED's findings to the water utility and its customers; and
5. develop strategies to prevent contamination of the community's existing water supplies and safeguard its sources for the future.

Public involvement is a critical component of the New Mexico SWAPP, and a shared sense of responsibility for water resources is key to source water protection. Public participation in a wellhead protection plan, for example, creates awareness within the local community of the issues and hazards that confront the community's water supply, and is a far more effective tool in preventing pollution than are laws and regulations. Community-based planning efforts may be tailored specifically to the community's needs.

NEW MEXICO OIL AND GAS ACT

In addition to the WQCC regulations, OCD administers several water protection programs under the Oil and Gas Act. The Act authorizes OCD to "regulate the disposition of water produced or used in connection with the drilling for or producing of oil and gas, or both, and to direct surface or subsurface disposal of such water in a manner that will afford reasonable protection against contamination of fresh water supplies designated by the State Engineer" (' 70-2-12.B (15) NMSA 1978). The designation by the State Engineer generally protects all streams and surface waters and all ground water having 10,000 mg/L or less total dissolved solids, except for those ground waters having no present or reasonably foreseeable beneficial use.

The OCD requires that permits be obtained statewide for drilling, for waste oil treatment plants and for commercial and centralized surface waste disposal. Most regulated activities allow for a public hearing to be requested before permit issuance.

Statewide rules require surface disposal of oil and gas related waste (including produced water, sediment oil, and drilling fluids) to be performed in a manner which prevents contamination of fresh water. For certain geographic areas of the State, specific rules have been adopted that prohibit or limit certain disposal practices. Examples include limitations on disposal of produced water into unlined pits in southeastern New Mexico beginning in 1969, and in northwestern New Mexico beginning in 1985. In 1986, rules were adopted to require permits for commercial and centralized produced water disposal facilities in the San Juan Basin of northwestern New Mexico. In 1988, extensive statewide rules for licensing of commercial surface waste disposal facilities were adopted.

The Oil Conservation Commission in January 1993 adopted Order R-7940C, a set of stringent rules governing the disposal of produced water from oil and gas wells. These rules expand previously defined vulnerable ground water areas, create wellhead protection areas and prohibits the disposal of oil and gas wastes and water into unlined pits in vulnerable ground water areas in northwestern New Mexico. Order R-7940C prohibits disposal of all oil and gas wastes into unlined pits in these areas and requires existing pits to be closed in accordance with OCD regulations and guidelines. In 1993 the OCD issued Surface Impoundment Closure Guidelines which provide recommended risk-based cleanup levels and closure procedures to be used in the closing of surface impoundments and for remediation of leaks, spills and releases. An additional fresh water related problem currently receiving attention is the large number of production wells that have been shut in or temporarily abandoned. The reason for this increase is that the lower price of oil and natural gas since 1985 has led to the shutdown of marginal producing wells. However, these wells cannot be left indefinitely in this condition because natural processes cause casing deterioration that can lead to interstrata communication and possible fresh water contamination. As of the end of 1996, there were 48,022 producing oil and gas wells and 7,420 wells which were shut in. OCD has instituted rule changes to require proper temporary plugging for wells shut in for over six months. Such plugging would be allowed for a maximum of five years without reapproval.

In 1989 amendments to the Oil and Gas Act and to the Environmental Improvement Act (" 74-1-1 et seq., NMSA 1978) transferred responsibility for regulating some nonhazardous wastes away from NMED (under authority of the Environmental Improvement Act) to OCD (under authority of the Oil and Gas Act). The wastes now regulated under the jurisdiction of OCD are non-domestic solid wastes resulting from the exploration, development, production, transportation, storage, treatment or refinement of crude oil, natural gas or geothermal energy. These wastes may be generated at production sites, gas plants, refineries and oil field service companies. OCD is required to regulate disposal to protect public health and the environment, and is incorporating review of solid waste practices in discharge plan review and in review of surface disposal applications.

OCD performs ground water monitoring both to carry out responsibilities delegated to it by the Water Quality Control Commission and to ensure reasonable protection of fresh water as required by the Oil and Gas Act. OCD performs necessary monitoring as part of discharge plan review and at approved discharge plan sites. These discharge plans include the regulation of natural gas plants, natural gas compression facilities, oil refineries, geothermal installations, brine production wells and oil field service companies. At a minimum, inspections and sampling of effluents and ground water are conducted before plan approval and again prior to plan renewal.

In addition to monitoring carried out by OCD personnel, self-monitoring is also required of dischargers under conditions specified in individual discharge plans. Finally, monitoring at selected locations is conducted in response to citizen complaints in areas of oil and gas production activity. OCD is currently developing a computerized database management system for discharge plan and water quality monitoring.

As with the discharge permit process under the Water Quality Act, the permitting process under the Oil and Gas Act is much more effective at preventing new pollution from current activities than it is at coping with historical pollution problems. The most common cause of oil field contamination is the past practice of produced water disposal in unlined pits. This has been regulated in the southeastern part of the State since 1969 and in the northwestern part since 1985, but effects of past practices still persist. Although generally effective in controlling the effects of present discharges, the effectiveness of the regulatory program under the Oil and Gas Act could be improved in two areas: (1) upgrade temporary abandonment procedures to guard against interstrata communication at wells that are temporarily out of production; and (2) additional integrity testing and berming requirements to provide better environmental protection from leaks and spills at aging pipelines, tanks and other equipment.