

GW - 114

2014 GEN COR

01 / 31 / 2014

Virgilio Cocianni
Remediation Manager

Schlumberger
105 Industrial Boulevard
Sugar Land, TX 77478
Tel: (281) 285-4747

Schlumberger

RECEIVED 000

14 FEB - 3 11: 22

January 31, 2014

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

RE: Monitoring Well Plugging Report: Groundwater Remediation Program Modifications
Former Dowell Schlumberger Facility, Artesia, New Mexico (GW-114)

Dear Mr. Hansen:

On behalf of Schlumberger Technology Corporation (Schlumberger), CH2M HILL has prepared this monitoring well plugging report summarizing the November 2013 well plugging and abandonment activities conducted under existing Discharge Plan GW-114 at the Former Dowell Schlumberger facility in Artesia, New Mexico. The following sections summarize the well plugging process and results.

Background

On September 16, 2013, Schlumberger submitted a work plan amendment for modifications to the groundwater monitoring program. The proposed modifications included the plugging and abandonment of monitoring wells MW-1, MW-2, MW-3, MW-4, MW-5, MW-13, MW-14, MW-17A, MW-17B, MW-17D, MW-22A, MW-24, and MW-26A (see Figure 1). The work plan amendment is included as Attachment 1. Monitoring well MW-3 had reportedly been damaged during facility reconstruction and subsequently buried beneath gravel and groundwater samples and water level measurements had not been collected at well MW-3 since July 19, 2001. Attempts to locate and properly abandon MW-3 were planned.

On September 18, 2013, the New Mexico Oil Conservation Division (NMOCD) conditionally approved the amendment to the work plan. The NMOCD's conditional approval directed that monitoring well MW-1 should not be abandoned and should remain in the groundwater monitoring program. The NMOCD approval is included as Attachment 2.

Following the NMOCD approval, CH2M HILL contracted with a New Mexico-licensed driller, National Exploration, Wells, and Pumps (NEWP), to perform the well plugging and abandonment. On November 8, 2013, CH2M HILL submitted a well plugging plan of operations to the New Mexico Office of the State Engineer (NMOSE). The well plugging plan had been signed by the New Mexico-licensed driller from NEWP. In accordance with NMOSE regulations, a well plugging plan of operations must be filed with and accepted by the Office of the State Engineer prior to plugging. On November 12, 2013, NMOSE found "the proposed method of operation to be acceptable and in accordance with the Rules and Regulations Governing Well Driller Licensing; Construction, Repair and Plugging of Wells." The well plugging plan of operations and NMOSE approval are included as Attachment 3.

Monitoring Well Plugging and Abandonment

On November 13 and 14, 2013, monitoring wells MW-2, MW-4, MW-5, MW-13, MW-14, MW-17A, MW-17B, MW-17D, MW-22A, MW-24, and MW-26A were plugged and abandoned. The MW-3 area was scanned with ground-penetrating radar in an attempt to locate the reportedly damaged well. No anomalies were detected by the scanning tool, no visual observations of the well were noted, and monitoring well MW-3 was not found. No further efforts to locate MW-3 are proposed. No additional problems or concerns were identified during the well plugging and abandonment activities.

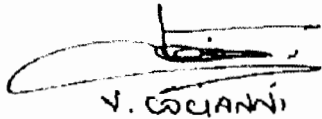
The monitoring wells were abandoned by grouting them closed using a cement-bentonite grout slurry with the grout emplaced in the polyvinyl chloride screen and casing using a tremie pipe. The entire

Mr. Edward Hansen
January 31, 2014
Page 2

surface components (well pad, protective casing, polyvinyl chloride casing) of the wells were removed, and the upper 3 feet of the well was filled with a Portland cement plug. The cement plug was finished flush with the ground surface. The surface completion materials were disposed of in the onsite waste dumpsters.

If you have any questions or comments, please call me at 281-285-4747.

Sincerely,



V. Cocianni

Virgilio Cocianni
Remediation Manager

c: Jim Strunk, The Dow Chemical Company (1 hard copy)
Cathy Barnett/CH2M HILL (1 electronic copy)
Jennifer Laggan/CH2M HILL (1 electronic copy)
Jeffrey Minchak/CH2M HILL (1 electronic copy)

Enclosures

Figure 1: Locations of Abandoned Monitoring Wells
Attachment 1: Work Plan Amendment, Modifications to the Groundwater Monitoring Program
Attachment 2: NMOCD Approval of Work Plan Amendment
Attachment 3: NMOSE Approval of Well Plugging Plan of Operations



LEGEND

- Property Line
- Right of Way Boundary
- Fence
- Area Exceeding NMWQCC Standards (dashed where inferred)
- Groundwater Flow Direction

- Monitoring Well - Not Monitored
- Monitoring Well - Monitor Semi-Annually
- Monitoring Well - Monitor Annually
- Monitoring Well - Abandoned
- Groundwater Extraction Well

0 100 200 Feet

FIGURE 1
Locations of Abandoned Monitoring Wells
Former Dowell Schlumberger Facility
Artesia, New Mexico

ATTACHMENTS

Virgilio Cocianni
Remediation Manager

Schlumberger

Schlumberger
105 Industrial Boulevard
Sugar Land, TX 77478
Tel: (281) 285-4747

September 16, 2013

Mr. Edward Hansen
Environmental Bureau
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Sante Fe, New Mexico 87505

RE: Work Plan Amendment
Modifications to the Groundwater Monitoring Program
Former Dowell Schlumberger Facility, Artesia, New Mexico

Dear Mr. Hansen:

Schlumberger Technology Corporation (Schlumberger) has prepared this work plan amendment to perform modifications to the current groundwater monitoring program at the Former Dowell Schlumberger Facility in Artesia, New Mexico. The following sections present background information regarding the existing groundwater monitoring program, proposed modifications to the program, and the schedule for implementing these modifications.

The adjustments are part of the overall evaluation of the site, including an assessment of the efficacy of the current remediation system.

Current Groundwater Monitoring Program

The current groundwater monitoring program includes a network of 35 monitoring wells that are monitored quarterly (Table 1). Depth to water measurements are collected at the 35 wells during each event. Field parameters and groundwater samples are collected from 19 monitoring wells (MW-8, MW-9, MW-11, MW-12, MW-13, MW-15, MW-18, MW-20, MW-21, MW-22, and MW-25 through MW-33) during the first, second, and third quarter monitoring events. During the fourth quarter monitoring event, groundwater samples are collected from the entire 35-well monitoring network. Groundwater samples are analyzed for volatile organic compounds (VOCs) by U.S. Environmental Protection Agency (USEPA) Method 8260.

Modifications to the Groundwater Monitoring Program

Schlumberger has evaluated the current groundwater monitoring program and proposes the following:

- Reduce the sampling frequency for some monitoring from quarterly to annually.
- Reduce the sampling frequency for some monitoring wells from quarterly to semiannually; no wells will be sampled quarterly.
- Remove certain monitoring wells from the groundwater monitoring program entirely.
- Plug and abandoned certain monitoring wells.

The revised monitoring program will continue to provide data across the defined plume area and upgradient, downgradient, and cross-gradient of the plume.

Proposed modifications to the current groundwater monitoring program are described in Table 1 and in the following sections. Table 2 contains the groundwater analytical results for the site monitoring wells from the previous eight groundwater sampling events.

Revisions to Groundwater Monitoring Frequency

Monitoring wells MW-12, MW-17C, MW-18, MW-21, MW-22, MW-25, MW-26, MW-28, MW-29, MW-30, MW-31, and MW-32 are proposed to be sampled semiannually versus quarterly because the rate of change in VOC concentrations at the site is slow, and there are minimal changes in groundwater quality observed between quarterly sampling events. Monitoring well MW-33 will also be sampled semiannually. The well is downgradient of the plume and acts as a sentinel well.

Monitoring wells MW-7, MW-8, MW-11, MW-15, and MW-19 are proposed to be sampled annually versus quarterly. VOC concentrations at these locations were below their applicable New Mexico Water Quality Control Commission (WQCC) standards in each of the monitoring wells for at least the previous eight quarterly sampling events. The wells are not located in VOC source areas, and annual monitoring is expected to be sufficient to confirm that VOC concentrations do not exceed the applicable WQCC standards moving forward.

Depth to water measurements will be collected during the semiannual and annual sampling events from monitoring wells not proposed for abandonment.

Removal of Monitoring Wells from Groundwater Sampling Program

Monitoring wells MW-1, MW-2, MW-4, MW-5, MW-6, MW-9, MW-10, MW-13, MW-14, MW-17A, MW-17B, MW-17D, MW-20, MW-23, MW-24, MW-26A, and MW-27 are proposed to be removed from the groundwater monitoring program for the following reasons:

- Groundwater samples from these wells have not exceeded WQCC standards in the previous eight quarterly sampling events or over a longer period of time. The Second Quarter Monitoring Results—2013 report indicated that MW-6 had been sampled and that trichloroethylene was detected in that monitoring well. However, since that report was prepared, it has been determined that the chain of custody was unclear, and the sample was incorrectly identified by the laboratory. The sample was actually a duplicate of MW-15 collected during the April event. The data have been corrected on Table 2 of this document, and MW-6 has not exceeded WQCC standards in the past eight annual sampling events.
- Monitoring wells are located outside or upgradient of groundwater contamination areas.
- Groundwater elevations at these locations are not required to support hydrogeologic interpretation.
- The wells are not likely to be required for remediation activities.

Monitoring Well Abandonment

Monitoring wells MW-1, MW-2, MW-3, MW-4, MW-5, MW-13, MW-14, MW-17A, MW-17B, MW-17D, MW-22A, MW-24, and MW-26A are proposed to be abandoned for the following reasons:

- Monitoring well MW-3 was reportedly damaged during facility reconstruction and subsequently buried beneath gravel. Groundwater samples and water level measurements

have not been collected at well MW-3 since July 19, 2001. Therefore, attempts will be made to locate and properly abandon MW-3 by grouting with a cement-bentonite slurry and removal of any remaining surface features.

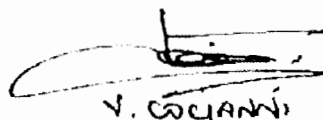
- Monitoring wells MW-22A and MW-26A were installed as temporary 1-inch groundwater monitoring wells for a zero-valent iron (ZVI) treatment pilot project completed in December 2001. Both wells were installed in order to monitor the effects of the ZVI on chlorinated compounds. MW-22A was dropped from the monitoring program with approval from the New Mexico Oil Conservation Division in October 2011, but was never properly abandoned. MW-26A remains in the monitoring program and is sampled annually. Because MW-22A and MW-26A are temporary monitoring points, lack complete construction as permanent monitoring wells, and MW-22A was previously removed from the monitoring program, both have been proposed for abandonment by grouting with a cement-bentonite slurry and removal of any remaining features.
- The remaining monitoring wells have not contained VOC concentrations that exceeded the WQCC standards for at least eight consecutive quarters and, in some cases, as shown on Table 1, for significantly longer than eight quarters. The wells are also not needed to support potential remediation efforts or hydrogeologic interpretation.

Implementation of the Modified Groundwater Monitoring Program

It is proposed that upon receipt of the New Mexico Oil Conservation Division's approval, the groundwater monitoring program revisions discussed in this work plan amendment will be implemented during the fourth quarter 2013 sampling event, currently scheduled for October 2013, and future sampling events.

If you have any questions or comments, please contact me at 281-285-4747 or by e-mail at cocianni-v@slb.com.

Sincerely,



V. COCIANNI

Virgilio Cocianni
Remediation Manager

c: Jim Strunk, The Dow Chemical Company (1 hard copy)
Cathy Barnett/CH2M HILL (1 electronic copy)
Jennifer Laggan/CH2M HILL (1 electronic copy)
Jeffrey Minchak/CH2M HILL (1 electronic copy)

Enclosures

Figure 1
Monitoring Well Locations



FIGURE 1
Monitoring Well Locations
Former Dowell Schlumberger Facility
Artesia, New Mexico

Table 1

Groundwater Monitoring Program Rationale

Table 1
Groundwater Monitoring Program Rationale
Former Dowell Schlumberger Facility, Artesia, New Mexico

Monitoring Well ID	Current Monitoring Frequency	Included in Modified Sampling Program	Sampling Frequency	Recommended for Abandonment?	Rationale
M/W-1	Annual October Event	No	None	Yes	- No detections or exceedances of WQCC standards for the past ten annual sampling events - Not required for depth to groundwater measurements to support hydrogeologic interpretation - Not required for remediation activities - Not located downgradient of existing groundwater impacts
M/W-2	Annual October Event	No	None	Yes	- No detections or exceedances of WQCC standards for the past seven annual events - Not required for depth to groundwater measurements to support hydrogeologic interpretation - Not required for remediation activities - Not located downgradient of existing groundwater impacts
M/W-4	Annual October Event	No	None	Yes	- No detections or exceedances of WQCC standards for the past thirteen annual sampling events - Not required for depth to groundwater measurements to support hydrogeologic interpretation - Not required for remediation activities - Not located downgradient of existing groundwater impacts
M/W-5	Annual October Event	No	None	Yes	- Only one detection (PCE in 2005) and no exceedances of WQCC standards for the past ten annual sampling events - Not required for depth to groundwater measurements to support hydrogeologic interpretation - Not required for remediation activities - Not located downgradient of existing groundwater impacts
M/W-6	Annual October Event	No	None	No	- No detections or exceedances of WQCC standards for the past eight annual sampling events - Useful for depth to groundwater measurements to support hydrogeologic interpretation - Not required for remediation activities
M/W-7	Annual October Event	Yes	Annually	No	- Four annual events with no exceedances of WQCC standards - MW-7 is centrally located between two known plume locations; downgradient of one area exceeding WQCC standards - Depth to water data is useful to support hydrogeologic interpretations - Due to its central location between two known areas exceeding WQCC standards, it could potentially be used for remediation activities in the future
M/W-8	Quarterly	Yes	Annually	No	- No exceedances of WQCC standards for the past eight quarterly sampling events - Centrally located between two known areas with exceedances of WQCC standards - Useful for depth to groundwater measurements to support hydrogeologic interpretation
M/W-9	Quarterly	No	None	No	- Recent VOC detections but no WQCC exceedances - Upgradient of areas exceeding WQCC standards - Useful for depth to groundwater measurements to support hydrogeologic interpretation - Not located downgradient of existing groundwater impacts
M/W-10	Annual October Event	No	None	No	- No exceedances of WQCC standards for the past three annual sampling events - Located outside of contaminated areas; not downgradient of contaminated areas - Useful for depth to groundwater measurements to support hydrogeologic interpretation

Table 1

Groundwater Monitoring Program Rationale
Former Dowell Schlumberger Facility, Artesia, New Mexico

Monitoring Well ID	Current Monitoring Frequency	Included in Modified Sampling Program	Sampling Frequency	Recommended for Abandonment?	Rationale
MW-11	Quarterly	Yes	Annually	No	- No exceedances of WQCC standards for the past eight quarterly sampling events - Centrally located between two known areas with exceedances of WQCC standards; downgradient of contaminated areas; useful for depth to groundwater measurements to support hydrogeologic interpretation - Potential use for remediation activities
MW-12	Quarterly	Yes	Semiannually	No	- Located inside contaminated area; located at proposed remediation location; Benzene & 1,1-DCA WQCC exceedances in most recent sampling events - Useful for depth to groundwater measurements to support hydrogeologic interpretation - Potential use for future remediation activities
MW-13	Quarterly	No	None	Yes	- No detections/exceedances since 1999 - Not downgradient of contaminated areas - Not useful for depth to groundwater measurements to support hydrogeologic interpretation - Not required for remediation activities
MW-14	Annual October Event	No	None	Yes	- Only one detection (1,1-DCA in 2005) and no exceedances of WQCC standards for the past eight annual sampling events - Located outside of contaminated areas; Not downgradient of contaminated areas - Not useful for depth to groundwater measurements to support hydrogeologic interpretation - Not required for remediation activities
MW-15	Quarterly	Yes	Annually	No	- No exceedances of WQCC standards for the past eight quarterly sampling events - Upgradient well for former wash rack location - Downgradient/Near proposed remediation location and could be necessary for injection activities in the future - Useful for depth to groundwater measurements to support hydrogeologic interpretation - Not located downgradient of existing groundwater impacts - Potential use for future remediation activities
MW-17A	Annual October Event	No	None	Yes	- No exceedances in past seven sampling events - Downgradient of contaminated area - One of four nested wells which have not been shown to provide complementary data - Not useful for depth to groundwater measurements to support hydrogeologic interpretation
MW-17B	Annual October Event	No	None	Yes	- Downgradient of contaminated area - One of four nested wells which have not been shown to provide complementary data - Not useful for depth to groundwater measurements to support hydrogeologic interpretation
MW-17C	Annual October Event	Yes	Semiannually	No	- Detections in past eight quarterly sampling events; No exceedances in past seven sampling events - Near proposed injection location and could be necessary for injection activities - Downgradient of contaminated area - One of four nested wells which have not been shown to provide complementary data; maintain MW-17C (deepest well in cluster) - Not useful for depth to groundwater measurements to support hydrogeologic interpretation

Table 1
Groundwater Monitoring Program Rationale
Former Dowell Schlumberger Facility, Artesia, New Mexico

Monitoring Well ID	Current Monitoring Frequency	Included in Modified Sampling Program	Sampling Frequency	Recommended for Abandonment?	Rationale
MW-17D	Annual October Event	No	None	Yes	- Downgradient of contaminated area - One of four nested wells which have not been shown to provide complementary data - Not useful for depth to groundwater measurements to support hydrogeologic interpretation
MW-18	Quarterly	Yes	Semiannually	No	- WQCC exceedances for 1,1-DCE from 7/13/11 - 4/16/13; Exceedances for PCE from 7/13/11 - 7/18/12 - Centrally located between two known areas with exceedances of WQCC standards; Downgradient of contaminated areas; Useful for depth to groundwater measurements to support hydrogeologic interpretation - Potential use for future remediation activities
MW-19	Annual October Event	Yes	Annually	No	- No exceedances since 10/8/05; no detections since 10/19/10; eight quarters through October 2012 sampling event - Useful for depth to groundwater measurements to support hydrogeologic interpretation - Downgradient of contaminated area - Potential use for future remediation activities
MW-20	Quarterly	No	None	No	- No exceedances in previous eight quarterly sampling events - Monitoring well is located outside the perimeter of WQCC standards exceedances locations - Useful for depth to groundwater measurements to support hydrogeologic interpretation - Not required for remediation activities
MW-21	Quarterly	Yes	Semiannually	No	1,1-DCE exceedances between 7/13/11 - 4/16/13; PCE exceedances between 7/13/11 - 7/18/12 - Within and downgradient of contaminated areas - Useful for depth to groundwater measurements to support hydrogeologic interpretation - Potential use for future remediation activities
MW-22	Quarterly	Yes	Semiannually	No	1,1-DCE exceedances between 7/13/11 - 4/16/13; PCE exceedances between 7/13/11 - 10/16/12 - Within and downgradient of contaminated areas - Useful for depth to groundwater measurements to support hydrogeologic interpretation - Potential use for future remediation activities
MW-22A	None	No	None	Yes	Well was removed from sampling program in 2011 with NMOC concurrence.
MW-23	Annual October Event	No	None	No	- No exceedances in previous eight annual sampling events since October 2005 - Monitoring well is located outside of contaminated area locations and flow direction/path - Useful for depth to groundwater measurements to support hydrogeologic interpretation
MW-24	Annual October Event	No	None	Yes	- No exceedances or detections since October 2000 - Monitoring well is located completely outside of contaminated area locations and flow direction/path - Not needed for depth to groundwater measurements to support hydrogeologic interpretation
MW-25	Quarterly	Yes	Semiannually	No	1,1-DCE and PCE exceedances in previous eight quarters - Within and downgradient of contaminated areas - Useful for depth to groundwater measurements to support hydrogeologic interpretation - Potential use for future remediation activities

Table 1
Groundwater Monitoring Program Rationale
Former Dowell Schlumberger Facility, Artesia, New Mexico

Monitoring Well ID	Current Monitoring Frequency	Included in Modified Sampling Program	Sampling Frequency	Recommended for Abandonment?	Rationale
MW-26	Quarterly	Yes	Semiannually	No	- No exceedances in previous eight quarterly sampling events - Within and downgradient of contaminated areas - Useful for depth to groundwater measurements to support hydrogeologic interpretation - Potential use for future remediation activities
MW-26A	Annual October Event	No	None	Yes	1,1-DCE and PCE exceedances in previous eight sampling events since October 2009, however, duplicative of MW-26
MW-27	Quarterly	No	None	No	- No exceedances or detections in previous eight quarterly sampling events - Monitoring well is located on the perimeter of contaminated area locations - Useful for depth to groundwater measurements to support hydrogeologic interpretation
MW-28	Quarterly	Yes	Semiannually	No	1,1-DCE exceedances in previous eight quarterly sampling events and PCE exceedances in previous four quarterly sampling events - Useful for depth to groundwater measurements to support hydrogeologic interpretation - Located within potential injection area
MW-29	Quarterly	Yes	Semiannually	No	1,1-DCE exceedance in previous quarterly sampling event; detections in previous eight quarterly sampling events - Within contaminated area and located at the NE property boundary - Useful for depth to groundwater measurements to support hydrogeologic interpretation - Potential use for future remediation activities
MW-30	Quarterly	Yes	Semiannually	No	1,1-DCE and PCE exceedances in previous eight quarters - Within and downgradient of contaminated areas - Useful for depth to groundwater measurements to support hydrogeologic interpretation - Potential use for future remediation activities - Located at groundwater extraction and treatment system
MW-31	Quarterly	Yes	Semiannually	No	1,1-DCE & PCE exceedances in 2011/2012 sampling events - Centrally located between & downgradient of contaminated areas - Potential use for depth to groundwater measurements to support hydrogeologic interpretation - Potential use for remediation activities
MW-32	Quarterly	Yes	Semiannually	No	1,1-DCE exceedances in previous eight quarters; Detections in previous eight quarterly sampling events - Within and downgradient of contaminated areas - Useful for depth to groundwater measurements to support hydrogeologic interpretation - Potential use for future remediation activities
MW-33	Quarterly	Yes	Semiannually	No	- No exceedances in previous eight quarterly sampling events - Useful for depth to groundwater measurements to support hydrogeologic interpretation - Downgradient of contaminated areas; most downgradient monitoring well; acts as sentinel well

Notes:
ID - Identification
WQCC - Water Quality Control Commission
1,1-DCE - 1,1-dichloroethene
PCE - tetrachloroethene
1,1-DCA - 1,1-dichloroethane
VOC - volatile organic compound

Table 2
Groundwater Analytical Results for the
Previous Eight Groundwater Sampling
Events

Artesia, New Mexico

Well ID	Sample Date	8260 (mg/L)												
		BENZENE	ETHYLBENZENE	TOLUENE	TOTAL XYLENES	1,1-DCA	1,2-DCA	1,1-DCE	TOTAL 1,2-DCE	1,1,1-TCA	1,2-DCE	1,1,2-TCA	PERC	CHLOROETHANE
		0.010 mg/L	0.75 mg/L	0.75 mg/L	0.62 mg/L	0.025 mg/L	0.01 mg/L	0.005 mg/L	N/A	0.06 mg/L	0.1 mg/L	0.02 mg/L	N/A	
MW-1	10/08/05	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	
	10/10/06	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	
	10/17/07	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	
	10/14/08	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	
	10/21/09	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	
	10/19/10	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	
	10/11/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	
	10/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	
MW-2	10/08/05	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.018	0.009	ND(0.001)	
	10/10/06	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.003	0.017	ND(0.001)	
	10/17/07	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.003	0.017	ND(0.001)	
	10/14/08	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.002	0.009	ND(0.001)	
	10/21/09	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.002	0.006	ND(0.001)	
	10/19/10	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.002	0.005	ND(0.001)	
	10/11/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.002	0.002	ND(0.001)	
	10/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.002	0.002	ND(0.001)	
MW-3	10/20/99	0.013	0.576	0.024	4.46	0.044	ND(0.0025)	0.005	NA	ND(0.0025)	0.007	0.027	NA	
	1/29/00	0.013	0.153	ND(0.010)	0.365	0.052	ND(0.010)	0.023	NA	ND(0.010)	0.041	0.025	NA	
	4/21/00	0.005	0.027	ND(0.0025)	0.024	0.048	ND(0.0025)	0.027	NA	ND(0.0025)	0.046	0.03	NA	
	7/27/00	0.019	0.549	0.014	2.72	0.04	ND(0.005)	0.007	0.006	ND(0.005)	0.009	0.026	ND(0.005)	
	10/19/00	0.003	0.012	ND(0.0025)	0.024	0.031	ND(0.0025)	0.016	0.005	ND(0.0025)	0.021	0.02	ND(0.0025)	
	1/18/01	0.01	0.02	ND(0.005)	0.016	0.048	ND(0.005)	0.017	ND(0.005)	ND(0.005)	0.022	0.044	ND(0.005)	
	4/12/01	0.013	ND(0.005)	ND(0.005)	0.019	0.06	ND(0.005)	0.011	ND(0.005)	ND(0.005)	0.017	0.023	ND(0.005)	
	7/19/01	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	0.042	ND(0.01)	ND(0.01)	ND(0.01)	ND(0.01)	0.011	0.012	ND(0.01)	
MW-4	10/8/05	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	
	10/10/06	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	
	10/17/07	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	
	10/14/08	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	
	10/21/09	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	
	10/19/10	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	
	10/11/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	
	10/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	
MW-5	10/8/05	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.002	ND(0.001)	
	10/10/06	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	
	10/17/07	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	
	10/14/08	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	
	10/21/09	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	
	10/19/10	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	
	10/11/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	
	10/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	
MW-6	10/8/05	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	
	10/10/06	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	
	10/17/07	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	
	10/14/08	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	
	10/21/09	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	
	10/19/10	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	
	10/12/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	
	10/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	
MW-7	10/8/05	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.008	ND(0.001)	0.024	ND(0.001)	ND(0.001)	0.001	0.026	ND(0.001)	
	10/10/06	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0048	ND(0.001)	0.014	ND(0.001)	ND(0.001)	ND(0.001)	0.015	ND(0.001)	
	10/17/07	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0058	ND(0.001)	0.02	ND(0.001)	ND(0.001)	0.0019	0.019	ND(0.001)	
	10/14/08	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0018	ND(0.001)	0.0056	ND(0.001)	ND(0.001)	ND(0.001)	0.0059	ND(0.001)	
	10/20/09	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0013	ND(0.001)	0.0039	ND(0.001)	ND(0.001)	ND(0.001)	0.0036	ND(0.001)	
	10/19/10	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0025	ND(0.001)	ND(0.001)	ND(0.001)	0.0023	ND(0.001)	
	10/12/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0024	ND(0.001)	ND(0.001)	ND(0.001)	0.0019	ND(0.001)	
	10/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.001	ND(0.001)	
MW-8	10/12/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0024	ND(0.001)	0.0028	ND(0.001)	ND(0.001)	0.0017	0.0022	ND(0.001)	
	1/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0022	ND(0.001)	0.0025	ND(0.001)	ND(0.001)	0.0015	0.0023	ND(0.001)	
	4/19/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.002	ND(0.001)	0.0023	ND(0.001)	ND(0.001)	0.0015	0.0018	ND(0.001)	
	7/18/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0014	ND(0.001)	0.0021	ND(0.001)	ND(0.001)	0.0013	0.0019	ND(0.001)	
	10/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.002	ND(0.001)	0.002	ND(0.001)	ND(0.001)	0.001	0.003	ND(0.001)	
	1/24/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0018	ND(0.001)	0.0018	ND(0.001)	ND(0.001)	0.0014	0.0018	ND(0.001)	
	4/16/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0026	ND(0.001)	0.0021	ND(0.001)	ND(0.001)	0.0011	0.0015	ND(0.001)	
	7/24/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.00192	ND(0.001)	0.00167	0.000258	ND(0.001)	0.00136	0.0018	ND(0.001)	
MW-9	10/11/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0033	ND(0.001)	0.019	ND(0.001)	ND(0.001)	
	1/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0057	ND(0.001)	0.023	ND(0.001)	ND(0.001)	
	4/19/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0035	ND(0.001)	0.018	ND(0.001)	ND(0.001)	
	7/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.003	ND(0.001)	0.017	ND(0.001)	ND(0.001)	
	10/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0024	ND(0.001)	0.023	0.001	ND(0.001)	
	1/23/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0025	ND(0.001)	0.02	ND(0.001)	ND(0.001)	
	4/17/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0022	ND(0.001)	0.016	ND(0.001)	ND(0.001)	
	7/23/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.000333	0.002538	ND(0.001)	0.0184	0.000233	ND(0.001)	

Table 2

Groundwater Analytical Results for the Previous Eight Groundwater Sampling Events

Former Dowell Schlumberger Facility, GW-114

Artesia, New Mexico

Well ID	Sample Date	8260 (mg/L)											
		BENZENE	ETHYLBENZENE	TOLUENE	TOTAL XYLENES	1,1-DCA	1,2-DCA	1,1-DCE	TOTAL 1,2-DCE	1,1,1-TCA	TCE	PCE	CHLOROETHANE
		New Mexico Water Quality Control Commission Standard											
		0.010 mg/L	0.75 mg/L	0.75 mg/L	0.62 mg/L	0.025 mg/L	0.01 mg/L	0.005 mg/L	N/A	0.06 mg/L	0.1 mg/L	0.02 mg/L	N/A
MW-10	10/8/05	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.003	ND(0.001)	0.01	ND(0.001)	ND(0.001)	ND(0.001)	0.002	ND(0.001)
	10/10/06	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0013	ND(0.001)	0.0082	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/17/07	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0026	ND(0.001)	0.007	ND(0.001)	ND(0.001)	0.0018	0.001	ND(0.001)
	10/14/08	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.002	ND(0.001)	0.0045	ND(0.001)	ND(0.001)	0.0021	0.0015	ND(0.001)
	10/21/09	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0022	ND(0.001)	0.0089	0.0005	ND(0.001)	0.003	0.0024	ND(0.001)
	10/19/10	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0016	ND(0.001)	0.0037	ND(0.001)	ND(0.001)	0.0036	0.0038	ND(0.001)
	10/11/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0012	ND(0.001)	0.0014	ND(0.001)	ND(0.001)	0.0042	0.0032	ND(0.001)
	10/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0011	ND(0.001)	0.0013	ND(0.001)	ND(0.001)	0.0028	0.0031	ND(0.001)
MW-11	10/12/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0027	ND(0.001)	0.0011	ND(0.001)	ND(0.001)	0.0013	0.0026	ND(0.001)
	1/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0024	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0011	0.0026	ND(0.001)
	4/19/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0014	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0013	0.0013	ND(0.001)
	7/18/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0014	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0018	0.0018	ND(0.001)
	10/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.002	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.001	0.001	ND(0.001)
	1/24/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0025	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0013	0.0019	ND(0.001)
	4/16/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0042	ND(0.001)	0.0012	ND(0.001)	ND(0.001)	0.0012	0.0025	ND(0.001)
	7/23/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.00211	ND(0.001)	0.000548	ND(0.001)	ND(0.001)	0.000934	0.00205	ND(0.001)
MW-12	10/11/11	0.02	0.31	ND(0.001)	0.11	0.061	ND(0.001)	0.0054	0.18	ND(0.001)	0.0026	ND(0.001)	ND(0.001)
	1/17/12	0.016	0.2	ND(0.001)	0.071	0.052	ND(0.001)	0.0046	0.13	ND(0.001)	0.0021	ND(0.001)	ND(0.001)
	4/19/12	0.0093	0.11	ND(0.001)	0.024	0.032	ND(0.001)	0.0027	0.088	ND(0.001)	0.003	ND(0.001)	ND(0.001)
	7/17/12	0.008	0.18	ND(0.001)	0.0037	0.026	ND(0.001)	0.0027	0.046	ND(0.001)	0.0044	ND(0.001)	ND(0.001)
	10/17/12	0.02	0.46	ND(0.001)	0.2	0.062	ND(0.001)	0.0043	0.11	ND(0.001)	0.0061	0.0023	ND(0.001)
	1/23/13	0.0068	0.19	ND(0.001)	0.051	0.029	ND(0.001)	0.0024	0.038	ND(0.001)	0.005	0.0013	ND(0.001)
	4/17/13	0.015	0.4	ND(0.001)	0.093	0.05	ND(0.001)	0.0041	0.059	ND(0.001)	0.0045	0.0017	ND(0.001)
	7/23/13	0.00432	0.162	ND(0.001)	0.0501	0.0165	ND(0.001)	0.00132	0.0249	ND(0.001)	0.00185	0.000496	ND(0.001)
MW-13	10/11/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	1/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0013	ND(0.001)	ND(0.001)
	4/19/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0016	ND(0.001)	ND(0.001)
	7/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	1/23/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	4/17/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	7/23/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.000412	0.000289	ND(0.001)
MW-14	10/8/05	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.001	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/10/06	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/17/07	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/15/08	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/21/09	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/19/10	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/11/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
MW-15	10/11/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.001	ND(0.001)	ND(0.001)	0.006	ND(0.001)	0.044	ND(0.001)	ND(0.001)
	1/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0082	ND(0.001)	0.047	ND(0.001)	ND(0.001)
	4/19/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	NA	ND(0.001)	0.0091	ND(0.001)	0.052	ND(0.001)	ND(0.001)	ND(0.001)
	7/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0069	ND(0.001)	0.043	0.0021	ND(0.001)
	10/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0062	ND(0.001)	0.056	0.0016	ND(0.001)
	1/23/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0055	ND(0.001)	0.04	0.0024	ND(0.001)
	4/17/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0096	ND(0.001)	0.054	ND(0.001)	ND(0.001)
	7/23/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.000378	ND(0.001)	0.000196	0.0055	ND(0.001)	0.0433	0.00138	ND(0.001)
MW-17A	10/8/05	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.013	ND(0.001)	0.005	ND(0.001)	ND(0.001)	0.003	0.01	ND(0.001)
	10/10/06	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.011	ND(0.001)	0.0032	ND(0.001)	ND(0.001)	0.0029	0.0038	ND(0.001)
	10/17/07	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0063	ND(0.001)	0.002	ND(0.001)	ND(0.001)	0.0014	0.0034	ND(0.001)
	10/15/08	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0049	ND(0.001)	0.0014	ND(0.001)	ND(0.001)	0.0015	0.0025	ND(0.001)
	10/21/09	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.005	ND(0.001)	0.0013	ND(0.001)	ND(0.001)	0.001	0.0012	ND(0.001)
	10/19/10	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0058	ND(0.001)	0.001	ND(0.001)	ND(0.001)	0.0014	0.0015	ND(0.001)
	10/11/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0071	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0018	ND(0.001)	ND(0.001)
	10/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0054	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0012	ND(0.001)	ND(0.001)
MW-17B	10/8/05	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.003	ND(0.001)	0.002	ND(0.001)	ND(0.001)	ND(0.001)	0.002	ND(0.001)
	10/10/06	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0014	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0012	ND(0.001)
	10/17/07	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/15/08	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/21/09	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/19/10	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/11/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)

Table 2

Groundwater Analytical Results for the Previous Eight Groundwater Sampling Events

Former Dowell Schlumberger Facility, GW-114

Artesia, New Mexico

Well ID	Sample Date	8260 (mg/L)											
		BENZENE	ETHYLBENZENE	TOLUENE	TOTAL XYLENES	1,1-DCA	1,2-DCA	1,1-DCE	TOTAL 1,2-DCE	1,1,1-TCA	TCE	PCE	CHLOROETHANE
		New Mexico Water Quality Control Commission Standard											
		0.010 mg/L	0.75 mg/L	0.75 mg/L	0.62 mg/L	0.025 mg/L	0.01 mg/L	0.005 mg/L	N/A	0.06 mg/L	0.1 mg/L	0.02 mg/L	N/A
MW-17C	10/8/05	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.005	ND(0.001)	0.006	ND(0.001)	ND(0.001)	0.004	0.002	ND(0.001)
	10/10/06	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0035	ND(0.001)	0.0044	ND(0.001)	ND(0.001)	0.0022	ND(0.001)	ND(0.001)
	10/17/07	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0012	ND(0.001)	0.0019	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/15/08	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0007	ND(0.001)	0.0012	ND(0.001)	ND(0.001)	0.0005	0.0005	ND(0.001)
	10/21/09	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0006	ND(0.001)	0.0014	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/19/10	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0011	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/11/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
MW-17D	10/8/05	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.02	ND(0.001)	0.007	ND(0.001)	ND(0.001)	0.006	0.01	ND(0.001)
	10/10/06	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.019	ND(0.001)	0.0048	ND(0.001)	ND(0.001)	0.0058	0.0054	ND(0.001)
	10/17/07	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0088	ND(0.001)	0.0026	ND(0.001)	ND(0.001)	0.0024	0.0043	ND(0.001)
	10/15/08	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0044	ND(0.001)	0.0013	ND(0.001)	ND(0.001)	0.0014	0.0023	ND(0.001)
	10/21/09	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.012	ND(0.001)	0.0021	ND(0.001)	ND(0.001)	0.0024	0.0019	ND(0.001)
	10/19/10	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0098	ND(0.001)	0.0015	ND(0.001)	ND(0.001)	0.0027	0.0018	ND(0.001)
	10/11/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.013	ND(0.001)	0.0015	ND(0.001)	ND(0.001)	0.0031	0.0013	ND(0.001)
	10/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0043	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0011	ND(0.001)	ND(0.001)
MW-18	10/12/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0068	ND(0.001)	0.027	ND(0.001)	ND(0.001)	0.0065	0.027	ND(0.001)
	1/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0066	ND(0.001)	0.025	ND(0.001)	ND(0.001)	0.0068	0.033	ND(0.001)
	4/19/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0065	ND(0.001)	0.022	ND(0.001)	ND(0.001)	0.0068	0.04	ND(0.001)
	7/18/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.003	ND(0.001)	0.016	ND(0.001)	ND(0.001)	0.0025	0.022	ND(0.001)
	10/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.004	ND(0.001)	0.013	ND(0.001)	ND(0.001)	0.002	0.011	ND(0.001)
	1/24/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0021	ND(0.001)	0.0098	ND(0.001)	ND(0.001)	0.0018	0.0094	ND(0.001)
	4/16/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0026	ND(0.001)	0.012	ND(0.001)	ND(0.001)	0.0012	0.009	ND(0.001)
	7/24/13	0.000172	ND(0.001)	ND(0.001)	ND(0.001)	0.00217	ND(0.001)	0.0062	ND(0.001)	ND(0.001)	0.00182	0.00993	ND(0.001)
MW-19	10/8/05	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.004	ND(0.001)	0.012	ND(0.001)	ND(0.001)	ND(0.001)	0.012	ND(0.001)
	10/10/06	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0015	ND(0.001)	0.0048	ND(0.001)	ND(0.001)	ND(0.001)	0.0042	ND(0.001)
	10/17/07	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0033	ND(0.001)	ND(0.001)	ND(0.001)	0.0022	ND(0.001)
	10/14/08	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0022	ND(0.001)	ND(0.001)	ND(0.001)	0.0018	ND(0.001)
	10/21/09	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.001	ND(0.001)	ND(0.001)	ND(0.001)	0.0008	ND(0.001)
	10/19/10	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0011	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/12/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
MW-20	10/11/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0086	ND(0.001)	0.0048	0.0018	ND(0.001)	0.0042	0.0058	ND(0.001)
	1/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0081	ND(0.001)	0.0037	0.0018	ND(0.001)	0.0039	0.0058	ND(0.001)
	4/18/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0097	ND(0.001)	0.0042	0.002	ND(0.001)	0.004	0.0052	ND(0.001)
	7/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0076	ND(0.001)	0.0035	0.0023	ND(0.001)	0.0041	0.0039	ND(0.001)
	10/16/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.01	ND(0.001)	0.003	0.002	ND(0.001)	0.004	0.004	ND(0.001)
	1/23/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.01	ND(0.001)	0.0034	0.0024	ND(0.001)	0.0046	0.0039	ND(0.001)
	4/16/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.014	ND(0.001)	0.0036	0.0026	ND(0.001)	0.0036	0.0034	ND(0.001)
	7/23/13	0.000232	ND(0.001)	ND(0.001)	ND(0.001)	0.0119	ND(0.001)	0.003	0.00264	ND(0.001)	0.00433	0.00348	ND(0.001)
MW-21	10/11/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0063	ND(0.001)	0.022	ND(0.001)	ND(0.001)	0.0075	0.023	ND(0.001)
	1/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0065	ND(0.001)	0.019	0.0014	ND(0.001)	0.0054	0.023	ND(0.001)
	4/18/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0062	ND(0.001)	0.018	ND(0.001)	ND(0.001)	0.0066	0.035	ND(0.001)
	7/18/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0047	ND(0.001)	0.018	ND(0.001)	ND(0.001)	0.0058	0.058	ND(0.001)
	10/16/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.008	ND(0.001)	0.023	ND(0.001)	ND(0.001)	0.005	0.019	ND(0.001)
	1/24/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0041	ND(0.001)	0.0075	ND(0.001)	ND(0.001)	0.0016	0.0045	ND(0.001)
	4/16/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0038	ND(0.001)	0.0056	ND(0.001)	ND(0.001)	ND(0.001)	0.0022	ND(0.001)
	7/24/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.00193	ND(0.001)	0.0015	ND(0.001)	ND(0.001)	0.000261	0.0012	ND(0.001)
MW-22	10/11/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.006	ND(0.001)	0.022	ND(0.001)	ND(0.001)	0.008	0.022	ND(0.001)
	1/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.006	ND(0.001)	0.019	ND(0.001)	ND(0.001)	0.0076	0.026	ND(0.001)
	4/18/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0063	ND(0.001)	0.018	ND(0.001)	ND(0.001)	0.0069	0.029	ND(0.001)
	7/18/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0037	ND(0.001)	0.012	ND(0.001)	ND(0.001)	0.0057	0.02	ND(0.001)
	10/16/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.008	ND(0.001)	0.022	ND(0.001)	ND(0.001)	0.007	0.021	ND(0.001)
	1/24/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0057	ND(0.001)	0.016	ND(0.001)	ND(0.001)	0.0078	0.016	ND(0.001)
	4/16/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0067	ND(0.001)	0.018	ND(0.001)	ND(0.001)	0.0054	0.015	ND(0.001)
	7/24/13	0.000108	ND(0.001)	ND(0.001)	ND(0.001)	0.0056	ND(0.001)	0.0135	0.000408	ND(0.001)	0.00567	0.0162	ND(0.001)
MW-22A	4/6/09	0.0018	ND(0.001)	ND(0.001)	ND(0.001)	0.013	ND(0.001)	0.073	ND(0.001)	ND(0.001)	0.016	0.061	ND(0.001)
	7/14/09	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0097	ND(0.001)	0.085	ND(0.001)	ND(0.001)	0.012	0.062	ND(0.001)
	10/20/09	0.0008	ND(0.001)	ND(0.001)	ND(0.001)	0.0097	ND(0.001)	0.056	ND(0.001)	ND(0.001)	0.013	0.062	ND(0.001)
	1/20/10	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0073	ND(0.001)	0.039	ND(0.001)	ND(0.001)	0.01	0.054	ND(0.001)
	4/20/10	0.0003	ND(0.001)	ND(0.001)	ND(0.001)	0.0077	ND(0.001)	0.038	0.0002	ND(0.001)	0.0085	0.054	ND(0.001)
	7/27/10	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0088	ND(0.001)	0.041	ND(0.001)	ND(0.001)	0.0081	0.042	ND(0.001)
	10/19/10	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0078	ND(0.001)	0.03	ND(0.001)	ND(0.001)	0.0099	0.045	ND(0.001)
	1/20/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0072	ND(0.001)	0.035	ND(0.001)	ND(0.001)	0.0084	0.042	ND(0.001)

Table 2

Groundwater Analytical Results for the Previous Eight Groundwater Sampling Events

Former Dowell Schlumberger Facility, GW-114

Artesia, New Mexico

Well ID	Sample Date	8260 (mg/L)											
		BENZENE	ETHYLBENZENE	TOLUENE	TOTAL XYLENES	1,1-DCA	1,2-DCA	1,1-DCE	TOTAL 1,2-DCE	1,1,1-TCA	TCE	PCE	CHLOROETHANE
		New Mexico Water Quality Control Commission Standard											
		0.010 mg/L	0.75 mg/L	0.75 mg/L	0.62 mg/L	0.025 mg/L	0.01 mg/L	0.005 mg/L	N/A	0.06 mg/L	0.1 mg/L	0.02 mg/L	N/A
MW-23	10/8/05	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.004	ND(0.001)	ND(0.001)	ND(0.001)	0.003	ND(0.001)
	10/10/06	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0021	ND(0.001)	ND(0.001)	ND(0.001)	0.0014	ND(0.001)
	10/17/07	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.002	ND(0.001)	ND(0.001)	ND(0.001)	0.0012	ND(0.001)
	10/14/08	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/20/09	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/19/10	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/11/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/16/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
MW-24	10/8/05	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/10/06	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/17/07	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/14/08	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/20/09	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/19/10	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/11/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/16/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
MW-25	10/11/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0086	ND(0.001)	0.037	ND(0.001)	ND(0.001)	0.01	0.036	ND(0.001)
	1/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0086	ND(0.001)	0.038	ND(0.001)	ND(0.001)	0.01	0.035	ND(0.001)
	4/19/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0084	ND(0.001)	0.034	ND(0.001)	ND(0.001)	0.0091	0.036	ND(0.001)
	7/18/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0053	ND(0.001)	0.023	ND(0.001)	ND(0.001)	0.0069	0.036	ND(0.001)
	10/16/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.008	ND(0.001)	0.028	ND(0.001)	ND(0.001)	0.008	0.035	ND(0.001)
	1/24/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0074	ND(0.001)	0.028	ND(0.001)	ND(0.001)	0.0084	0.03	ND(0.001)
	4/16/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.00969	ND(0.001)	0.033	ND(0.001)	ND(0.001)	0.0068	0.03	ND(0.001)
	7/24/13	0.0000882	ND(0.001)	ND(0.001)	ND(0.001)	0.00657	ND(0.001)	0.019	0.000173	ND(0.001)	0.00559	0.0232	ND(0.001)
MW-26	10/11/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0018	ND(0.001)	ND(0.001)	ND(0.001)	0.0015	ND(0.001)
	1/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0024	ND(0.001)	ND(0.001)	0.001	0.0023	ND(0.001)
	4/18/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0017	ND(0.001)	ND(0.001)	ND(0.001)	0.0015	ND(0.001)
	7/18/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/16/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	1/24/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0012	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	4/16/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0017	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	7/24/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.000501	ND(0.001)	ND(0.001)	0.00026	0.000488	ND(0.001)
MW-26A	10/20/09	0.0009	ND(0.001)	ND(0.001)	ND(0.001)	0.0071	ND(0.001)	0.047	ND(0.001)	ND(0.001)	0.013	0.05	ND(0.001)
	1/20/10	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0039	ND(0.001)	0.03	ND(0.001)	ND(0.001)	0.0091	0.037	ND(0.001)
	4/20/10	0.0006	ND(0.001)	ND(0.001)	ND(0.001)	0.0039	ND(0.001)	0.029	0.0002	ND(0.001)	0.0085	0.036	ND(0.001)
	7/26/10	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0042	ND(0.001)	0.03	ND(0.001)	ND(0.001)	0.0076	0.033	ND(0.001)
	10/19/10	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0048	ND(0.001)	0.024	ND(0.001)	ND(0.001)	0.0084	0.036	ND(0.001)
	1/20/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0032	ND(0.001)	0.025	ND(0.001)	ND(0.001)	0.0066	0.043	ND(0.001)
	10/11/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0027	ND(0.001)	0.016	ND(0.001)	ND(0.001)	0.0062	0.026	ND(0.001)
	10/16/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.002	ND(0.001)	0.013	ND(0.001)	ND(0.001)	0.004	0.02	ND(0.001)
MW-27	10/11/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	1/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	4/18/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	7/18/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/16/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	1/24/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	4/16/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	7/24/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
MW-28	10/11/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.012	ND(0.001)	0.021	0.0017	ND(0.001)	0.0088	0.017	ND(0.001)
	1/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.012	ND(0.001)	0.021	0.0016	ND(0.001)	0.0086	0.022	ND(0.001)
	4/18/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.012	ND(0.001)	0.022	0.0013	ND(0.001)	0.0076	0.018	ND(0.001)
	7/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0083	ND(0.001)	0.02	0.0013	ND(0.001)	0.0082	0.027	ND(0.001)
	10/16/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.011	ND(0.001)	0.021	0.001	ND(0.001)	0.008	0.022	ND(0.001)
	1/23/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0097	ND(0.001)	0.019	ND(0.001)	ND(0.001)	0.0085	0.02	ND(0.001)
	4/16/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.012	ND(0.001)	0.027	ND(0.001)	ND(0.001)	0.0072	0.022	ND(0.001)
	7/23/13	0.000111	ND(0.001)	ND(0.001)	ND(0.001)	0.0092	ND(0.001)	0.0197	0.000627	ND(0.001)	0.00786	0.0224	ND(0.001)
MW-29	10/11/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0021	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	1/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0026	ND(0.001)	ND(0.001)	ND(0.001)	0.0011	ND(0.001)
	4/18/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0028	ND(0.001)	ND(0.001)	ND(0.001)	0.0013	ND(0.001)
	7/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0027	ND(0.001)	ND(0.001)	ND(0.001)	0.0014	ND(0.001)
	10/16/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.004	ND(0.001)	ND(0.001)	ND(0.001)	0.002	ND(0.001)
	1/23/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0049	ND(0.001)	ND(0.001)	0.0013	0.0024	ND(0.001)
	4/16/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.001	ND(0.001)	0.0073	ND(0.001)	ND(0.001)	ND(0.001)	0.0028	ND(0.001)
	7/23/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.00097	ND(0.001)	0.00066	ND(0.001)	ND(0.001)	0.00165	0.00376	ND(0.001)

Table 2

Groundwater Analytical Results for the Previous Eight Groundwater Sampling Events

Former Dowell Schlumberger Facility, GW-114

Artesia, New Mexico

Well ID	Sample Date	8260 (mg/L)											
		BENZENE	ETHYLBENZENE	TOLUENE	TOTAL XYLENES	1,1-DCA	1,2-DCA	1,1-DCE	TOTAL 1,2-DCE	1,1,1-TCA	PCE	PERC	CHLOROETHANE
		New Mexico Water Quality Control Commission Standard											
		0.010 mg/L	0.75 mg/L	0.75 mg/L	0.62 mg/L	0.025 mg/L	0.01 mg/L	0.005 mg/L	N/A	0.06 mg/L	0.1 mg/L	0.02 mg/L	N/A
MW-30	10/11/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.015	ND(0.001)	0.061	ND(0.001)	ND(0.001)	0.016	0.056	ND(0.001)
	1/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.014	ND(0.001)	0.053	ND(0.001)	ND(0.001)	0.015	0.076	ND(0.001)
	4/18/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.013	ND(0.001)	0.048	ND(0.001)	ND(0.001)	0.011	0.046	ND(0.001)
	7/18/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0082	ND(0.001)	0.031	ND(0.001)	ND(0.001)	0.0089	0.036	ND(0.001)
	10/16/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.01	ND(0.001)	0.034	ND(0.001)	ND(0.001)	0.009	0.043	ND(0.001)
	1/23/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.009	ND(0.001)	0.032	ND(0.001)	ND(0.001)	0.0099	0.037	ND(0.001)
	4/18/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0093	ND(0.001)	0.032	ND(0.001)	ND(0.001)	0.0072	0.032	ND(0.001)
	7/23/13	0.000106	ND(0.001)	ND(0.001)	ND(0.001)	0.00751	ND(0.001)	0.0381	0.000175	ND(0.001)	0.00785	0.0357	ND(0.001)
MW-31	10/12/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0082	ND(0.001)	0.02	ND(0.001)	ND(0.001)	0.0076	0.021	ND(0.001)
	1/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0087	ND(0.001)	0.026	ND(0.001)	ND(0.001)	0.008	0.032	ND(0.001)
	4/18/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0089	ND(0.001)	0.022	ND(0.001)	ND(0.001)	0.007	0.036	ND(0.001)
	7/19/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0038	ND(0.001)	0.014	ND(0.001)	ND(0.001)	0.0053	0.017	ND(0.001)
	10/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.007	ND(0.001)	0.012	ND(0.001)	ND(0.001)	ND(0.001)	0.002	ND(0.001)
	1/24/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0033	ND(0.001)	0.0032	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	4/18/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	7/24/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.000388	ND(0.001)
MW-32	10/11/11	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0036	ND(0.001)	0.018	ND(0.001)	ND(0.001)	0.0053	0.019	ND(0.001)
	1/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0038	ND(0.001)	0.019	ND(0.001)	ND(0.001)	0.0046	0.023	ND(0.001)
	4/18/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.003	ND(0.001)	0.016	ND(0.001)	ND(0.001)	0.004	0.016	ND(0.001)
	7/17/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.002	ND(0.001)	0.011	ND(0.001)	ND(0.001)	0.0031	0.016	ND(0.001)
	10/16/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.002	ND(0.001)	0.009	ND(0.001)	ND(0.001)	0.003	0.011	ND(0.001)
	1/24/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0014	ND(0.001)	0.0075	ND(0.001)	ND(0.001)	0.0022	0.0088	ND(0.001)
	4/18/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	0.0019	ND(0.001)	0.0093	ND(0.001)	ND(0.001)	0.0016	0.008	ND(0.001)
	7/23/13	0.000083	ND(0.001)	ND(0.001)	ND(0.001)	0.00124	ND(0.001)	0.00608	ND(0.001)	ND(0.001)	0.00159	0.0075	ND(0.001)
MW-33	7/19/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	10/16/12	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	1/24/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	4/18/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)
	7/23/13	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)	ND(0.001)

Notes:

mg/L - milligram per liter

ID - Identification

ND - analyte not detected at the listed reporting limit

N/A - not applicable

NA - analytical result is not available in the data record

Shading indicates concentration exceeds the listed Water Quality Control Commission Standard for that analyte

Minchak, Jeff/ABQ

From: Hansen, Edward J., EMNRD <edwardj.hansen@state.nm.us>
Sent: Wednesday, September 18, 2013 1:52 PM
To: Virgilio Cocianni
Cc: VonGonten, Glenn, EMNRD; Strunk Jr, Jim (JStrunkJr@dow.com); Barnett, Cathy/STL; Laggan, Jennifer/DEN; Minchak, Jeff/ABQ
Subject: Discharge Permit (GW-114) Work Plan (GW Monitoring Program) Amendment Approval - Schlumberger Oilfield Services Facility - Artesia

**RE: Work Plan Amendment
for the Schlumberger Oilfield Services'
Schlumberger Oilfield Services Facility - Artesia
507 E. Richey Ave., Artesia, New Mexico
Discharge Permit (GW-114) Work Plan (GW Monitoring Program) Amendment Approval**

Dear Mr. Cocianni:

The Oil Conservation Division (OCD) has received the Work Plan Amendment for the Schlumberger Oilfield Services Facility - Artesia, dated September 17, 2013. The proposed amendment, submitted for the above-referenced site, indicates that the Schlumberger Oilfield Services (Schlumberger) is substantially complying with the requirements of 20.6.2 NMAC [Water Quality Control Commission (WQCC) Regulations]. Therefore, the OCD conditionally approves the amendment to the work plan:

Schlumberger shall continue to monitoring ground water at MW-1 and MW-20 at least annually.

Schlumberger may discontinue monitoring ground water at MW-19.

Schlumberger shall use a cement grout with 1% to 3% bentonite and a 3-foot cap of cement to the surface when plugging the monitoring wells.

Schlumberger shall submit to OCD a plugging report within 180 days.

Please be advised that OCD approval of this amendment does not relieve the owner/operator of responsibility should operations pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the owner/operator of responsibility for compliance with any OCD, federal, state, or local laws and/or regulations.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact at 505-476-3489.

Edward J. Hansen
Hydrologist
Environmental Bureau



STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER
ROSWELL

Scott Verhines, P.E.
State Engineer

DISTRICT II
1900 West Second St.
Roswell, New Mexico 88201
Phone: (575) 622-6521
Fax: (575) 623-8559

November 12, 2013

Schlumberger Remediation Services
c/o Jeff Minchak
CH2M Hill
3721 Rutledge Rd NE, Suite B-1
Albuquerque, NM 87109

RE: Well Plugging Plan of Operations for unidentified monitoring wells Schlumberger
Facility, Artesia, New Mexico

Greetings:

Enclosed is your copy of the Well Plugging Plan of Operations for the above referenced project. The proposed method of operation is found to be acceptable and in accordance with the Rules and Regulations Governing Well Driller Licensing; Construction, Repair and Plugging of Wells 19.27.4 NMAC adopted August 31, 2005 by the State Engineer.

Sincerely,

A handwritten signature in black ink, appearing to read "Cath Goetz", written over a horizontal line.

Catherine (Cath) Goetz
Water Resource Specialist
District II Office of the State Engineer

Enclosure



WELL PLUGGING PLAN OF OPERATIONS



NOTE: A Well Plugging Plan of Operations shall be filed with and accepted by the Office of the State Engineer prior to plugging.

I. FILING FEE: There is no filing fee for this form.

II. GENERAL / WELL OWNERSHIP:

Existing Office of the State Engineer POD Number (Well Number) for well to be plugged: None
Name of well owner: Schlumberger Technology Corporation ATTN: Virgilio Cocianni
Mailing address: 105 Industrial Boulevard
City: Sugar Land State: Texas Zip code: 77478
Phone number: 281-285-4747 E-mail: cocianni-v@slb.com

III. WELL DRILLER INFORMATION:

Well Driller contracted to provide plugging services: National Exploration, Wells, and Pumps
New Mexico Well Driller License No.: WD-1210 Expiration Date: 10-31-15

IV. WELL INFORMATION:

Note: A copy of the existing Well Record for the well to be plugged should be attached to this plan.

r see attached for 12 wells TOTAL P&A - 847

- 1) GPS Well Location: Latitude: _____ deg. _____ min. _____ sec
Longitude: _____ deg. _____ min. _____ sec, NAD 83
- 2) Reason(s) for plugging well: Monitoring wells no longer required. Abandonments approved by New Mexico Oil Conservation Division - Environmental Bureau (See attachment containing monitoring well GPS locations)
- 3) Was well used for any type of monitoring program? YES If yes, please use section VII of this form to detail what hydrogeologic parameters were monitored. If the well was used to monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may be required prior to plugging.
- 4) Does the well tap brackish, saline, or otherwise poor quality water? NO If yes, provide additional detail, including analytical results and/or laboratory report(s): _____

- 5) Static water level: _____ feet below land surface / feet above land surface (circle one)
- 6) Depth of the well: _____ feet

- 7) Inside diameter of innermost casing: _____ inches.
- 8) Casing material: _____
- 9) The well was constructed with:
 _____ an open-hole production interval, state the open interval: _____
 _____ a well screen or perforated pipe, state the screened interval(s): _____
- 10) What annular interval surrounding the artesian casing of this well is cement-grouted? _____
- 11) Was the well built with surface casing? _____ If yes, is the annulus surrounding the surface casing grouted or otherwise sealed? _____ If yes, please describe: _____
- 12) Has all pumping equipment and associated piping been removed from the well? _____ If not, describe remaining equipment and intentions to remove prior to plugging in Section VII of this form.

V. DESCRIPTION OF PLANNED WELL PLUGGING:

Note: If this plan proposes to plug an artesian well in a way other than with cement grout, placed bottom to top with a tremie pipe, a detailed diagram of the well showing proposed final plugged configuration shall be attached, as well as any additional technical information, such as geophysical logs, that are necessary to adequately describe the proposal.

- 1) Describe the method by which cement grout shall be placed in the well, or describe requested plugging methodology proposed for the well: Wells shall be abandoned by grouting them closed using a cement-bentonite grout slurry consisting of 95% Portland cement and 5% sodium bentonite. Grout shall be emplaced in the PVC screen and casing using a tremie pipe. The entire surface components (i.e., well pad, protective casing, PVC casing) of the wells shall be removed and the upper three feet of the well shall be filled with a Portland cement plug. The cement plug shall be finished flush with the ground surface. _____

- 2) Will well head be cut-off below land surface after plugging? YES _____

VI. PLUGGING AND SEALING MATERIALS:

Note: The plugging of a well that taps poor quality water may require the use of a specialty cement or specialty sealant

- 1) For plugging intervals that employ cement grout, complete and attach Table A.
- 2) For plugging intervals that will employ approved non-cement based sealant(s), complete and attach Table B.
- 3) Theoretical volume of grout required to plug the well to land surface: _____
- 4) Type of Cement proposed: Portland cement _____

- 5) Proposed cement grout mix: _____ gallons of water per 94 pound sack of Portland cement.
- 6) Will the grout be: _____ batch-mixed and delivered to the site
 X mixed on site
- 7) Grout additives requested, and percent by dry weight relative to cement: _____

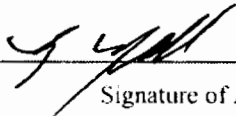
- 8) Additional notes and calculations: _____

VII. ADDITIONAL INFORMATION: List additional information below, or on separate sheet(s):

Attached is a table containing all monitoring well construction information and GPS coordinates.

VIII. SIGNATURE:

I, Bryan Nydoske, say that I have carefully read the foregoing Well Plugging Plan of Operations and any attachments, which are a part hereof; that I am familiar with the rules and regulations of the State Engineer pertaining to the plugging of wells and will comply with them, and that each and all of the statements in the Well Plugging Plan of Operations and attachments are true to the best of my knowledge and belief.


 Signature of Applicant

11/5/13
 Date

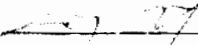
IX. ACTION OF THE STATE ENGINEER:

This Well Plugging Plan of Operations is:

 X Approved subject to the attached conditions.
 _____ Not approved for the reasons provided on the attached letter.

Witness my hand and official seal this 12 day of November, 2013

Scott A. Veriines, State Engineer

By: 

FOR AND BY: Scott A. Veriines
 DISTRICT ENGINEER

TABLE A - For plugging intervals that employ cement grout. Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of grout placement (ft bgl)			
Bottom of proposed interval of grout placement (ft bgl)			
Theoretical volume of grout required per interval (gallons)			
Proposed cement grout mix gallons of water per 94-lb. sack of Portland cement			
Mixed on-site or batch-mixed and delivered?			
Grout additive 1 requested			
Additive 1 percent by dry weight relative to cement			
Grout additive 2 requested			
Additive 2 percent by dry weight relative to cement			

TABLE B - For plugging intervals that will employ approved non-cement based sealant(s). Start with deepest interval.

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of sealant placement (ft bgl)			
Bottom of proposed sealant or grout placement (ft bgl)			
Theoretical volume of sealant required per interval (gallons)			
Proposed abandonment sealant (manufacturer and trade name)			

Conditions of Approval for P&A of unpermitted monitoring wells at the former Dowell Schlumberger Facility, Artesia, NM:

1) Plugging operations will be conducted in accordance with NMED, NMOCD, or other State or Federal agency having oversight for the above described project.

2) The applicant has requested using 3-5% bentonite to the cement grout with 6.8 gals of water per 94 lb sack of Portland Type I/II cement. Attached documentation from NMOCD indicates 1-3%.

The following are acceptable blends of water and bentonite per 94 lb sack of Portland Type I/II cement that may be used at the discretion of the oversight agency:

5.0 to 5.2 gals of water, 0% bentonite, per 94 lb sack of Portland

6.0 gals of water, 2-3% bentonite, per 94 lb sack of Portland

6.5 gals of water, 5% bentonite, per 94 lb sack of Portland.

Bentonite shall be blended with the water prior to addition of cement in the mixing process.

3) The above grout blend shall be applied via tremie pipe from the bottom of the well to ground surface per NMAC 19.27.4.

57 27

Minchak, Jeff/ABQ

From: Hansen, Edward J., EMNRD [edwardj.hansen@state.nm.us]
Sent: Wednesday, September 18, 2013 1:52 PM
To: Virgilio Cocianni
Cc: VonGonten, Glenn, EMNRD; Strunk Jr, Jim (JStrunkJr@dow.com); Barnett, Cathy/STL; Laggan, Jennifer/DEN; Minchak, Jeff/ABQ
Subject: Discharge Permit (GW-114) Work Plan (GW Monitoring Program) Amendment Approval - Schlumberger Oilfield Services Facility - Artesia

**RE: Work Plan Amendment
for the Schlumberger Oilfield Services'
Schlumberger Oilfield Services Facility - Artesia
507 E. Richey Ave., Artesia, New Mexico
Discharge Permit (GW-114) Work Plan (GW Monitoring Program) Amendment Approval**

Dear Mr. Cocianni:

The Oil Conservation Division (OCD) has received the Work Plan Amendment for the Schlumberger Oilfield Services Facility - Artesia, dated September 17, 2013. The proposed amendment, submitted for the above-referenced site, indicates that the Schlumberger Oilfield Services (Schlumberger) is substantially complying with the requirements of 20.6.2 NMAC [Water Quality Control Commission (WQCC) Regulations]. Therefore, the OCD conditionally approves the amendment to the work plan:

Schlumberger shall continue to monitoring ground water at MW-1 and MW-20 at least annually.

Schlumberger may discontinue monitoring ground water at MW-19.

Schlumberger shall use a cement grout with 1% to 3% bentonite and a 3-foot cap of cement to the surface when plugging the monitoring wells.

Schlumberger shall submit to OCD a plugging report within 180 days.

Please be advised that OCD approval of this amendment does not relieve the owner/operator of responsibility should operations pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the owner/operator of responsibility for compliance with any OCD, federal, state, or local laws and/or regulations.

Thank you for your cooperation in this matter. If you have any questions regarding this matter, please contact at 505-476-3489.

Edward J. Hansen
Hydrologist
Environmental Bureau

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION
17107-71A 11.02

Minchak, Jeff/ABQ

From: Virgilio Cocianni [cocianni-v@slb.com]
Sent: Wednesday, November 06, 2013 5:37 AM
To: Barnett, Cathy/STL
Cc: Minchak, Jeff/ABQ; Laggan, Jennifer/DEN
Subject: RE: Artesia Well Abandonment - need owner approval

Good morning, Cathy.
You have my approval to plug and abandon the wells indicated in the attachment.
Have a great day. See you in a bit.
Cheers,
Vic.

Vic Cocianni
Schlumberger Remediation Manager
Phone: +1-281-285-4747

"Courage doesn't always roar. Sometimes courage is the little voice at the end of the day that says I'll try again tomorrow." Mary Ann Radmacher.
(Please continue to be patient with me, She is still making me).

From: Cathy.Barnett@CH2M.com [mailto:Cathy.Barnett@CH2M.com]
Sent: Wednesday, November 06, 2013 4:33 AM
To: Virgilio Cocianni
Cc: Jeffrey.Minchak@CH2M.com; Jennifer.Laggan@CH2M.com
Subject: FW: Artesia Well Abandonment - need owner approval

Good morning Vic,
Please provide an email response to this email confirming your approval to plug the wells that are planned for removal from the groundwater monitoring program at the site in Artesia, New Mexico.

Thanks,
Cathy

From: Minchak, Jeff/ABQ
Sent: Tuesday, November 05, 2013 7:05 PM
To: Barnett, Cathy/STL
Cc: Laggan, Jennifer/DEN
Subject: Artesia Well Abandonment - need owner approval

Hello Cathy:
We are mobilizing to Artesia next week to perform soil borings, soil sampling, and monitoring well abandonment per New Mexico Oil Conservation Division approved work plan amendments. We have been supporting the drilling subcontractor as they complete the well abandonment paperwork for the NM Office of the State Engineer, who regulates well installation and closure. None of the wells at Artesia were required to be permitted when they were installed, however, the driller is required to provide a well plugging plan for review and approval by the OSE prior to performing the abandonments. The drilling subcontractor is required under his drilling license to ensure that the process is followed and that the wells are properly abandoned.

The OSE indicated that written approval from the owner of the wells is required prior to them reviewing and approving the well plugging plan. Therefore, we need Vic to review the attached document and kindly provide his written approval for the abandonment process to proceed. We will then submit the final package to the OSE for review and approval.

Thank you and please let me know if you have any questions regarding the process.

Jeff

Jeffrey Minchak, P.G.
Senior Project Manager
CH2M HILL
3721 Rutledge Rd. NE, Suite B-1
Albuquerque, NM 87109
Direct 505.855.5237
Fax 505.816.0571
Jeffrey.Minchak@ch2m.com

Dowell Schlumberger Artesia, NM
Well Abandonments Details

Monitoring Well ID	GPS Coordinates			Total Depth (ft)	Screen Interval	Top of Proposed Interval of Grout Placement (ft bgl)	Bottom of Proposed Interval of Grout Placement (ft bgl)	Theoretical Volume of Grout Required per Interval (gallons)	Proposed Cement Grout Mix Gallons of Water per 94 lb. Sack of Portland Cement	Mixed On-Site or Batch Mixed and Delivered?	Grout Additive 1 Requested	Additive 1 Percent by Dry Weight Relative to Cement	Grout Additive 2 Requested	Additive 2 Percent by Dry Weight Relative to Cement
	X	Y	Lat											
MW-2	523185.102858	675721.224793	32.8575667511	-104.392448577	20-30 est	Ground Surface	30.0	4.9	94 lbs to 6.8 gal water	On Site	Bentonite	3% to 5%		
MW-3	523375.852148	675904.110582	32.858069778	-104.391827662	20-30 est	Ground Surface	30.0	4.9	94 lbs to 6.8 gal water	On Site	Bentonite	3% to 5%		
MW-4	523095.196542	675714.735961	32.85748777	-104.391741304	40-50 est	Ground Surface	50.0	8.16	94 lbs to 6.8 gal water	On Site	Bentonite	3% to 5%		
MW-5	523155.330936	675763.198774	32.8576870788	-104.392545559	20-30 est	Ground Surface	30.0	4.9	94 lbs to 6.8 gal water	On Site	Bentonite	3% to 5%		
MW-13	523257.279551	675795.050425	32.8577807756	-104.392214617	20.0-50.0	Ground Surface	50.50	8.24	94 lbs to 6.8 gal water	On Site	Bentonite	3% to 5%		
MW-14	523385.953178	675797.963484	32.8577779845	-104.391794575	20.0-35.0	Ground Surface	35.0	5.71	94 lbs to 6.8 gal water	On Site	Bentonite	3% to 5%		
MW-17A	523428.344497	675946.217532	32.8581853304	-104.39165679	26.0	Ground Surface	26.0	4.24	94 lbs to 6.8 gal water	On Site	Bentonite	3% to 5%		
MW-17B	523433.745077	675949.804060	32.8581954104	-104.391639208	34.0	Ground Surface	34.0	5.55	94 lbs to 6.8 gal water	On Site	Bentonite	3% to 5%		
MW-17D	523428.344497	675946.217532	32.8581853304	-104.39165679	19.0	Ground Surface	19.0	3.1	94 lbs to 6.8 gal water	On Site	Bentonite	3% to 5%		
MW-22A	523966.738762	676196.009604	32.8588729347	-104.389992876	20-25 est	Ground Surface	25.0	0.58*	94 lbs to 6.8 gal water	On Site	Bentonite	3% to 5%		
MW-24	522842.760433	676398.055460	32.8594265743	-104.393565596	22-27 est	Ground Surface	27.0	4.4	94 lbs to 6.8 gal water	On Site	Bentonite	3% to 5%		
MW-26A	524275.769313	676385.130329	32.8593387348	-104.38889939	20-25 est	Ground Surface	25.0	0.58*	94 lbs to 6.8 gal water	On Site	Bentonite	3% to 5%		

Notes:

est - estimated depth or depth interval

* - MW-22A and MW-26A are 3/4 inch diameter, all other wells are 2-inch diameter



LEGEND

- Property Line
- Right of Way Boundary
- Fence
- Area Exceeding NMWQCC Standards (dashed where inferred)
- Groundwater Flow Direction
- Monitoring Well - Not Monitored
- Monitoring Well - Monitor Semi-Annually
- Monitoring Well - Monitor Annually
- Monitoring Well to be Abandoned
- Groundwater Extraction Well

FIGURE X
Monitoring Well Locations to be Abandoned
Former Dowell Schlumberger Facility
Artesia, New Mexico

1 NOV - 8

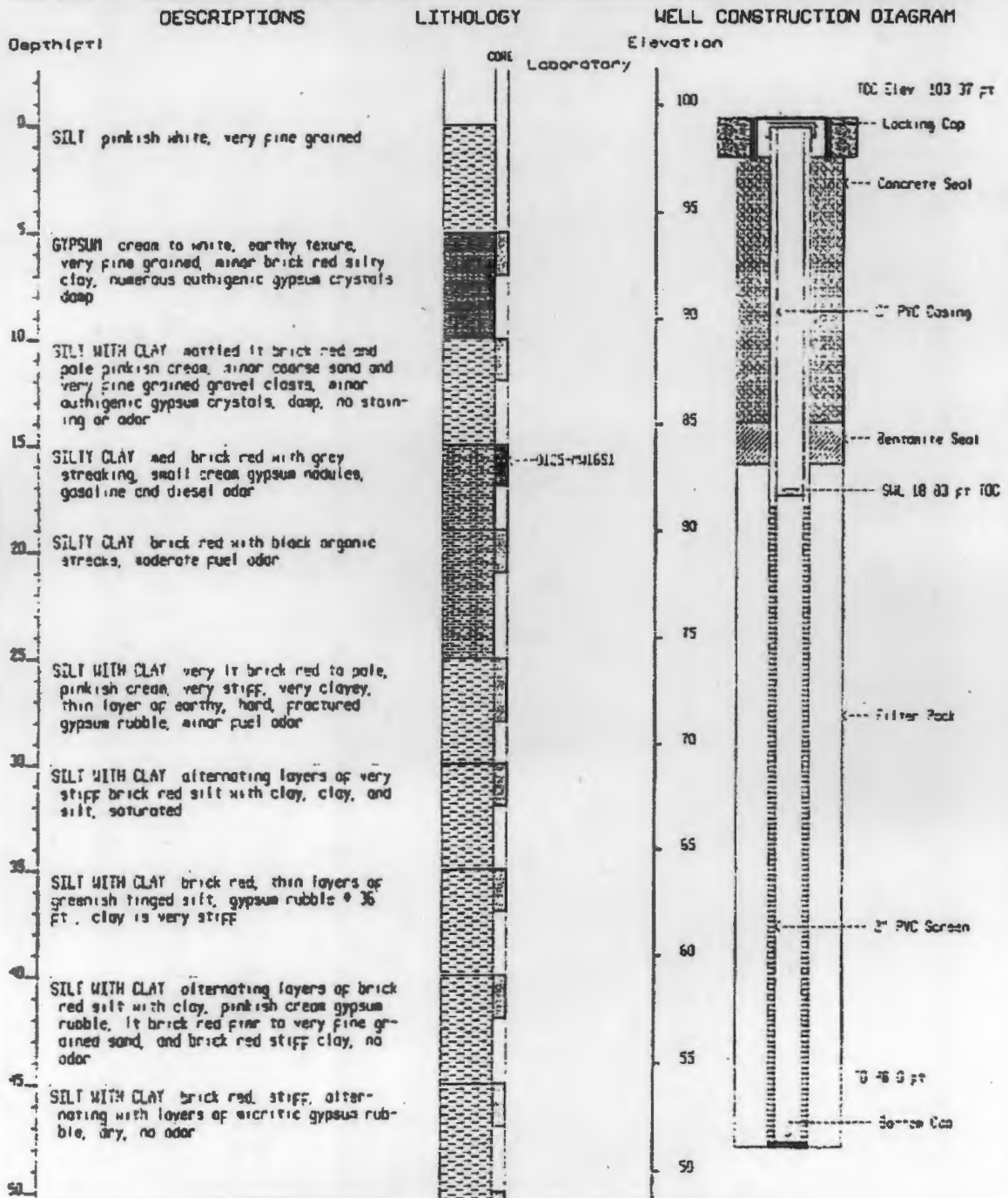
STATE ENGINEER'S OFFICE
PUBLIC WORKS DIVISION

CH-2006-HLL

MONITORING WELL MW-16

LOCATION Dowell Schlumberger, Artesia, New Mexico
20 ft NW of MW-4
T17S, R26E, Sec 4, SE 1/4, SW 1/4, SW 1/4
LOG Western Water Consultants Inc (Robin Daley)
DRILLER Scarborough Drilling (Lane Scarborough)
DRILLERS LICENSE NO MO1188
INSTALLATION DATE September 11, 1991

WELL OWNER Dowell Schlumberger Inc (LH 01251)
DRILLING METHOD Air Rotary, 10 1/2" OD
CASING 6" Dia Flush Joint Sch 80 PVC
SCREEN Slotted Casing, 0.020" Slot Size
FILTER PACK 8/16 Mesh Silica Sand
STATIC WATER ELEVATION 34.54 (9/13/91)
(Reference Datum Arbitrary = 100.00 feet)

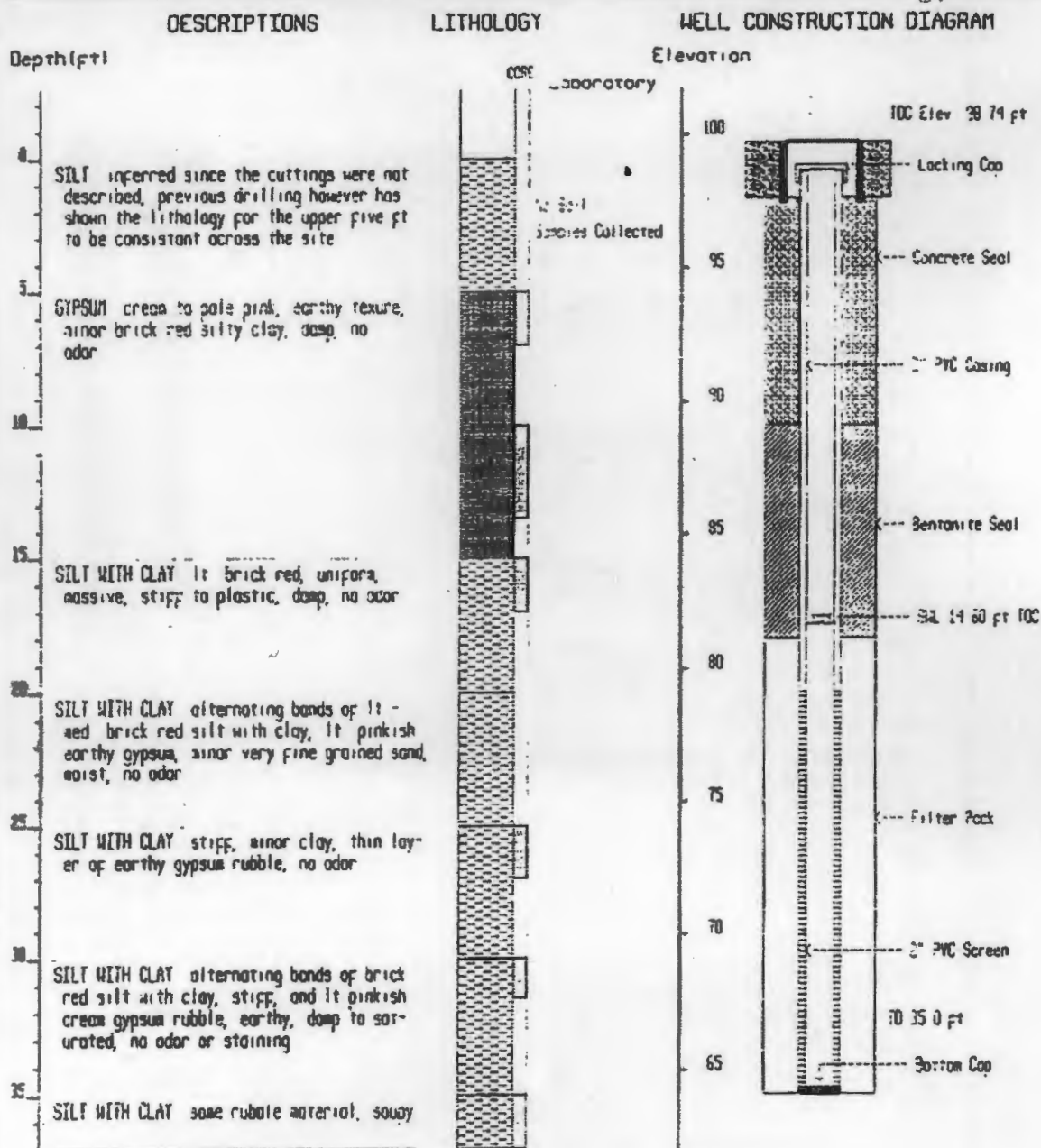


MONITORING WELL MW-14

LOCATION Dowell Schlumberger, Artesia, New Mexico
 16 ft W of E fence, 102 ft N of S fence
 T17S, R25E, Sec 4, SE 1/4, SW 1/4, SW 1/4
 LOG Western Water Consultants Inc (Robin Daley)
 DRILLER Scarbough Drilling (Lane Scarbough)
 DRILLERS LICENSE NO WD1188
 INSTALLATION DATE September 10, 1991

WELL OWNER Dowell Schlumberger, Inc (JUN 25)
 DRILLING METHOD Air Rotary, 5 0" CD
 CASING 2" Dia Flush Joint Sch 80 PVC
 SCREEN Slotted Casing, 9 020 Inch Slots
 FILTER PACK 8/16 Mesh Silica Sand
 STATIC WATER ELEVATION 34 74 (9/13/91)
 (Reference Datum Arbitrary = 100.00 feet)

STATE ENGINEER OFFICE
 JUN 25 1991



MONITORING WELL MW-15

LOCATION Dowell Schlumberger, Artesia, New Mexico
 7 ft S of acid dock, 14 ft W of acid dock
 T17S, R26E, Sec 9, SE 1/4, SW 1/4, SW 1/4
LOG Western Water Consultants Inc (Robin Daley)
DRILLER Scarbaugh Drilling (Lane Scarbaugh)
DRILLERS LICENSE NO WD1188
INSTALLATION DATE September 11, 1991

WELL OWNER Dowell Schlumberger Inc (JN 0125)
DRILLING METHOD Air Rotary, 5 0" OD
CASING 2" Dia Flush Joint Sch 30 PVC
SCREEN Slotted Casing, 0 020 Inch Slots
FILTER PACK 8/16 Mesh Silica Sand
STATIC WATER ELEVATION 83 75 (9/13/91)
 (Reference Datum Arbitrary = 100 00 feet)

