Five-Year Review Report

Second Five-Year Review Report
For the
Coleman Operable Unit of the 29th and Mead Site
Wichita
Sedgwick County, Kansas

September 2010

PREPARED BY:

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Date:

9/30/10

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ATTACHMENTS

List of Abbreviations and Acronyms

ARARs	Applicable or Relevant and Appropriate Requirements
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
DCE	Dichloroethene
EPA	Environmental Protection Agency
gpm	Gallons per Minute
GTI	Groundwater Technology, Inc.
KDHE	Kansas Department of Health and Environment
MCLs	Maximum Contaminant Levels
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
ND	Nondetect
NIC	North Industrial Corridor
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
O&M	Operation and Maintenance
OU	Operable Unit
ppb	Parts Per Billion
PCE	Tetrachloroethylene
PRP	Potentially Responsible Party
RD/RA	Remedial Design/Remedial Action
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
SVE	Soil Vapor Extraction
TCA	Trichloroethane
TCE	Trichloroethylene
mg/kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
μg/kg	Micrograms per Kilogram
μg/L	Micrograms per Liter
VOC	Volatile Organic Compound

Executive Summary

The second five-year review of the Coleman Operable Unit (OU) of the 29th and Mead Superfund site in Wichita, Kansas, was completed in September 2010. The results of the five-year review indicate that the remedy is protective of human health and the environment. The remedy consists of groundwater extraction and treatment, groundwater monitoring, and soil vapor extraction (SVE). The semiannual groundwater monitoring program was implemented to evaluate contaminant concentration and hydraulic control. The SVE remediation remains at one source area. Nine other source areas have been closed as a result of the SVE remediation. The trigger for this five-year review was the completion of the first five-year review in September 2005.

The assessment of this five-year review found that the remedy continues to be operated and maintained in accordance with the requirements of the Record of Decision. The remedy has been functioning as designed. The SVE remediation remains at one source area. Nine source areas have been closed as a result of the SVE remediation. A study of the groundwater remedy was completed following the recommendation in the first five-year review. One extraction well and air stripper were shut down as a result of the study. The current groundwater remedy (extraction and treatment of contaminated groundwater) will be part of the final area-wide groundwater remedy for the North Industrial Corridor site (NIC) (which includes the 29th and Mead site) by eventually restoring the groundwater to acceptable quality (Safe Drinking Water Act Maximum Contaminant Levels Maximum). The Feasibility Study for the NIC site is under review by the Kansas Department of Health and Environment (KDHE). Additional remedial action steps will be necessary to address the groundwater plume that is beyond the limits of the Coleman OU. The soil remedy is further reducing the threat of continued contamination of the groundwater from the remaining soil source.

Recommendations for the Coleman OU include: (1) a review of the groundwater remedy will be needed when a decision document is finalized by KDHE and a remedial action is determined for the NIC site, (2) continue the groundwater monitoring compliance program to confirm hydraulic control of the groundwater contaminant plume, (3) continue collection of the SVE systems performance data to evaluate system operation, and (4) continue collection of air stripper performance data to evaluate percent removal and the air emission rates of the treatment system.

Five-Year Review Summary Form		
SITE IDENTIFICATION		
Site Name (from WasteLAN): 29th and Mead Coleman Operable Unit Superfund Site		
EPA ID (from WasteLAN): KSD007241656		
Region: 7	**State:** Kansas	**City/County:** Wichita, Sedgwick County
SITE STATUS		
NPL Status: □ Final ✖ Deleted □ Other (specify)		
Remediation Status (choose all that apply): □ Under Construction ✖ Operating □ Complete		
Multiple OUs? ✖YES □ NO	**Construction Completion Date:** NA	
Has site been put into reuse? ✖ YES □ NO		
REVIEW STATUS		
Reviewing Agency: ✖ EPA □State □ Tribe □ Other Federal Agency		
Author Name: Kenneth Rapplean		
Author Title: Environmental Engineer	**Author Affiliation:** Environmental Protection Agency	
Review Period: September 2005 to September 2010		
Date(s) of Site Inspection: September 1, 2010		
Type of Review: ✖ Statutory □ Policy (□ Post-SARA □ Pre-SARA □ NPL-Removal only □ Non-NPL Remedial Action Site □ NPL State/Tribe-lead □ Regional Discretion)		
Review Number: 1 (first) X 2 (second) □ 3 (third) □ Other (specify)		
Triggering Action: Actual RA On-site Construction at OU# OU02 □ Actual RA Start at OU# 01 □ Construction Completion X Previous Five-Year Review Report □ Other (specify)		
Triggering Action Date (from WasteLAN): 9/2005		
Due Date (five years after triggering action date): 9/2010		

Five-Year Review Summary Form

Deficiencies: There were no deficiencies.

Recommendations and Follow-up Actions:

Actions needed to ensure protectiveness maintained in the future are as follows:

Continue the semiannual groundwater monitoring program to assure hydraulic containment of volatile organic compound contamination.

Continue to collect air stripper performance data to evaluate percent removal and air emission rates for the treatment systems.

Conduct an evaluation of the soil vapor extraction system to determine if continued operation is appropriate.

Protectiveness Statement(s):

The remedy at the Coleman Operable Unit of the 29th and Mead Superfund site is protective of human health and the environment through removal of soil volatile organic compound contamination by the soil vapor extraction system and hydraulic containment of groundwater contamination by the groundwater remedial system.

Long-term protectiveness of the remedial action will be verified by groundwater sampling to verify hydraulic containment by the groundwater remediation system. Current monitoring data indicate that the soil vapor extraction system continues to remove soil contamination.

Other Comments:

1.0 INTRODUCTION

The U.S. Environmental Protection Agency (EPA) has conducted the second five-year review for the remedial actions implemented at the Coleman Operable Unit (OU) of the 29th and Mead Superfund site in Wichita, Kansas. This review covers the period of time from September 2005 to September 2010. This report documents the results of the review.

The purpose of the five-year review is to determine whether the remedy at the site is protective of human health and the environment. The methods, findings, and conclusions of the reviews are documented in five-year review reports. In addition, five-year review reports identify deficiencies found during the review, if any, and recommendations to address them.

This five-year review is required by statute. EPA must implement five-year reviews consistent with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). CERCLA §121(c), as amended, states:

> If the President selects a remedial action that results in any hazardous substances, pollutants or contaminants remaining at the site, the President shall review such remedial action no less often than every five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented.

The NCP, Part 300.400(f)(4)(ii) of the Code of Federal Regulations (CFR) states:

> If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

This is the second five-year review for the Coleman OU of the 29th and Mead Superfund site in Wichita, Kansas. The triggering action for this statutory review is the date of the first five-year review of September 2005. The Coleman OU of the 29th and Mead Superfund site in Wichita, Kansas, meets the requirements for a statutory five-year review because hazardous substances, pollutants, and contaminants may remain on-site above levels that allow for unlimited use and unrestricted exposure.

The 29th and Mead Superfund site in Wichita, Kansas, consists of two OUs: (1) the General Area OU, and (2) the Coleman OU. The Kansas Department of Health and Environment (KDHE) is the lead agency for the General Area OU. EPA is the lead agency for the Coleman OU. Separate five-year reviews will be conducted for the General Area OU which continues to be in the Remedial Investigation/Feasibility Study (RI/FS) stage.

2.0 SITE CHRONOLOGY

The chronology of events for the Coleman OU of the 29th and Mead Superfund site is provided in the following tables.

2.1 Administrative Events

Date	Event
September 29, 1992	Record of Decision for Coleman OU signed
February 18,1994	Consent Decree for Remedial Design/Remedial Action entered

2.2 Groundwater Remediation System

Date	Event
January 22, 1996	Remedial Design Work Plan approved
May 3, 1996	Pre-final Remedial Design submitted
August 3, 1996	Pre-final Remedial Design and Remedial Action Work Plan approved
August 21, 1996	Final Remedial Design submitted
October 14, 1996	Installation of RW-2 completed
October 17, 1996	Well development of RW-2 completed
October 18, 1996	Installation of transfer line piping
October 28, 1996	Air stripper modifications completed
October 30, 1996	Installation of well pump and plumbing
March 21, 1997	Final system inspection
April 1997	System startup

2.3 Soil Vapor Extraction System

Date	Event
October 7, 1997	Remedial Design Work Plan submitted
October 21, 1997	Remedial Design for Work Plan approved
March 12, 1999	Pre-final Remedial Design and Remedial Action Work Plan submitted
July 6, 1999	Pre-final Remedial Design and Remedial Action Work Plan approved
August 18, 1999	EPA approval of final Remedial Design/Remedial Action Work Plan and EPA notice to proceed
March 9, 2000	Initiate construction of Soil Vapor Extraction system
April 3, 2000	Complete construction for Soil Vapor Extraction system
May 4, 2000	Final system inspection
May 15, 2000	Soil Vapor Extraction system startup
Ongoing	Soil Vapor Extraction system monitoring

3.0 SITE BACKGROUND

3.1 Physical Characteristics

The Coleman OU is located within the north-central part of the 29th and Mead Superfund site, a 1,440-acre industrial area in north-central Wichita, Kansas (see Figure 1). The Coleman OU is occupied by York UPG, Inc., at 801 East 37th Street north and by Recreational Vehicle Products, Inc. (RV Products), located at 3010 North Mead Street (see Figure 2). The southern boundary of the Coleman OU is approximately 300 feet south of East 30th Street north.

The Coleman OU lies within the Arkansas River lowlands section of the central lowlands Physiographic Province, which is characterized as relatively flat. Unconsolidated deposits underlying the Coleman OU are approximately 40 feet in depth and consist of clay, silt, sand, and gravel. These deposits represent at least four major depositional episodes, which range in age from the Early Pleistocene to Recent Alluvium. The Wellington Formation, which comprises the impermeable bed beneath the unconsolidated deposits, consists of calcareous gray and blue shale containing several thin beds of argillaceous limestone, gypsum, and anhydride.

These unconsolidated deposits are the primary source of usable groundwater in Sedgwick County. The direction of groundwater flow in the unconsolidated materials is generally south, although there are local variations caused by the pumping of a recovery well and several

industrial wells currently operating on the Coleman OU. Each industrial well has an average pumping rate of approximately 250 gallons per minute (gpm), and one of the wells must always be in operation to support York operations. Groundwater flow velocity is estimated at 340 feet per year.

3.2 Land and Resource Use

The Coleman OU is located in an area which has been used primarily for industrial purposes since 1887. Various operations at the Coleman OU property prior to Coleman's occupation of the property include the manufacture of railway cars, automobiles, light aircraft, and electronically controlled aircraft. Coleman acquired the property in 1947 from the Trustee of Culver Aircraft Corporation through a bankruptcy proceeding. Coleman initiated the manufacture of household furnace and air conditioning units at the Coleman OU property in 1949.

York purchased the northern part of the Coleman OU property in 1995 and is the current owner/operator of these facilities. York operations include the production of consumer furnaces and air conditioning systems intended for use in conventional residences and manufactured homes. The remainder of the Coleman property was purchased in 1987 by RV Products which manufactures air conditioners for recreational vehicles. York occupies the former Coleman Heating, Ventilation, and Air Conditioning facility which includes a manufacturing plant (North Plant) that occupies approximately 60 percent of the Coleman OU and an Administration and Engineering (A&E) building which occupies approximately 30 percent of the Coleman OU. The remaining 10 percent of the Coleman OU area is occupied by RV Products.

The Coleman OU is surrounded by other industrial facilities such as a cardboard box manufacturer, a meat packing facility, a structural concrete manufacturer, grain elevators, a chemical manufacturing company, a railroad track, a petroleum products packaging facility, and the location of a former metals fabricating company.

3.3 History of Contamination

EPA, the United States Geological Survey, and KDHE began investigating groundwater contamination in the 29th and Mead area in 1983. These investigations revealed the presence of several volatile organic compounds (VOCs) including trichloroethylene (TCE); carbon tetrachloride; toluene; benzene; ethylbenzene; methylene chloride; trans and/or cis-1,2-dichloroethylene; vinyl chloride; and 1,1,1-trichloroethane (TCA) in the groundwater at the 29th and Mead site. In May 1987, several water samples were collected at the Coleman facility from the effluent of cooling water from two on-site industrial water wells. The results of this sampling indicated elevated levels of several VOCs which included TCE; TCA; and 1,1-dichloroethene. These results prompted an investigation at the Coleman OU to determine the source, magnitude, and extent of these contaminants. Successive investigations conducted between 1987 and 1988 which included monitoring well installation and sampling, soil gas surveys, aquifer tests, and pilot tests indicated several potential source areas for VOC contamination existed at the Coleman facility.

3.4 Initial Response

In 1988, Coleman and KDHE agreed that a groundwater recovery and treatment program and a soil vapor extraction (SVE) program should be designed and implemented to control further migration of contaminants from the Coleman OU property. This system became operational in 1988 and included a 62-point SVE system to treat contaminated soils in a 65,000-square foot area and a groundwater recovery and treatment system that currently utilizes two 40-foot by 4-foot diameter air strippers. Water from the system subsequent to treatment is discharged to the Wichita Drainage Canal in conformance with a National Pollutant Discharge Elimination System (NPDES) permit that was issued by KDHE.

The 29th and Mead Superfund site, which includes the entire Coleman facility, was officially listed on the Superfund National Priorities List (NPL) on February 21, 1990. The Coleman Company was identified as one of the potentially responsible parties (PRPs) for the 29th and Mead Superfund site. The Coleman Company and Evcon Industries asked KDHE and EPA to consider the area covered by the interim groundwater and SVE system as an OU within the 29th and Mead Superfund site since an interim recovery system was operational prior to the 1990 NPL listing. An OU is any action taken within an area of a site as one part of an overall site cleanup. On June 6, 1991, a Consent Agreement was signed between KDHE and the Coleman Company requiring an RI/FS at the Coleman OU.

In 1994, the city of Wichita filed a petition requesting that EPA reopen the record for the NPL listing process. EPA initially denied the city's petition. However, because the city had demonstrated its ability to organize a response action at the Gilbert and Mosley site, a state deferral demonstration project, EPA decided in April 1995 to remove the 29th and Mead site from the NPL. This action was on the condition that the city and KDHE enter into an agreement requiring the city to ensure cleanup of the site. The city and KDHE signed an order in October 1995 in which the city agreed to be responsible for site investigation and cleanup. The boundaries of the site were expanded to include additional source areas, and the site was renamed as the North Industrial Corridor (NIC). The deletion of the site from the NPL was proposed (61 *Fed. Reg.* 3365) and the comment period closed on March 1, 1996. The site was delisted from the NPL by *Federal Notice* dated April 29, 1996, (61 *Fed. Reg.* 18684) with an effective delisting date of April 29, 1996.

The 29th and Mead groundwater area-wide site is in the investigation phase and area-wide cleanup activities have not been initiated. The city has procured a contractor to complete the RI/FS for the expanded site area, and the RI/FS work plan was approved by KDHE on November 11, 1997. Several facilities within the 29th and Mead site have had releases to the groundwater. At this time, KDHE is reviewing a FS for the expanded site referred to as NIC.

A Record of Decision (ROD) for the Coleman OU portion of the 29th and Mead site was signed by EPA in 1992 which called for an interim action to augment the existing groundwater pump and treat system and a final action to expand an existing SVE system to address the soil contamination. These actions address only the Coleman OU portion of the 29th and Mead site. EPA negotiated a judicial Consent Decree with the PRPs, which include the Coleman Company,

Inc.; Evcon, Inc.; and Recreational Vehicle Products, Inc. The Consent Decree was entered in the Federal District Court for the district of Kansas in February 1994. EPA is the lead agency for the Coleman OU.

3.5 Contaminants

Soil samples were collected from seven active or inactive degreaser pits and from the north and south fields of the Coleman OU property to evaluate potential source areas at the Coleman OU. Results indicate that TCE was detected in 23 soil borings from eight source areas. Concentrations of TCE in the soil ranged from nondetected (ND) to 13,000 micrograms per kilogram (ug/kg) or parts per billion (ppb). Other significant VOC constituents detected during the soil sampling program and their respective concentration range includes: 1,1,1 TCA - ND to 6,100 ug/kg; tetrachloroethene (PCE) - ND to 41 ug/kg; cis-1,2-dichloroethene (1,2 DCE) - ND to 520 ug/kg; 1,1 dichloroethene (1,1 DCE) - ND to 370 ug/kg; and toluene -ND to 140,000 ug/kg. These data suggest that former degreaser pits 1, 2, 3, 4, 6, 7, and 8 and the south field are likely sources for TCE contamination. In addition, significant concentrations of TCA were observed in former degreaser pits 1, 2, and 4.

Groundwater samples at the Coleman OU have been collected during several sampling events. In May 1990, a total of 68 monitoring wells were sampled for VOCs. As part of the RI, 35 monitoring wells were resampled to verify previous results. Analytical results indicate that TCE is the predominant VOC detected at the Coleman OU. TCE was detected in 32 of 35 monitoring wells sampled during the July 1991 sampling event. Concentrations of TCE ranged from ND to 15,000 micrograms per liter (ug/l). Other significant VOCs detected during the groundwater sampling program and their respective concentration ranges include: TCA - ND to 3,500 ug/l; PCE - ND to 100 ug/l; 1,2 DCE - ND to 2,500 ug/l; 1,1 DCE - ND to 1,110 ug/l; and vinyl chloride - ND to 250 ug/l.

4.0 REMEDIAL ACTIONS

4.1 Remedy Selection

The selected remedy is a combination of the previously existing groundwater system with an additional recovery well and expanded SVE system. Under this remedy, the existing groundwater and soil system, which consists of two industrial wells, one recovery well, two air strippers, and the 62-point SVE system installed in 1988, has continued to operate. The ROD required an expansion of the existing SVE system for removal of VOCs from unsaturated soils in all known on-site source areas. In addition, the ROD required the installation of a recovery well along the southern boundary to enhance hydraulic control.

4.1.1 Soil Remedy

The selected remedy is the final remedy with respect to the soil at the Coleman OU. The soil remediation system installed in 1988, which consists of a 62-point SVE system, was incorporated into the final soil remedy. The SVE system was expanded for removal of VOCs

from unsaturated soils in all known on-site source areas. Estimates indicate that this alternative would remove VOCs from over 4,000,000 cubic feet of contaminated soil. The ROD required the construction of a SVE system consisting of 96 SVE points to be screened from approximately 5 to 20 feet below ground surface. Based upon the SVE pilot study, approximately eight blowers were needed to implement this alternative. Air monitoring is required to ensure the health and safety of on-site personnel and to ensure that vapors released from the SVE system do not pose a threat to human health or the environment.

4.1.2 Groundwater Remedy

The selected remedy represents an interim remedy with respect to the groundwater at the Coleman OU. Because the plume of contaminated groundwater at the Coleman OU has merged with the contaminated groundwater from other sources in the 29th and Mead site, the final remedy for the 29th and Mead site will include the groundwater remedy at the Coleman OU. The existing groundwater system in place at the time of the remedy selection for the OU was incorporated into the remedy; that system consisted of two industrial wells, one recovery well, and two air strippers. An additional recovery well was located along the southern boundary to enhance hydraulic control. The additional recovery well was installed in the same manner as the existing recovery wells and operates at approximately 200 gpm. Water is pumped to an existing on-site air stripper. Treated water is monitored through an NPDES permit prior to discharge. The estimated operating life of this alternative is 18 years. The enhanced pumping system at the southern boundary, in conjunction with the existing pumping system, was designed to help prevent off-site migration of VOCs over the long term through hydraulic control. In addition, the overall load of VOCs leaching into the groundwater from active source areas has been greatly reduced by the SVE system.

The selected remedy described in the ROD for the Coleman OU was designed to address the principal threat posed by the contaminants in the groundwater by preventing the further migration of contaminants off the OU onto the 29th and Mead site and by eventually restoring the groundwater to acceptable quality (Safe Drinking Water Act Maximum Contaminant Levels [MCLs]) by the extraction and treatment of contaminated groundwater. The remedy has further reduced the threat of continued contamination of the groundwater from the soil source areas with the expansion of the SVE system.

4.2 Remedy Implementation

A Consent Order between EPA and Evcon Industries, Inc.; New Coleman Holdings, Inc.; and Recreational Vehicle Products, Inc., for the Remedial Design/Remedial Action (RD/RA) was executed on February 17, 1993. An RD was developed for both the soil and groundwater remedies. The final RD for the interim groundwater remedy is dated May 3, 1996; and the final design for the soil remedy is dated August 5, 1999.

4.2.1 Soil Vapor Extraction System

Construction of the SVE system was initiated on March 9, 2000, and completed on May 3, 2000. The locations of the SVE system are presented in Figures 3 through 7. The system was started on May 15, 2000, and operation is ongoing with performance presented in Table 1.

4.2.2 Groundwater Remedial System

The installation of the groundwater recovery well RW-2 was completed on October 14, 1996 (Figure 8). The well is six inches in diameter, and the screened interval of the well extends from 21 to 41 feet below ground surface. The recovery well was developed using a surge block, bailing, and over pumping. Installation of the recovery well pump, vault, flowmeter, and well head plumbing was completed on October 30, 1996. Groundwater transfer line piping was installed and pressure tested. The existing air stripper blower was modified by changing blower sheaves and belts and installing a larger nozzle. Discharge piping from the air stripper to the effluent discharge was changed to accommodate the increased flow rate.

The system startup was in April 1997. RW-2 operates at a pumping rate of approximately 90 gpm, and the effluent is pumped to air stripper AS-2 at the A&E building. The treated effluent water gravity flows to the Wichita Drainage Canal under an NPDES permit. The groundwater recovery systems are designed to run continuously unless shutdown by a pump control interlock condition generated by a pressure switch or a power failure.

4.3 Systems Operations/Operation and Maintenance

4.3.1 Soil Vapor Extraction System

An operations and maintenance (O&M) plan for the SVE system was prepared by Fluor Daniel Ground Water Technology, Inc. (GTI). The O&M manual includes a description of tasks for O&M, prescribed treatment or operation conditions, and a schedule for each O&M task. A description of corrective action to be implemented in the event that cleanup or performance is exceeded was included in the O&M plan. Monitoring activities will involve data collection to evaluate VOC effluent concentration and remedial progress. VOC effluent concentration data were collected at system startup and were collected weekly for one month and quarterly thereafter. System balancing and adjustments will be ongoing as conditions change during monitoring inspections.

Performance monitoring activities involve data collection to evaluate VOC effluent concentrations and removal of VOCs from the soil by collecting air samples from the SVE exhaust. Air emissions and air flow data are collected and reported to EPA in the Quarterly Update Reports of RD/RA Activities. A total of 4,185 pounds of VOCs have been removed from contaminated soils by the SVE system from May 17, 2000, through October 4, 2004. The SVE system performance is provided in Table 1.

Following the first five-year review, the SVE systems designated for Sumps 1 through 9 were determined to have reached their operable life by shutting them down, restarting, and checking for rebound and then taking soil samples to verify that the RD objectives were met. The systems were decommissioned in June 2006. The combined total VOCs removed from those sumps by the SVE systems were calculated to be 2,145 pounds.

The SVE system as designated Southfield continues to be operated and as of June 2010 has removed 2,250 pounds of VOCs (Figure 15).

4.3.2 Groundwater Remedial System

An O&M manual for the interim groundwater remedy was prepared by Fluor Daniel GTI. Under normal operating conditions, the system operating tasks are limited to equipment maintenance and monitoring tasks. Facility personnel confirm systems operation on a daily basis.

A groundwater compliance program was developed and is described in the RD/RA Ground Water Monitoring Plan dated May 3, 1996. The purpose of the groundwater monitoring compliance program is to confirm hydraulic control of the groundwater contaminant plume at the Coleman OU. The compliance monitoring program consists of two procedures for confirming hydraulic control of the groundwater contaminant plume. The first procedure is the evaluation of water elevation data on and near the Coleman OU to verify the direction of groundwater flow and the extent of hydraulic control exerted by the operating recovery wells. The second procedure consists of the collection of groundwater quality data from a specified point of compliance wells and statistical assessment of the groundwater quality data to evaluate the effectiveness of the hydraulic control systems.

Groundwater monitoring is conducted on a semiannual basis utilizing 46 groundwater wells (Figure 8). Groundwater elevations are measured for all wells, and samples from selected monitoring wells are analyzed for chlorinated VOCs and toluene. The groundwater elevation data are compiled and flowlines are generated to show the direction of groundwater flow and the influence of the groundwater remediation system (Figure 9). The shallow and deep concentrations of TCE are shown in Figures 10 and 11.

Air emissions are monitored from the air stripper towers twice yearly during groundwater sampling events, and the air samples are analyzed for VOCs. Influent and effluent water samples from the air stripper towers are collected and analyzed for VOCs to determine the removal efficiency of VOCs from the groundwater. Groundwater effluent samples are collected on a monthly basis from both air stripper towers for VOCs as required in the monitoring requirements specified in the NPDES permit. Data contained in the Quarterly Update Report of RD/RA Activities dated January 17, 2005, demonstrated that the groundwater treatment systems are operating at 100 percent efficiency for the removal of VOCs from the influent (Tables 2a and 2b).

The PRP submitted annual groundwater monitoring reports to EPA to document hydraulic control of the groundwater at the Coleman OU. The most recent annual groundwater compliance monitoring report available for the first five-year review was dated April 5, 2001. This report contains water elevation data to verify the direction of groundwater flow and the extent of hydraulic control by the operating recovery wells. This report also contained a statistical assessment of groundwater data. The evaluation of the annual groundwater data in that report demonstrated that:

1. Hydraulic control continues to be achieved at the Coleman OU. RW-2 continues to enhance the groundwater containment at the Coleman OU.

2. The formal trend statistical analysis performed on the analytical data for the point of compliance wells indicates statistically significant downward trends for all but three monitoring wells.

3. Time-series graphs of the point of compliance monitoring well concentration data show that monitoring wells with statistically significant downward trends also show declining concentrations for total VOCs. The declining concentrations are approaching asymptiotic trends (Figure 12).

4. Time-series graphs of the two recovery wells show decreasing groundwater concentrations (Figures 13 and 14).

5. The groundwater treatment systems are operating at 100 percent efficiency for the contaminants of concern.

Since 2001, semiannual groundwater monitoring has been conducted and the groundwater remedial system evaluated. The results of the semiannual groundwater monitoring are reported to EPA in the Quarterly Update Reports of RD/RA Activities. The groundwater monitoring used for the first five-year review was conducted in November 2004. The results of that groundwater monitoring event reported that the groundwater treatment system continues to maintain hydraulic control at the Coleman OU (Figure 9).

The point of compliance monitoring wells are sampled to confirm the effectiveness of the groundwater remedial system. These wells are as follows:

MW-71D/MW-71S, formerly MW-1/MW-4
MW-3/MW-47
MW-67/MW-68
MW-51/MW-52
MW-59/MW-60
MW-15/MW-45
MW-61 /MW-62

The groundwater TCE data from these wells are presented in Table 3 which generally demonstrates a decreasing trend in TCE concentrations since May 1990.

A review of available data during the first five-year review was completed by the EPA Ground Water Technical Support Center in Ada, Oklahoma (Attachment 2). The review agrees that the contaminant plume has been contained across the majority of the site area, but it appears that the current system is not containing the plume along part of the western boundary. Details of those areas are discussed in the report in Attachment 2.

As a result of the recommendations and concerns posed during the first five-year review, a study was initiated by Shaw Environmental to address those concerns posed by the EPA Ground Water Technical Support Center. It was determined that an area of stagnation had developed downgradient of RW-1. The recommendations to alleviate those conditions were to shut down RW-1 and the north air stripper and adjust the pumping rates of the south industrial well and RW-2. The study was completed in 2006; the implementation of the recommendations were put into place and monitored. In 2007, EPA approved a request to plug and abandon RW-1, which was implemented in 2008. The south air stripper (AS-2) is currently operating and remediating water from the south industrial well and the south recovery well (RW-2).

Figures 16 and 17 provide the current Locations of Monitoring Wells for Groundwater Monitoring & Point of Compliance Programs and Groundwater Flow Direction Map, April 2010, respectively. Figures 18 and 19 provide the isoconcentration map of the shallow TCE and deep TCE, respectively, from data collected in April 2010.

5.0 PROGRESS SINCE THE LAST REVIEW

This is the second five-year review for the Coleman OU of the 29th and Mead site.

6.0 FIVE-YEAR REVIEW PROCESS

6.1 Administrative Components

The five-year review for the Coleman OU of the 29th and Mead site was conducted by Ken Rapplean, EPA Remedial Project Manager for the site.

EPA completed the following tasks during the five-year review for the Coleman OU of the 29th and Mead site:

- Reviewed site documents such as the ROD, the Consent Agreement, the Baseline Risk Assessment Report, annual groundwater monitoring reports, and quarterly monitoring reports (Attachment 1)
- Reviewed applicable or relevant and appropriate requirements (ARARs)
- Conducted a site inspection and interview of appropriate persons
- Developed recommendations for the site
- Prepared a report

6.2 Community Involvement

When the five-year review report is finalized, a copy of the document will be made available at the KDHE District Office in Wichita, Kansas. EPA will place a notice of the availability of the document in the *Wichita Eagle Newspaper*.

6.3 Document Review

The following standards were identified as ARARs in the ROD:

- Safe Drinking Water Act
- Clean Water Act

The Safe Drinking Water Act was reviewed for changes that could affect the protectiveness of the remedy. Newly promulgated Safe Drinking Water Act standards were not discovered during the second five-year review. The MCLs for the contaminants of concern have not become more stringent since the signing of the ROD in 1994.

Compliance with the Clean Water Act requirements under 40 C.F.R.§§ 122-125 for point source direct discharge has been obtained under the NPDES by which effluent standards, monitoring requirements, and standard conditions for discharge are set. An NPDES permit has been granted to both operating air stripper units on the Coleman OU site for the discharge of treated water. This discharge is in compliance with the terms of the permit. Newly promulgated Clean Water Act standards were not discovered during the second five-year review which would affect the permit or the discharge requirements.

One new ARAR was identified during the first five-year review. In 1999, KDHE developed risk-based standards for soil and groundwater for sites being addressed by KDHE programs. The 1999 standards were revised and are presented in a document titled Risk-Based Standards for Kansas (RSK Manual-3rd Version) dated March 1, 2003. The risk-based standards have not been promulgated by the state of Kansas and therefore fall in the category of To Be Considered. KDHE developed risk-based standards for exposure to soil and groundwater media under residential and nonresidential scenarios. Standards include pathways for exposure to soil, exposure to groundwater, and migration of contaminants from soil to groundwater. The risk-based standards for the contaminants detected in groundwater at the site are not more stringent than the MCLs.

6.4 Data Review

6.4.1 Soil Vapor Extraction System

The PRP had submitted a Quarterly Update Report of RD/RA Activities to EPA to report activities related to O&M of the groundwater remedial system and the SVE system. The reports have now been changed to a semiannual period. These reports include performance data of the SVE system summarizing sampling activities and VOCs removed by the system.

Performance monitoring activities involve data collection to evaluate VOC effluent concentrations and removal of VOCs from the soil by collecting air samples from the SVE exhaust. The most recent air emissions and air flow data were collected in April 2010. The SVE system does not have vapor recovery equipment. The SVE system is required to release less than 40 tons of VOCs per year, and the release was below this limit.

The performance data will continue to be reviewed and evaluated from the Southfield to determine when it is feasible to consider any adjustments or shut down of the system.

6.4.2 Groundwater Remedial System

The results of the semiannual groundwater monitoring are now reported to EPA in the Semi Annual Update Summary Reports of RD/RA Activities. The groundwater monitoring included in the second five-year review was conducted in April 2010.

The review of that data and previous summary reports indicate that the groundwater treatment system continues to maintain hydraulic control at the Coleman OU.

A review of Figures 17, 18, and 19 indicates that the current system of two pumping wells provides containment of the plume and a general decrease of levels of TCE, particularly in the deep part of the plume. The system will need to be evaluated once a remedial action is decided upon for the NIC site.

6.5 Site Inspection

EPA conducted a site inspection at the Coleman OU of the 29th and Mead site on September 2, 2010. The results of the site inspection are discussed below.

The site inspection was conducted by Kenneth Rapplean of EPA. The purpose of the site inspection was to assess the operation of the SVE system and the groundwater extraction system. Mr. Kevin Hopkins of Shaw Environmental conducted the site tour. A meeting prior to the site tour was conducted to discuss the location of site-related documents which continue to be housed at the Wichita Office of Shaw Environmental.

6.6 Interviews

Interviews were not conducted with the general public during the second five-year review. EPA has not received any complaints or concerns from the public or businesses adjacent to the 29th and Mead site.

Discussion with the Shaw representative was conducted during the site inspection regarding the O&M of the systems.

7.0 ASSESSMENT

The following conclusions support the finding that the remedy at the Coleman OU of the 29th and Mead site is protective of human health and the environment.

Question A: Is the remedy functioning as intended by the decision document?

Remedial Action Performance: Yes, the remedial action continues to operate and function as designed and intended by the ROD. This includes both the remaining SVE system for remediation of contaminated soil and the groundwater remedial system for containment and treatment of contaminated groundwater. The SVE system has removed approximately 4,395 pounds of VOC contaminants from the soil since May 2000.

The groundwater remedial system continues to maintain hydraulic control of the groundwater at the site.

System Operations/Operations & Maintenance: Monitoring and site maintenance have been performed in accordance with the O&M work plan. The groundwater remedial wells and the air stripper are operational. The hardware for the SVE system is in operational condition.

Opportunities for Optimization: The PRPs will evaluate any changes that may be necessary to the system when the remedial action is implemented at the NIC site.

Early Indicators of Potential Issues: No issues or problems have been identified which could place protectiveness at risk. EPA is not aware of any use of the groundwater at the site for potable purposes. Equipment or changes have not been an issue during implementation and operation of the remedial action.

Implementation of Institutional Controls: Institutional controls were not part of the remedial action. Institutional controls at the Coleman OU site area can be considered to be in place because there is no use of the groundwater for potable purposes, only industrial. All drinking water is supplied by the city of Wichita. All owners and operators at the site are respondents to the Consent Decree or successor owners/operators and are aware of the contaminants at the site.

Question B: Are the assumptions used at the time of the remedy selection still valid?

Changes in Standards and To Be Considereds: Yes, the MCLs for the contaminants of concern have not changed during the last five years. The standards developed by Kansas for site contaminants in groundwater are not more stringent than existing federal standards.

Changes in Exposure Pathways: Land use in the area of the site has not changed during the last five years, and no future plans to change the land use have been identified. No new/different contaminants or sources have been identified at the site during the second five-year review. Baseline Risk Assessment focused on potential or actual risks to human health posed by contaminants at or released from the Coleman OU property. The human population most likely

to be exposed to contaminated groundwater and air are those individuals living and working in the vicinity. The exposure assumptions and pathways used to develop the Human Health Risk Assessment are still valid.

Changes in Toxicity and Other Contaminant Characteristics: The review indicated no significant impacts.

Changes in Risk Assessment Methodologies: Changes in risk assessment methodologies since the time of the ROD do not call into question the protectiveness of the remedy.

Expected Progress Toward Meeting Remedial Action Objectives: The remedy is progressing as expected. The SVE system may have removed the majority of the VOCs which can be addressed by the system. The groundwater remedial system continues to remove contaminants from the groundwater but may need to be adjusted when the remedial action is implemented at the NIC site.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

No ecological targets were identified during the Baseline Risk Assessment, and none were identified during the second five-year review; therefore, monitoring of ecological targets is not necessary. No weather-related events have affected the protectiveness of the remedy. There is no other information that calls into question the protectiveness of the remedy.

Technical Assessment Summary

According to the data reviewed, the site inspection, and the interview, the remedy is functioning as intended by the ROD. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. The decommissioning of eight SVE areas is an indicator that the SVE system may have removed the majority of the VOCs which can be addressed by the system. The groundwater remedial system continues to maintain hydraulic control of groundwater across the site. There have been no changes of significance in the toxicity factors for the contaminants of concern that were used in the Baseline Risk Assessment, and there has been no change to the standardized risk assessment methodology that could affect the protectiveness of the remedy. There is no other information that calls into question the protectiveness of the remedy.

8.0 ISSUES

There are no issues other than the need to review the groundwater extraction system to determine if changes need to be made on the on-site system and determine the impact on the immediate area surrounding the site when the remedial action is implemented at the NIC site.

9.0 RECOMMENDATIONS AND FOLLOW-UP ACTIONS

Continue to collect semiannual SVE systems performance data to evaluate system operation.

Continue the groundwater monitoring compliance program to confirm hydraulic control of the groundwater contaminant plume at the Coleman OU. The compliance monitoring program should continue to consist of the two procedures in place for confirming hydraulic control of the groundwater contaminant plume currently utilized. The first procedure is an evaluation of water elevation data on and near the Coleman OU to verify the direction of groundwater flow and the extent of hydraulic control exerted by the operating recovery wells. The second procedure consists of the collection of groundwater quality data from a specified point of compliance wells to evaluate the effectiveness of the contamination removal. Air stripper performance data should continue to be collected to evaluate percent removal for each treatment system and the air emission rates of each treatment system.

10.0 PROTECTIVENESS STATEMENT

The remedy at the Coleman OU of the 29th and Mead Superfund site is protective of human health and the environment through removal of soil VOC contamination by the SVE system and hydraulic containment of groundwater contamination by the groundwater remedial system.

Long-term protectiveness of the remedial action will continue to be verified by obtaining additional groundwater sampling to verify hydraulic containment by the groundwater remediation system in addition to the removal of contamination of the soil.

11.0 NEXT REVIEW

This is a statutory site that requires ongoing five-year reviews. The next review will be conducted five years from the date of signature of this five-year review (September 2015).

12.0 OTHER COMMENTS

No other comments are necessary.

Table 3

Comparison of Detections of Trichloroethylene in Groundwater Samples Point of Compliance Wells

Point of Compliance Well Number	May 1990 TCE (ug/L)	May 1996 TCE (ug/L)	November 2000 TCE (ug/L)	May 2002 TCE (ug/L)	November 2004 TCE (ug/L)
MW-71D (MW-1)*	630	130	2.6	3.9	46
MW-71S (MW-48)**	1800	300	15	34	8.9
MW-3	9.2	0.6	0.5U	0.5U	1.0U
MW-47	7.0	0.4	0.5U	0.5U	1.0U
MW-67	960	120	86	62	1.8
MW-68	850	150	29	46	14
MW-51	17	12	14	NA	3.4
MW-52	20	62	10	10	2.4
MW-59	0.3	NA	0.5U	0.5U	1.0U
MW-60	0.3	NA	0.5U	0.5U	1.0U
MW-15	3500	120	34	15	3.3
MW-45	2200	380	44	91	46
MW-61	310	NA	1.7	10	2.1
MW-62	2300	350	31	150	54

TCE - Trichloroethylene
NA- Not Analyzed
U - Compound not detected
* - MW-71D formerly MW-1
** - MW-71S formerly MW-48

Table 4
Recommendations and Follow-up Actions

Item	Recommendations/ Follow-up Action	Responsible Party	Oversight Agency	Milestone Date	Follow-up Actions: Affects Protectiveness (Yes/No)
Monitoring Program	Continue semiannual monitoring program to verify hydraulic containment and VOC removal. This will continue after the determination of any changes to the existing groundwater pump and treat system	New Coleman Holdings, Evcon, Recreational Vehicles Products, Inc.	EPA	May and November of each year	Yes
Monitoring Program	Continue semiannual air stripper monitoring program to verify treatment efficiency	New Coleman Holdings, Evcon, Recreational Vehicles Products, Inc.	EPA	May and November of each year	Yes
Monitoring Program	Monitor SVE system performance to evaluate system operation	New Coleman Holdings, Evcon, Recreational Vehicles Products, Inc.	EPA	Quarterly	Yes
SVE Operation	Evaluate continued operation of SVE system	New Coleman Holdings, Evcon, Recreational Vehicles Products, Inc.	EPA	As appropriate	Yes

Attachment 1
Documents Reviewed

Ground Water Technology, Report of Remedial Investigation Activities, Coleman Operable Unit, Wichita, Kansas, September 3, 1991, Revision IV August 27, 1992.

Ground Water Technology, Feasibility Study Report, Coleman Operable Unit, Wichita, Kansas, September 25, 1991, Final July 2, 1992.

PRC Environmental, Risk Assessment for Coleman Operable Unit, Final Report, November 27, 1991

Fluor Daniel GTI, Final Remedial Design and Remedial Action Work Plan, Interim Ground Water Remedy, Coleman Operable Unit, Wichita, Kansas, May 3, 1996, Revised August 20, 1996

Fluor Daniel GTI, Remedial Design and Remedial Action Ground Compliance Monitoring Plan, Coleman Operable Unit, Wichita, Kansas, May 3, 1996

IT Group, Pre-Final Remedial Design and Remedial Action Work Plan, Final Soil Remedy, Coleman Operable Unit, Wichita, Kansas, August 5, 1999

Fluor Daniel GTI, Monthly Data Summary Report of RD/RA Activities, July 2, 1996

IT Group, Coleman Operable Unit, Quarterly Update of RD/RA Activities, January 10, 2001

Shaw Group, Coleman Operable Unit, Quarterly Update of RD/RA Activities, January 10, 2002

Shaw Group, Coleman Operable Unit, Quarterly Update of RD/RA Activities, January 17, 2005

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 as amended by the Superfund Amendments and Reauthorization Act of 1986, 42 U. S. C. § 9601 et seq.

Kansas Department of Health and Environment, 1990, Consent Agreement between the Kansas Department of Health and Environment and the Obee Road PRP Group, March 27, 1990

United States of America, Plantiffs v. Evcon Industries, Inc, New Coleman Holdings, Inc., and Recreational Vehicle Products, Inc., Consent Decree, Filed February 18, 1994

National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR Part 300

United States Environmental Protection Agency Region VII, Record of Decision, Coleman Operable Unit, 29th and Mead Superfund Site, Wichita, Kansas, September 1992

United States Environmental Protection Agency Region VII, 1994, Interim Remedial Action Report, 29th and Mead Ground Water Contamination Site, Coleman Operable Unit, Wichita, Kansas, September 2000

United States Environmental Protection Agency Region VII; First Five Year Review Report for the Coleman Operable Unit of the 29th and Mead Site, Wichita, Kansas; September 2005

All Quarterly and Semi Annual Reports of RD/RA Activities, Coleman Operable Unit (COU) dated after the first Five Year Review including July 13, 2010

Attachment 2

Site Inspection Checklist

Site Inspection Checklist

I. SITE INFORMATION	
Site name: 29th & Mead, Coleman Operable Unit	**Date of inspection:** 9-1-10
Location and Region: Wichita, Kansas, Region 7	**EPA ID:** KSD007241656
Agency, office, or company leading the five-year review: EPA	**Weather/temperature:** Fair, 90 F, light winds

Remedy Includes: (Check all that apply)

- ☐ Landfill cover/containment
- ☐ Access controls
- ☐ Institutional controls
- ₪ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ₪ Other_Soil Vapor Extraction_____

- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☐ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** _Kevin Hopkins_____ Remediation Project Manager, Shaw Environmental _____
   Name Title Date 9-1-2010
   Interviewed ₪ at site ☐ at office ☐ by phone Phone no. __316-943-1321_____
   Problems, suggestions; ☐ Report attached _____

2. **O&M staff** _____ _____ _____
   Name Title Date
   Interviewed ☐ at site ☐ at office ☐ by phone Phone no. _____
   Problems, suggestions; ☐ Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency _____
Contact _____ _Project Manager _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

4. **Other interviews** (optional) ☐ Report attached.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**
   - ☒ O&M manual — ☒ Readily available — ☒ Up to date — ☐ N/A
   - ☒ As-built drawings — ☒ Readily available — ☐ Up to date — ☐ N/A
   - ☐ Maintenance logs — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks Documents are located at the Shaw Office

2. **Site-Specific Health and Safety Plan** — ☒ Readily available — ☒ Up to date — ☐ N/A
   - ☐ Contingency plan/emergency response plan — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks

3. **O&M and OSHA Training Records** — ☒ Readily available — ☒ Up to date — ☐ N/A

   Remarks

4. **Permits and Service Agreements**
   - ☐ Air discharge permit — ☐ Readily available — ☐ Up to date — ☐ N/A
   - ☒ Effluent discharge — ☒ Readily available — ☒ Up to date — ☐ N/A
   - ☐ Waste disposal, POTW — ☐ Readily available — ☐ Up to date — ☐ N/A
   - ☐ Other permits _____ — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks

5. **Gas Generation Records** — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks

6. **Settlement Monument Records** — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks

7. **Groundwater Monitoring Records** — ☒ Readily available — ☐ Up to date — ☐ N/A

   Remarks

8. **Leachate Extraction Records** — ☐ Readily available — ☐ Up to date — ☐ N/A

   Remarks

9. **Discharge Compliance Records**
   - ☐ Air — ☐ Readily available — ☐ Up to date — ☐ N/A
   - ☒ Water (effluent) — ☒ Readily available — ☐ Up to date — ☐ N/A

   Remarks

10. **Daily Access/Security Logs** — ☐ Readily available — ☐ Up to date — ☐ N/A

    Remarks

IV. O&M COSTS

1. **O&M Organization**

☐ State in-house ☐ Contractor for State
☐ PRP in-house ☒ Contractor for PRP
☐ Federal Facility in-house ☐ Contractor for Federal Facility
☐ Other_____

2. **O&M Cost Records**

☒ Readily available(at Shaw Office) ☐ Up to date
☐ Funding mechanism/agreement in place
Original O&M cost estimate_____ ☐ Breakdown attached

Total annual cost by year for review period if available

From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost
From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost

3. **Unanticipated or Unusually High O&M Costs During Review Period**

Describe costs and reasons: _____

V. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map ☒ Gates secured ☐ N/A
Remarks_____

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A
Remarks_____Guards on duty_____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☐ No ☒ N/A
Site conditions imply ICs not being fully enforced ☐ Yes ☐ No ☐xN/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency TOTAL, Pester, KDHE_____
Contact _Samuel Chris Itin_____ _Remediation Project Manager, TOTAL__ _____
Name Title

Reporting is up-to-date ☐ Yes ☐ No ☒ N/A
Reports are verified by the lead agency ☐ Yes ☐ No ☒N/A

Specific requirements in deed or decision documents have been met ☐ Yes ☐ No ☒ N/A
Violations have been reported ☐ Yes ☐ No ☒ N/A
Other problems or suggestions: ☐ Report attached

_____
_____
_____
_____

2. **Adequacy** ☐ ICs are adequate ☐ ICs are inadequate ☒ N/A
Remarks_____
_____
_____

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map ☒ No vandalism evident
Remarks_____
_____

2. **Land use changes on site** ☒ N/A
Remarks_____
_____

3. **Land use changes off site** ☒ N/A
Remarks_____
_____

VI. GENERAL SITE CONDITIONS

A. Roads ☒ Applicable ☐ N/A

1. **Roads damaged** ☐ Location shown on site map ☒ Roads adequate ☐ N/A
Remarks_ Oil seepage on the access road has been addressed by the PRP with removal of soil and addition of quickrete and gravel_____
_____

B. Other Site Conditions

Remarks _____

_____

_____

_____

_____

_____

VII. LANDFILL COVERS ☐ Applicable ☒ N/A

A. Landfill Surface

1. **Settlement** (Low spots) ☐ Location shown on site map ☐ Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____
   _____

2. **Cracks** ☐ Location shown on site map ☐ Cracking not evident
   Lengths_____ Widths_____ Depths_____
   Remarks_____
   _____

3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____
   _____

4. **Holes** ☐ Location shown on site map ☐ Holes not evident
   Areal extent_____ Depth_____
   Remarks_____
   _____

5. **Vegetative Cover** ☐ Grass ☐ Cover properly established ☐ No signs of stress
   ☐ Trees/Shrubs (indicate size and locations on a diagram)
   Remarks_____
   _____

6. **Alternative Cover (armored rock, concrete, etc.)** ☐ N/A
   Remarks_____
   _____

7. **Bulges** ☐ Location shown on site map ☐ Bulges not evident
   Areal extent_____ Height_____
   Remarks_____
   _____

8. **Wet Areas/Water Damage** ☐ Wet areas/water damage not evident
   ☐ Wet areas ☐ Location shown on site map Areal extent_____
   ☐ Ponding ☐ Location shown on site map Areal extent_____
   ☐ Seeps ☐ Location shown on site map Areal extent_____
   ☐ Soft subgrade ☐ Location shown on site map Areal extent_____
   Remarks_____
   _____

9.	**Slope Instability** ☐ Slides ☐ Location shown on site map ☐ No evidence of slope instability Areal extent_____ Remarks_____	
B. Benches ☐ Applicable ☒N/A (Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)		
1.	**Flows Bypass Bench** ☐ Location shown on site map ☐ N/A or okay Remarks_____	
2.	**Bench Breached** ☐ Location shown on site map ☐ N/A or okay Remarks_____	
3.	**Bench Overtopped** ☐ Location shown on site map ☐ N/A or okay Remarks_____	
C. Letdown Channels ☐ Applicable ☒ N/A (Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)		
1.	**Settlement** ☐ Location shown on site map ☐ No evidence of settlement Areal extent_____ Depth_____ Remarks_____	
2.	**Material Degradation** ☐ Location shown on site map ☐ No evidence of degradation Material type_____ Areal extent_____ Remarks_____	
3.	**Erosion** ☐ Location shown on site map ☐ No evidence of erosion Areal extent_____ Depth_____ Remarks_____	

4. **Undercutting** ☐ Location shown on site map ☐ No evidence of undercutting
Areal extent_____ Depth_____
Remarks_____

5. **Obstructions** Type_____ ☐ No obstructions
☐ Location shown on site map Areal extent_____
Size_____
Remarks_____

6. **Excessive Vegetative Growth** Type_____
☐ No evidence of excessive growth
☐ Vegetation in channels does not obstruct flow
☐ Location shown on site map Areal extent_____
Remarks_____

D. Cover Penetrations ☐ Applicable ☒ N/A

1. **Gas Vents** ☐ Active ☐ Passive
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance
☐ N/A
Remarks_____

2. **Gas Monitoring Probes**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____

3. **Monitoring Wells** (within surface area of landfill)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____

4. **Leachate Extraction Wells**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks_____

5. **Settlement Monuments** ☐ Located ☐ Routinely surveyed ☐ N/A
Remarks_____

E. Gas Collection and Treatment ☐ Applicable ☒ N/A

1. **Gas Treatment Facilities**
   ☐ Flaring ☐ Thermal destruction ☐ Collection for reuse
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

2. **Gas Collection Wells, Manifolds and Piping**
   ☐ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings)
   ☐ Good condition ☐ Needs Maintenance ☐ N/A
   Remarks_____

F. Cover Drainage Layer ☐ Applicable ☒ N/A

1. **Outlet Pipes Inspected** ☐ Functioning ☐ N/A
   Remarks_____

2. **Outlet Rock Inspected** ☐ Functioning ☐ N/A
   Remarks_____

G. Detention/Sedimentation Ponds ☐ Applicable ☒ N/A

1. **Siltation** Areal extent_____ Depth_____ ☐ N/A
   ☐ Siltation not evident
   Remarks_____

2. **Erosion** Areal extent_____ Depth_____
   ☐ Erosion not evident
   Remarks_____

3. **Outlet Works** ☐ Functioning ☐ N/A
   Remarks_____

4. **Dam** ☐ Functioning ☐ N/A
   Remarks_____

H. Retaining Walls ☐ Applicable ☒ N/A

1. **Deformations** ☐ Location shown on site map ☐ Deformation not evident
   Horizontal displacement_____ Vertical displacement_____
   Rotational displacement_____
   Remarks_____

2. **Degradation** ☐ Location shown on site map ☐ Degradation not evident
   Remarks_____

I. Perimeter Ditches/Off-Site Discharge ☐ Applicable ☒ N/A

1. **Siltation** ☐ Location shown on site map ☐ Siltation not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Vegetative Growth** ☐ Location shown on site map ☐ N/A
   ☐ Vegetation does not impede flow
   Areal extent_____ Type_____
   Remarks_____

3. **Erosion** ☐ Location shown on site map ☐ Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____

4. **Discharge Structure** ☐ Functioning ☐ N/A
   Remarks_____

VIII. VERTICAL BARRIER WALLS ☐ Applicable ☒ N/A

1. **Settlement** ☐ Location shown on site map ☐ Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Performance Monitoring** Type of monitoring_____
   ☐ Performance not monitored
   Frequency_____ ☐ Evidence of breaching
   Head differential_____
   Remarks_____

C. Treatment System ☒ Applicable ☐ N/A

1. **Treatment Train** (Check components that apply)
   ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation
   ☒ Air stripping ☐ Carbon adsorbers
   ☐ Filters_____
   ☐ Additive (*e.g.*, chelation agent, flocculent)_____
   ☒ Others___Soil Vapor
   Extraction_____
   ☒ Good condition ☐ Needs Maintenance
   ☒ Sampling ports properly marked and functional
   ☐ Sampling/maintenance log displayed and up to date
   ☒ Equipment properly identified
   ☐ Quantity of groundwater treated annually_____
   ☐ Quantity of surface water treated annually_____
   Remarks_____

2. **Electrical Enclosures and Panels** (properly rated and functional)
   ☐ N/A ☒ Good condition ☐ Needs Maintenance
   Remarks_____

3. **Tanks, Vaults, Storage Vessels**
   ☒ N/A ☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance
   Remarks_____

4. **Discharge Structure and Appurtenances**
   ☐ N/A ☒ Good condition ☐ Needs Maintenance
   Remarks_____

5. **Treatment Building(s)**
   ☒ N/A ☐ Good condition (esp. roof and doorways) ☐ Needs repair
   ☐ Chemicals and equipment properly stored
   Remarks_____

6. **Monitoring Wells** (pump and treatment remedy)
   ☒ Properly secured/locked ☒ Functioning ☒ Routinely sampled ☒ Good condition
   ☐ All required wells located ☐ Needs Maintenance ☐ N/A
   Remarks_____

D. Monitoring Data

1. Monitoring Data
   ☒ Is routinely submitted on time ☒ Is of acceptable quality

2. Monitoring data suggests:
   ☒ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining

D. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)
   ☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
   ☐ All required wells located ☐ Needs Maintenance ☒ N/A
   Remarks

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

Soil Vapor Extraction: Southfield area: All equipment, sampling ports etc. appeared to be in good conditions and monitoring data is acceptable.

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

The remedy is containment and treatment of contaminated groundwater and soil vapor extraction of the Southfield. All equipment is acceptable, the data in the RD/RA semi annual reports are acceptable and demonsrate that the remedy as designed is functioning and is protective of human health and the environment.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

All operation and maintenance is being performed according to the semi-annual RD/RA Reports

C.	**Early Indicators of Potential Remedy Problems**
	Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future. None

D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. __An opportunity for optimization of the groundwater remedy may occur when the remedial action for the NIC Site is determined.

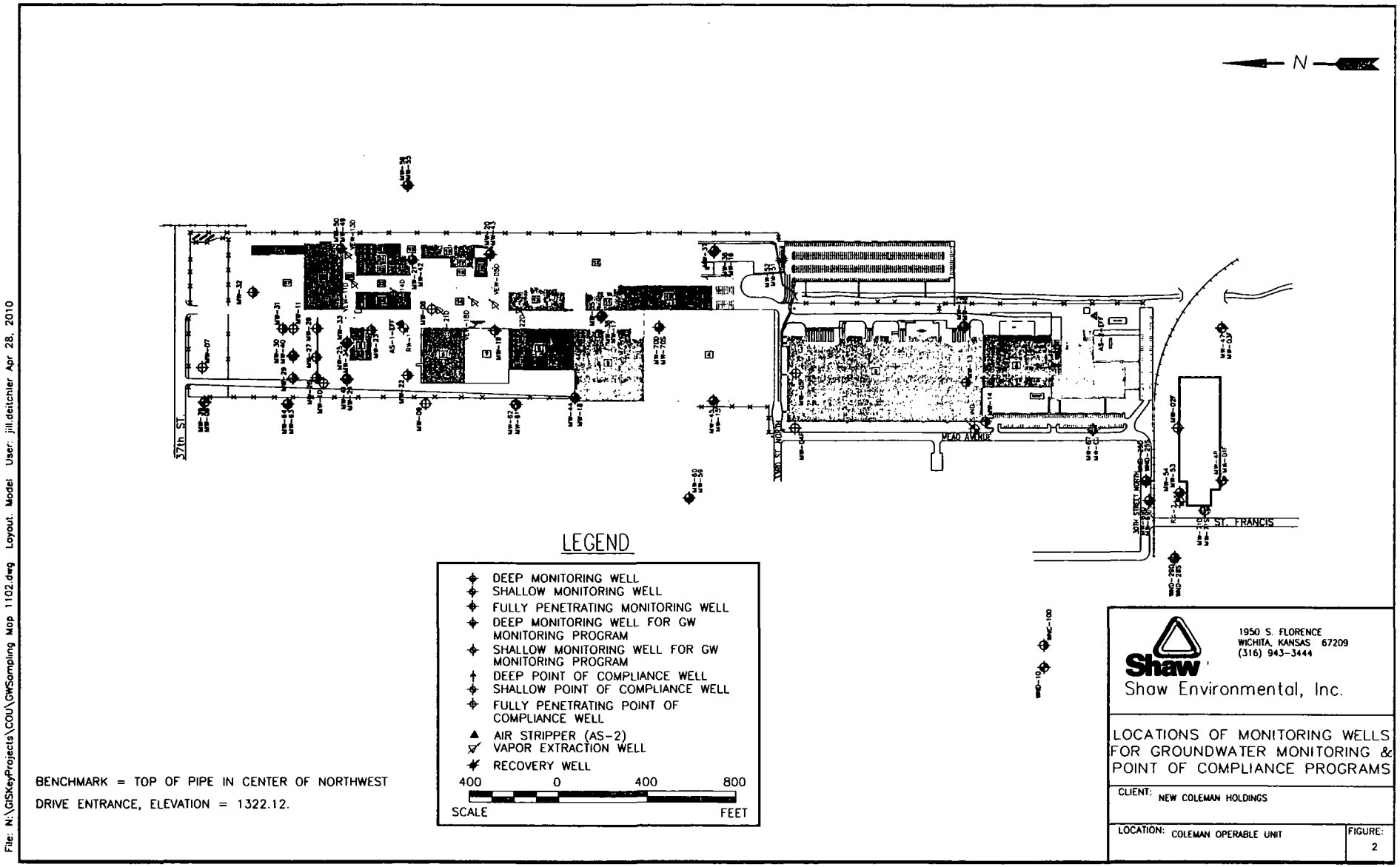
Table 2
Sump Area Flow & VOC Data
Coleman Operable Unit
Wichita, Kansas

SITE	DATE	FLOW	Blower Vacuum	Differential Pressure	FLOW	PID	CONCENTRATIONS								REMOVAL RATE	NUMBER OF DAYS	TOTAL LBS REMOVED PER PERIOD
							1,1,1-TCA	PCE	Toluene	cis-1,2-DCE	1,1-DCE	Vinyl Chloride	TCE	TOTAL VOCs			
		scfs	"H2O	"H2O	scfm	ppmv	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	lbs/day		
SOUTHFIELD	05/17/2000	0.38	75	0.05	22.8	1735	7.1	<2.6	<1.5	490	<1.6	<1	480.0	997.10	2.044	0.83	1.70
SOUTHFIELD	05/18/2000	0.23	75	0.04	13.8	2000+	23	<26	2300	3600	140	910	5100	12073	14.980	1	14.98
SOUTHFIELD	05/23/2000	0.41	75	0.05	24.6	2000+	82	<69	1900	3700	150	730	14000	20582	45.480	5	227.40
SOUTHFIELD	05/30/2000	0.43	75	0.095	25.8	2000+	87	<76	1800	3000	94	520	16000	21501	49.677	7	349.14
SOUTHFIELD	06/05/2000	0.38	75	0.04	21.6	2000+	<75	<63	2300	3000	72	620	13000	18992	36.884	6	221.31
SOUTHFIELD	06/28/2000	0.25	77	0.01	15.0	2000+	52.00	<34	3400	2500	58	430	8500	14940	20.149	23	463.43
SOUTHFIELD	07/19/2000	0.24	86	0.19	14.4	2000+	87.00	<26	<15	1500	72	170	3900	5629	7.268	21	153.05
SOUTHFIELD	09/25/2000	1.99	51	0.80	119.4	151	4.20	<0.69	81	33	1	4	130	253	2.717	68	184.77
SOUTHFIELD	10/23/2000	1.91	53	0.71	114.6	103	5.10	<0.69	75	34	2	5	160	280	2.867	28	80.64
SOUTHFIELD	11/30/2000	0.62	67	0.13	49.2	277	6.80	<1.4	89	41	2	5	360	484	2.142	38	81.41
SOUTHFIELD	12/12/2000	0.60	70	0.10	34.8	45.9	1.20	<0.34	9	6	0	0	81	97	0.305	12	3.66
SOUTHFIELD	01/25/2001	0.00	---	---	0.0	0.00	---	---	---	---	---	---	---	97	0.000	44	0.00
SOUTHFIELD	02/12/2001	0.00	---	---	0.0	0.00	---	---	---	---	---	---	---	97	0.000	18	0.00
SOUTHFIELD	03/20/2001	0.39	71	0.10	21.6	146	17.00	<1.4	160	98	8.20	25.00	310	606	1.177	38	42.36
SOUTHFIELD	04/24/2001	0.41	64.3	0.05	24.6	209	23.00	<1.1	170	53	8.40	9.80	220	482	1.067	35	37.33
SOUTHFIELD	05/17/2001	0.59	64.6	0.05	35.4	0.00	18.00	<1.4	130	38	4.00	4.80	160	375	1.193	23	27.44
SOUTHFIELD	09/25/2001	0.58	---	0.08	34.8	98.8	8.30	0.49	86	22	1.80	2.30	91	190	0.594	39	23.17
SOUTHFIELD	07/24/2001	0.63	---	0.30	37.8	17.8	0.74	<0.17	3.1	3.8	0.14	0.17	32	40	0.136	29	3.94
SOUTHFIELD	08/27/2001	2.02	39	---	121.2	14.0	0.63	<0.14	2.2	5.2	0.17	0.23	25	33	0.364	34	12.39
SOUTHFIELD	09/26/2001	1.85	37	0.48	111	13.2	1.10	0.34	4.1	8.5	0.34	0.37	30	43	0.427	30	12.80
SOUTHFIELD	10/23/2001	2.16	---	0.60	129.6	16.1	0.44	0.27	1.4	1.9	0.11	0.13	13	17.25	0.201	27	5.43
SOUTHFIELD	11/19/2001	2.06	40	0.81	123.6	6.3	0.39	<0.069	0.8	1.8	0.08	0.07	12	14.89	0.165	27	4.47
SOUTHFIELD	12/26/2001	1.94	40	0.75	116.4	13.0	0.49	0.17	2.3	3.0	0.13	0.08	18	24.17	0.253	37	9.36
SOUTHFIELD	01/25/2002	0.00	0	0.00	0.00	---	---	---	---	---	---	---	---	0.00	0.000	30	0.00
SOUTHFIELD	02/25/2002	0.00	0	0.00	0.00	---	---	---	---	---	---	---	---	0.00	0.000	31	0.00
SOUTHFIELD	03/19/2002	1.30	59	0.15	78.18	3.6	0.50	<0.066	0.4	3.0	0.23	0.40	19	23.48	0.186	22	3.63
SOUTHFIELD	04/22/2002	0.73	40	0.25	43.8	0.00	1.00	<0.14	0.8	4.0	0.41	0.30	28	34.53	0.136	34	4.60
SOUTHFIELD	05/13/2002	1.60	60	0.25	96.0	2.20	0.02	0.03	0.1	0.1	<0.0081	<0.0052	3	3.34	0.029	21	0.61
SOUTHFIELD	06/18/2002	0.42	66	0.04	25.2	33.6	12.00	<1.4	19.0	32.0	3.00	1.50	360	427.50	0.969	36	34.87
SOUTHFIELD	07/01/2002	0.84	75	0.66	50.4	10.4	1.80	<0.34	0.7	11.0	0.58	0.23	79	93.26	0.423	13	5.50
SOUTHFIELD	08/05/2002	0.93	70	0.06	55.8	8.0	1.00	<0.14	1.7	5.7	0.29	0.33	33	42.02	0.211	35	7.38
SOUTHFIELD	09/04/2002	1.01	70	0.07	60.6	23.9	1.70	<0.34	1.4	8.2	0.41	0.14	71	82.85	0.451	30	13.54
SOUTHFIELD	10/01/2002	0.88	70	0.10	51.6	21.7	0.82	<0.34	1.5	5.6	0.28	<0.13	40	48.40	0.225	27	6.06
SOUTHFIELD	11/06/2002	0.43	84	0.04	25.8	405	11.00	<1.4	14.0	11.0	1.00	<0.52	260	297.00	0.689	36	24.80
SOUTHFIELD	12/03/2002	0.35	80	0.03	21.0	2.7	0.66	0.02	0.7	1.5	0.31	0.34	2	5.90	0.011	27	0.30
SOUTHFIELD	01/07/2003	OFF	---	---	0.0	---	---	---	---	---	---	---	---	0.00	0.000	35	0.00
SOUTHFIELD	02/03/2003	OFF	---	---	0.0	---	---	---	---	---	---	---	---	0.00	0.000	27	0.00
SOUTHFIELD	03/03/2003	OFF	---	---	0.0	---	---	---	---	---	---	---	---	0.00	0.000	28	0.00
SOUTHFIELD	03/18/2003	OFF	---	---	0.0	---	---	---	---	---	---	---	---	0.00	0.000	15	0.00
SOUTHFIELD	04/09/2003	0.51	84	0.08	30.6	55.5	3.60	0.60	11.0	17.0	2.60	1.20	83	119.00	0.327	21	6.86
SOUTHFIELD	05/14/2003	0.40	81	0.08	24.0	40.5	1.20	0.36	12.0	6.2	0.53	0.28	31	51.54	0.111	36	4.00
SOUTHFIELD	06/09/2003	0.43	80	0.07	25.8	20.00	0.88	0.21	8.0	4.4	0.32	0.23	19	33.04	0.077	28	1.99
SOUTHFIELD	07/09/2003	1.05	74	0.90	63.0	80.9	7.80	1.30	55.0	32.0	2.30	1.60	120	220.00	1.246	30	37.39
SOUTHFIELD	08/12/2003	0.44	80	0.06	26.4	100	8.70	1.70	39.0	30.0	2.00	0.88	140	220.26	0.523	34	17.76
SOUTHFIELD	09/08/2003	0.43	85	0.07	25.8	19.7	0.98	<0.23	<0.13	5.4	0.18	<0.087	53	59.54	0.136	27	3.73
SOUTHFIELD	10/13/2003	0.25	82	0.04	15.0	58.2	4.00	1.40	29.0	24.0	1.50	2.70	140	202.60	0.273	35	9.56
SOUTHFIELD	11/11/2003	0.19	83	0.08	11.4	22	1.80	0.34	9.1	12.0	0.74	1.30	36	63.28	0.065	29	1.88
SOUTHFIELD	12/08/2003	OFF	---	---	0.0	---	---	---	---	---	---	---	---	0.00	0.000	27	0.00
SOUTHFIELD	01/12/2004	OFF	---	---	0.0	---	---	---	---	---	---	---	---	0.00	0.000	35	0.00
SOUTHFIELD	02/09/2004	OFF	---	---	0.0	---	---	---	---	---	---	---	---	0.00	0.000	28	0.00
SOUTHFIELD	03/08/2004	0.51	85	0.08	30.6	25.7	3.80	0.53	7.9	13.0	1.50	1.60	41	69.33	0.191	28	5.34
SOUTHFIELD	04/12/2004	0.39	82	0.08	23.4	9.8	3.90	<0.23	3.8	11.0	1.80	0.82	37	58.32	0.123	35	4.29
SOUTHFIELD	05/10/2004	0.39	---	---	23.4	---	---	---	---	---	---	---	---	58.32	0.123	28	3.44
SOUTHFIELD	07/01/2004	0.40	84	0.04	24.0	17.40	---	---	---	---	---	---	---	58.32	0.126	52	6.54
SOUTHFIELD	10/04/2004	1.01	76	0.21	60.6	23.20	0.21	0.03	0.33	0.89	0.06	0.04	3.80	5.36	0.029	95	2.77
SOUTHFIELD	01/12/2005	OFF	---	---	0.0	---	---	---	---	---	---	---	---	0.00	0.000	100	0.00
SOUTHFIELD	04/11/2005	0.59	82	0.08	35.4	19.60	2.10	0.28	5.8	11.0	0.84	2.10	28.00	48.92	0.166	80	13.86
SOUTHFIELD	07/05/2005	0.47	83	0.08	28.2	7.30	1.50	0.20	1.4	5.8	0.72	0.12	16.00	25.74	0.066	85	5.55
SOUTHFIELD	10/10/2005	0.95	80	0.09	57.0	1.80	0.12	0.02	0.3	0.6	0.04	0.02	1.40	2.62	0.013	97	1.25
SOUTHFIELD	04/04/2006	0.86	66	0.06	51.6	1.90	0.33	0.06	0.1	1.0	0.11	0.04	3.40	5.04	0.023	178	4.12
SOUTHFIELD	07/06/2006	0.67	76	0.06	40.2	9.40	---	---	---	---	---	---	---	5.04	0.018	93	1.69
SOUTHFIELD	08/01/2006	0.19	72	0.01	11.4	6.10	---	---	---	---	---	---	---	5.04	0.005	28	0.13
SOUTHFIELD	09/06/2006	0.43	59	0.03	25.8	41.00	---	---	---	---	---	---	---	5.04	0.012	36	0.42
SOUTHFIELD	10/02/2006	1.44	49	0.26	86.4	2.20	<0.27	<0.34	2.7	1.5	<0.2	<0.13	4.82	8.69	0.068	26	1.76
SOUTHFIELD	11/02/2006	0.82	47	0.44	49.2	1.90	---	---	---	---	---	---	---	8.69	0.038	31	1.19
SOUTHFIELD	12/06/2006	1.82	42	0.36	109.2	0.80	---	---	---	---	---	---	---	8.69	0.085	34	2.90
SOUTHFIELD	03/06/2007	0.36	65	0.90	21.6	5.20	---	---	---	---	---	---	---	8.69	0.017	90	1.52
SOUTHFIELD	04/05/2007	2.12	34	0.00	127.2	5.60	2.36	<0.68	1.1	8.0	0.85	<0.26	25.90	38.25	0.437	30	13.12
SOUTHFIELD	05/01/2007	OFF	---	---	0.0	---	---	---	---	---	---	---	---	0.00	0.000	28	0.00
SOUTHFIELD	06/04/2007	1.15	49	1.12	69.0	11.60	---	---	---	---	---	---	---	38.25	0.237	34	8.07
SOUTHFIELD	07/03/2007	0.32	46	0.08	19.2	5.70	---	---	---	---	---	---	---	38.25	0.066	29	1.91
SOUTHFIELD	08/01/2007	0.42	47	0.05	25.2	6.30	---	---	---	---	---	---	---	38.25	0.087	29	2.51
SOUTHFIELD	09/04/2007	0.45	48	0.00	27.0	6.60	---	---	---	---	---	---	---	38.25	0.093	34	3.16
SOUTHFIELD	10/01/2007	0.78	43	0.10	46.8	3.80	0.31	0.05	0.1	2.0	0.06	0.05	4.59	7.61	0.011	27	0.30
SOUTHFIELD	11/01/2007	0.66	41	0.04	51.6	4.10	---	---	---	---	---	---	---	7.61	0.012	31	0.38
SOUTHFIELD	12/04/2007	1.06	40	0.09	63.6	0.80	0.14	<0.068	0.4	0.9	0.04	0.06	2.27	3.74	0.021	33	0.71
SOUTHFIELD	01/02/2008	OFF	---	---	0.0	---	---	---	---	---	---	---	---	0.00	0.000	29	0.00
SOUTHFIELD	02/04/2008	OFF	---	---	0.0	---	---	---	---	---	---	---	---	0.00	0.000	33	0.00
SOUTHFIELD	03/07/2008	OFF	---	---	0.0	---	---	---	---	---	---	---	---	0.00	0.000	32	0.00
SOUTHFIELD	04/02/2008	0.87	41	0.15	52.2	0.70	0.06	<0.066	<0.038	0.3	<0.040	0.30	1.03	1.72	0.006	28	0.21
SOUTHFIELD	05/06/2008	0.63	43	0.10	37.8	0.00	---	---	---	---	---	---	---	1.72	0.006	34	0.20
SOUTHFIELD	06/09/2008	0.93	48	0.15	55.8	0.30	---	---	---	---	---	---	---	1.72	0.009	34	0.29
SOUTHFIELD	07/01/2008	1.47	47	0.80	88.2	5.60	---	---	---	---	---	---	---	1.72	0.014	22	0.30
SOUTHFIELD	07/07/2008	1.14	37	0.17	68.4	32.70	0.003	<0.0034	0.1	0.1	<0.0020	0.005	0.07	0.24	0.001	6	0.01
SOUTHFIELD	08/04/2008	1.10	46	0.25	66.0	1.80	---	---	---	---	---	---	---	0.24	0.001	28	0.04
SOUTHFIELD	09/04/2008	1.07	49	0.15	64.2	1.10	---	---	---	---	---	---	---	0.24	0.001	31	0.04
SOUTHFIELD	10/02/2008	0.96	50	0.10	57.6	1.00	<0.022	<0.027	0.04	0.1	<0.016	<0.010	0.45	0.64	0.003	28	0.09
SOUTHFIELD	11/03/2008	0.81	60	0.11	48.6	0.70	---	---	---	---	---	---	---	0.64	0.003	32	0.09
SOUTHFIELD	12/01/2008	3.21	52	2.40	192.6	0.80	---	---	---	---	---	---	---	0.64	0.011	28	0.31
SOUTHFIELD	01/05/2009	OFF	---	---	0.0	---	---	---	---	---	---	---	---	0.00	0.000	35	0.00
SOUTHFIELD	02/02/2009	OFF	---	---	0.0	---	---	---	---	---	---	---	---	0.00	0.000	28	0.00
SOUTHFIELD	03/02/2009	0.76	62	0.07	45.6	0.30	<0.055	<0.066	<0.038	0.5	<0.040	0.69	0.64	1.87	0.006	28	0.21
SOUTHFIELD	04/01/2009	3.77	52	0.06	226.2	0.10	---	---	---	---	---	---	---	1.87	0.038	30	1.14
SOUTHFIELD	05/05/2009	0.90	51	0.12	54.0	0.00	---	---	---	---	---	---	---	1.87	0.009	34	0.31
SOUTHFIELD	06/01/2009	0.49	48	0.03	29.4	1.00	---	---	---	---	---	---	---	1.87	0.005	27	0.13
SOUTHFIELD	07/01/2009	1.99	49	0.36	119.4	0.80	0.03	<0.0034	0.04	<0.0020	<0.0020	<0.0013	0.20	0.27	0.003	30	0.09
SOUTHFIELD	08/03/2009	1.53	49	1.80	91.8	1.00	---	---	---	---	---	---	---	0.27	0.002	33	0.07
SOUTHFIELD	09/01/2009	0.41	50	0.08	24.6	0.00	---	---	---	---	---	---	---	0.27	0.001	29	0.02
SOUTHFIELD	10/01/2009	0.40	51	0.04	24.0	0.30	0.12	0.002	0.03	0.02	<0.0032	<0.0032	0.28	0.45	0.001	30	0.03
SOUTHFIELD	11/04/2009	0.37	53	0.01	22.2	3.00	0.09	0.003	0.06	0.004	<0.0032	<0.0032	0.09	0.23	0.000	34	0.02
SOUTHFIELD	12/01/2009	OFF	---	---	0.0	---	---	---	---	---	---	---	---	0.00	0.000	27	0.00
SOUTHFIELD	01/02/2010	OFF	---	---	0.0	---	---	---	---	---	---	---	---	0.00	0.000	32	0.00
SOUTHFIELD	02/01/2010	OFF	---	---	0.0	---	---	---	---	---	---	---	---	0.00	0.000	30	0.00
SOUTHFIELD	03/01/2010	OFF	---	---	0.0	---	---	---	---	---	---	---	---	0.00	0.000	28	0.00
SOUTHFIELD	04/07/2010	0.33	52	0.03	19.8	0.70	0.66	0.12	0.1	13.4	0.60	60.10	8.97	74.33	0.132	37	4.90
SOUTHFIELD	05/03/2010	0.39	51	0.06	23.4	24.70	---	---	---	---	---	---	---	74.33	0.166	28	4.67
SOUTHFIELD	06/01/2010	0.46	50	0.08	27.6	19.10	---	---	---	---	---	---	---	74.33	0.184	29	5.36
														SOUTHFIELD TOTAL LBS REMOVED			2348.74

SOUTHFIELD system was not operated in January & February 2002, January, February, & March 2003, January 2005, January & February 2007, January 2008, January, February & December 2009, January, February & March 2010 due to cold weather; SOUTHFIELD system was not operated in May 2007 due to defective blower

Figure 15

Data not collected during August 2000 due to strike at York facility.
-- = No reading recorded
NA = Not Available
Total sump flow rates estimated from VEW flow rates


N
37th St.
MEAD AVENUE
30th ST. NORTH
30TH STREET NORTH
ST. FRANCIS
LEGEND
DEEP MONITORING WELL
SHALLOW MONITORING WELL
FULLY PENETRATING MONITORING WELL
DEEP MONITORING WELL FOR GW MONITORING PROGRAM
SHALLOW MONITORING WELL FOR GW MONITORING PROGRAM
DEEP POINT OF COMPLIANCE WELL
SHALLOW POINT OF COMPLIANCE WELL
FULLY PENETRATING POINT OF COMPLIANCE WELL
AIR STRIPPER (AS-2)
VAPOR EXTRACTION WELL
RECOVERY WELL
400 0 400 800
SCALE FEET
BENCHMARK = TOP OF PIPE IN CENTER OF NORTHWEST DRIVE ENTRANCE, ELEVATION = 1322.12.
Shaw
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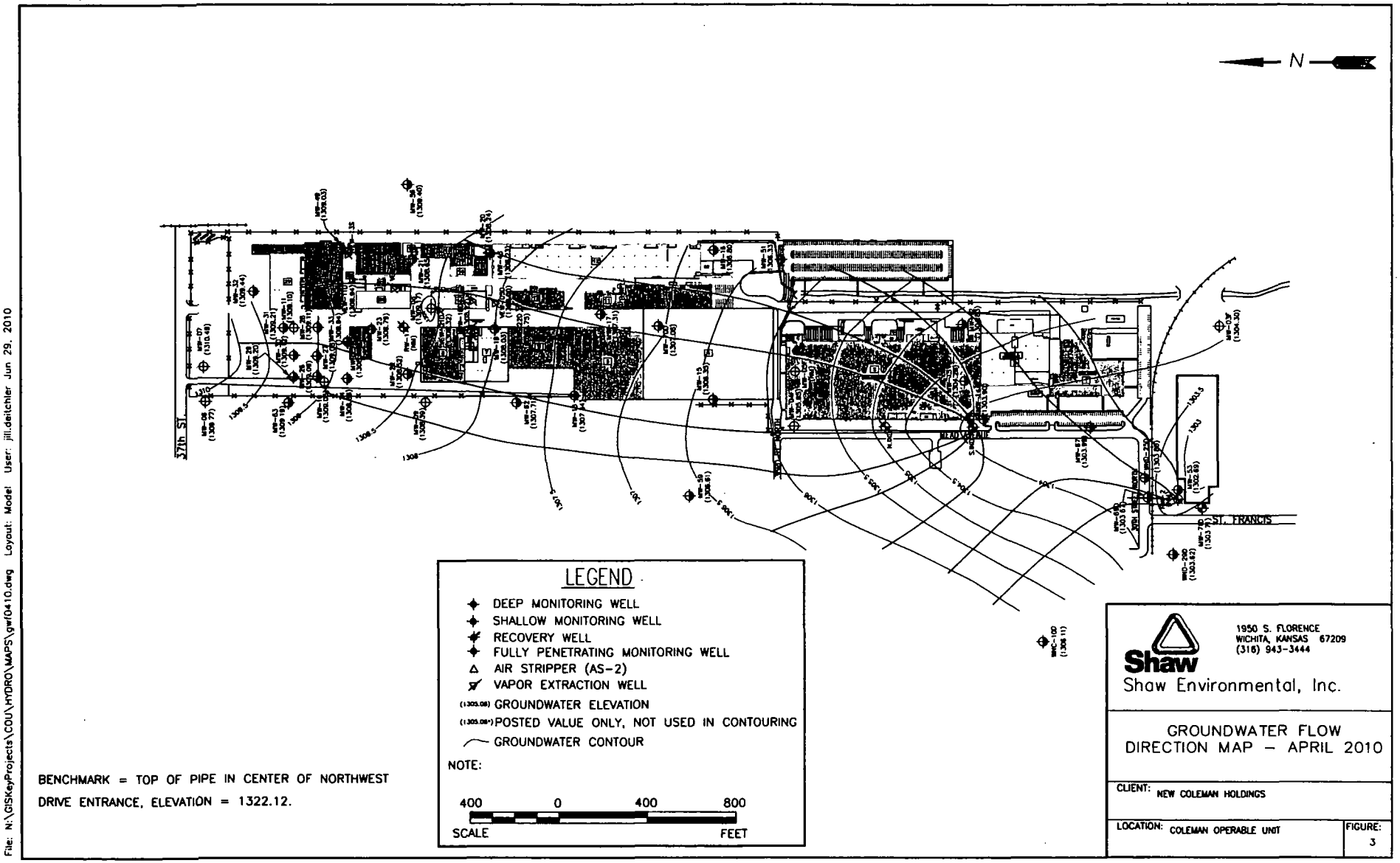
Shaw Environmental, Inc.
LOCATIONS OF MONITORING WELLS FOR GROUNDWATER MONITORING & POINT OF COMPLIANCE PROGRAMS
CLIENT: NEW COLEMAN HOLDINGS
LOCATION: COLEMAN OPERABLE UNIT
FIGURE: 2
File: N:\GISKeyProjects\COU\GWSampling Map 1102.dwg Layout: Model User: jill.deitchler Apr 28, 2010

Figure 16


N
37th St.
ST. FRANCIS
LEGEND
DEEP MONITORING WELL
SHALLOW MONITORING WELL
RECOVERY WELL
FULLY PENETRATING MONITORING WELL
AIR STRIPPER (AS-2)
VAPOR EXTRACTION WELL
(1305.08) GROUNDWATER ELEVATION
(1305.08*) POSTED VALUE ONLY, NOT USED IN CONTOURING
GROUNDWATER CONTOUR
NOTE:
400 0 400 800
SCALE FEET
BENCHMARK = TOP OF PIPE IN CENTER OF NORTHWEST DRIVE ENTRANCE, ELEVATION = 1322.12.
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WICHITA, KANSAS 67209
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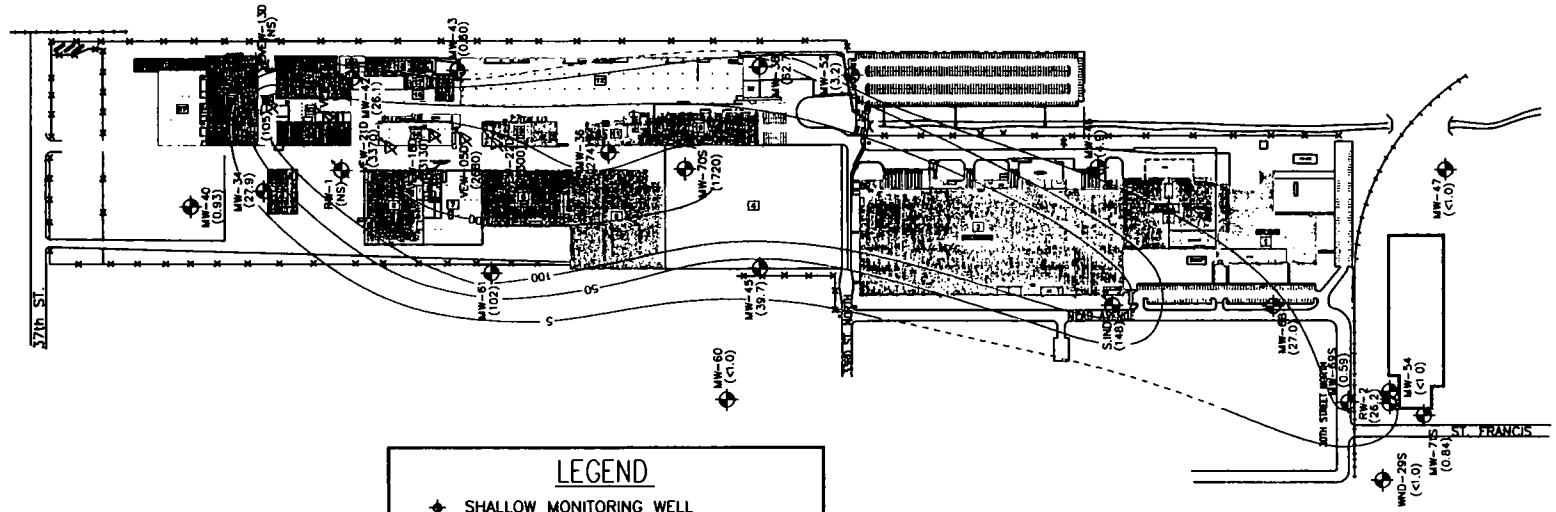
Shaw Environmental, Inc.
GROUNDWATER FLOW DIRECTION MAP – APRIL 2010
CLIENT: NEW COLEMAN HOLDINGS
LOCATION: COLEMAN OPERABLE UNIT
FIGURE: 3
File: N:\GISKeyProjects\COU\HYDRO\MAPS\gwf0410.dwg Layout: Model User: jill.deitchler Jun 29, 2010

Figure 17



LEGEND

- SHALLOW MONITORING WELL
- RECOVERY WELL
- FULLY PENETRATING MONITORING WELL
- VAPOR EXTRACTION WELL

(44) TCE CONCENTRATION (ug/L)
NS = Not Sampled
MAXIMUM CONTAMINANT LEVEL FOR TCE 5 ug/L.

400 0 400 800
SCALE FEET

NOTE: RECOVERY WELLS NOT USED FOR CONTOURING; POSTED ONLY

BENCHMARK = TOP OF PIPE IN CENTER OF NORTHWEST DRIVE ENTRANCE, ELEVATION = 1322.12.

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SHALLOW TCE
ISOCONCENTRATION MAP
DATA COLLECTED APRIL 2010

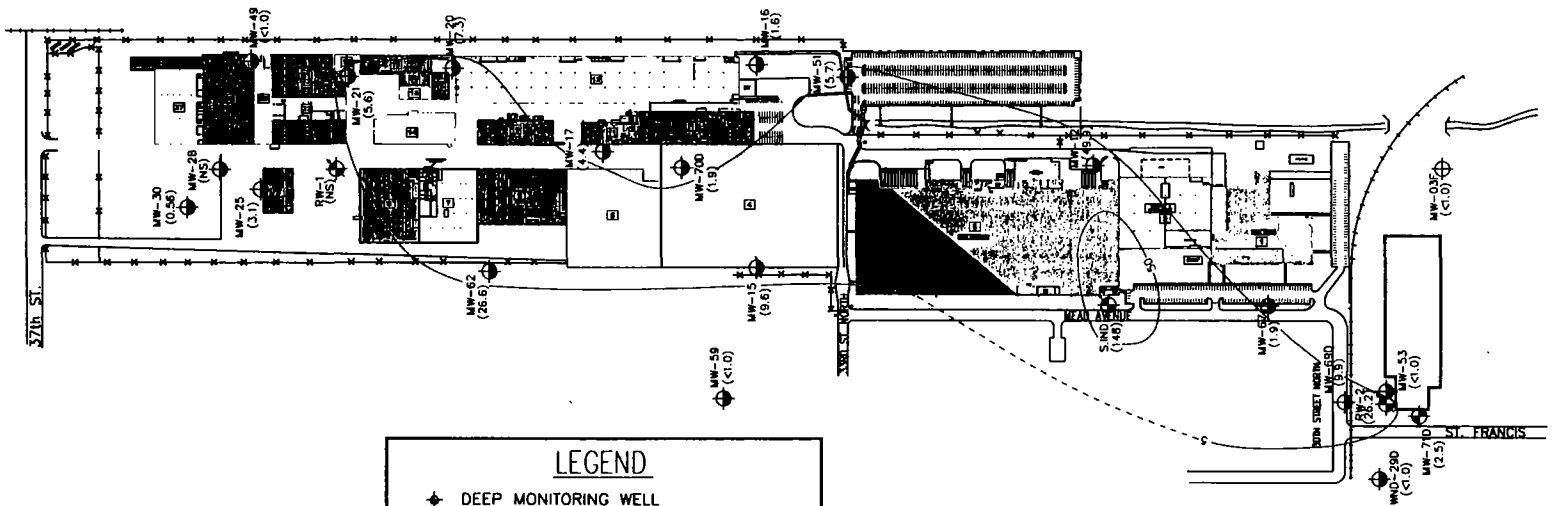
CLIENT: NEW COLEMAN HOLDINGS

LOCATION: COLEMAN OPERABLE UNIT

FIGURE: 5

File: N:\GISKeyProjects\COU\CHEM\MAPS\tces0410.dwg Layout: Model User: jill.deitchler Jun 29, 2010

Figure 18



LEGEND

- DEEP MONITORING WELL
- RECOVERY WELL
- FULLY PENETRATING MONITORING WELL

(170) TCE CONCENTRATION (ug/L)

NS = Not Sampled

MAXIMUM CONTAMINANT LEVEL FOR TCE 5 ug/L.

400 0 400 800

SCALE FEET

NOTE: RECOVERY WELLS NOT USED FOR CONTOURING; POSTED ONLY

BENCHMARK = TOP OF PIPE IN CENTER OF NORTHWEST DRIVE ENTRANCE, ELEVATION = 1322.12.

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DEEP TCE ISOCONCENTRATION MAP

DATA COLLECTED APRIL 2010

CLIENT: NEW COLEMAN HOLDINGS

LOCATION: COLEMAN OPERABLE UNIT

FIGURE: 7

File: N:\GISKeyProjects\COU\CHEM\MAPS\tced0410.dwg Layout: Model User: jill.deitchler Jun 30, 2010

FIGURE 19