

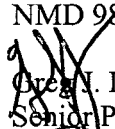



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
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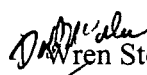
September 26, 2005

MEMORANDUM

SUBJECT: Approval of the Third Five-Year Review at the South Valley Superfund Site for Edmunds Street OU # 3, General Electric Aircraft Engines OU # 2, General Electric Aircraft Engines OU # 5, and General Electric Aircraft Engines OU # 6
NMD 980745558

FROM:  Greg I. Lyssy
Senior Project Manager (6PD-F)

 Sairam Appaji
Remedial Project Manager (6SF-LT)

THRU:  Wren Stenger, Chief
LA/NM Branch (6SF-L)

TO: Samuel Coleman, P.E., Director
Superfund Division (6SF)

This memorandum approves the September 2005 Five-Year Review reports for the South Valley Superfund Site Operable Units (OU) # 2, # 3, # 5, and # 6. The third five-year review for OU #3 was prepared by ARCADIS for Van Waters and Rogers Inc., (VW&R), and is included as Attachment A. The second five-year review for OU # 2, OU # 5, and OU # 6 was prepared by Water Equipment Services, Inc. (WES) for General Electric Aircraft Engines (GEAE), and is included as Attachment B. These five-year reviews were reviewed by both the Environmental Protection Agency (EPA) and the New Mexico Environment Department (NMED). Based on the five-year review reports, the remedial actions are protective of human health and the environment.

This third five-year review for the Site is required by statute. This five-year review was conducted pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Section 121(c), 42 U.S.C. § 9621(c), the National Contingency Plan (NCP) (40 CFR § 300.430 (f)(4)(ii)), Office of Solid Waste and Emergency Response (OSWER) Directive 9355.7-02 (May 23, 1991), OSWER Directive 9355.7-02A (July 26, 1994), OSWER Directive 9355.7-03A (December 21, 1995), OSWER Directive 9355.7-03B-P Comprehensive Five-Year Review Guidance (EPA 540-R-01-007) issued in June 2001, and the OSWER 9355.7-08FS Fact Sheet "Five-Year Review Process in the Superfund Program"(April 2003).

Section 121(c) of CERCLA requires that, *"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 each 5 years after initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented."* Under the NCP, the Federal regulations which implement CERCLA, EPA is required to conduct five-year reviews of a remedial action whenever, under the remedial action, *"hazardous substances, pollutants, or contaminants are remaining at the site above levels that allow unlimited use*



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and unrestricted exposure."

This five-year review has been approved by the Director of the Superfund Division, U.S. EPA Region 6. Although CERCLA Section 121(c) authorizes "the President" to undertake five year reviews, the President's authority was delegated to the Administrator of the EPA by Executive Order 12580 (52 Fed. Reg. 2926, January 29, 1987), and this authority was further delegated to the EPA's Regional Administrators on September 13, 1987, by EPA Delegation No. 14-8-A. Finally, the authority was delegated to the Director of the Superfund Division by EPA Region 6 Delegation No. R6-14-8-A on August 4, 1995.

This review is required because hazardous substances, pollutants, or contaminants remain in the subsurface at concentrations that are above levels that allow for unlimited use and for unrestricted exposure.

Although the results of the review concluded that the overall remedy is protective of human health and the environment, several recommendations have been made pursuant to this five-year review, and are summarized below.

Summary and Recommendations at OU # 3

The remedial action for the site was designed as specified in the Record of Decision (ROD) for the Edmunds Street Groundwater Operable Unit # 3, and consists of pumping and treating groundwater to remediate impacts of the following site-related volatile organic compounds (VOCs): 1,1-dichloroethene (1,1-DCE); 1,1,1-trichloroethane (1,1,1-TCA); trichloroethene (TCE); and tetrachloroethene (PCE). The treated water is returned to the aquifer through an infiltration system. The objective of the remedial action was to reduce the concentrations of the site-related VOCs in the groundwater to concentrations that meet the ARARs as established in the ROD.

Construction of the remedial system was completed in January 1990. The long term remedial system operation, maintenance, and monitoring program has been conducted at the site since January 1991. During operation of the remedial system from June 1990 through April 2005, more than 797 million gallons of groundwater have been recovered, treated, and returned to the subsurface at an average flow rate of approximately 100 gallons per minute. In November 1998, a Vapor Extraction System (VES) was constructed at the site to improve effectiveness of the existing remedial system and more quickly reduce dissolved constituent concentrations to the maximum degree practicable. The VES was not included in the ROD, but was added to optimize the remedial actions.

In addition to operation of the groundwater remedial system, the remedial action for the site includes a groundwater monitoring program, which was designed to monitor the effectiveness of the remedial action. The analysis of the data shows that the remedial system has contained the area of groundwater impacted by the site-related VOCs.

The remedial system has successfully treated groundwater and reduced the concentration of site-related VOCs to below the ARARS. An evaluation of the analytical results for samples collected from the treatment unit influent shows that the total concentration of site-related VOCs reached a maximum of 925 micrograms per liter ($\mu\text{g/l}$) in October 1990 and have steadily declined to 2.5 $\mu\text{g/l}$ in October 1999, an overall decrease of over 99 percent. Based on the annual average air emission rates calculated for the remedial system, approximately 752 pounds of the site related VOCs have been removed from

the groundwater through April 2005. The results of the air emission calculations and the air dispersion modeling show that the air discharges from the remedial system were well below the air discharge criteria from June 1990 through April 2005. Over 1,000 pounds of VOC's have been removed from the subsurface via the VES.

Community members requested that the EPA split samples with VW&R to ensure the effectiveness of the treatment plant. EPA and NMED split samples on August 22, 2005, and will continue to do so periodically.

In order to ensure that the remedial actions are as effective as possible, the following three recommendations are made for OU # 3:

- The constituent 1,4-dioxane should be added to the list of Site COC's. 1,4-dioxane was used as a stabilizer for various solvents that were historically handled by VW&R.
- A monitoring well (GM-28) was installed in August 2005 adjacent to the old impoundment. This monitoring well should be sampled quarterly for site COCs to determine if there are any Site-related impacts to the deeper aquifer.
- In the 1988 ROD for OU #03, the ARAR established for PCE was 20 µg/l. The current Maximum Contaminant Level (MCL) in the National Primary Drinking Water Regulation for PCE is 5 µg/l. Thus the current MCL for PCE (5 µg/l) is more stringent than the ARAR set for PCE in the ROD for this site. EPA recommends updating the ARAR for PCE to the more stringent and current MCL, which will not require a change in the current remedial actions.

The results of the review indicate that the remedy for OU # 3 has been, and is expected to continue to be, protective of human health and the environment. The remedial actions have been functioning as designed, and have been operated and maintained in an appropriate manner. On-going optimization of the remedial system shall be continued.

Summary and Recommendations at OU # 2

The remedial action for the site was designed as specified in the ROD for the GEAE Operable Unit # 2, and consisted of addressing water supply issues, and required the appropriate plugging and abandonment of municipal wells SJ-3 and SJ-6. In addition, several private wells also had to be properly plugged and abandoned. Both municipal wells SJ-3 and SJ-6 were abandoned in October 1994. The private wells associated with OU # 2 were abandoned prior to 1994.

The requirements of the GEAE OU # 2 ROD also included performing groundwater monitoring for 30 years, which is being conducted. The groundwater monitoring program was designed to monitor the effectiveness of the remedial action. The analysis of the data shows that the plugging and abandonment program was effective.

The results of the five-year review indicate that the remedy for OU # 2 has been, and is expected to continue to be, protective of human health and the environment.

Summary and Recommendations at OU # 5

The remedial action for the site was designed as specified in the ROD for the GEAE Operable Unit # 5, and consisted of addressing the unsaturated and saturated portion of the shallow zone aquifer. The shallow groundwater remedial action consisted of pumping and treating groundwater to remediate impacts of the following Site related VOCs: TCE, PCE, 1,1-DCE, 1,1-dichloroethane (1,1-DCA), 1,2-dichloroethane (1,2-DCA), and Vinyl Chloride. The shallow zone aquifer is primarily a perched groundwater aquifer that consists of layers of coarse-grained sands, silty sands, clays, and silty clays. The formation generally extends to a depth of approximately 20 to 25 feet below ground surface and is underlain by a relatively continuous silty clay layer.

The following remedial activities have occurred at GEAE OU # 5 in order to meet the requirements of the ROD:

- The shallow zone groundwater remediation system consists of eight extraction wells, thirty monitoring wells, and one injection well.
- Vapor phase VOCs in the unsaturated portion of the Shallow Zone Aquifer have been remediated to regulatory cleanup levels and pose no threat to human health or the environment.
- The shallow zone groundwater remediation system has mitigated the migration of VOCs in the saturated portion of the shallow zone aquifer and the size of the contaminant plume is decreasing.
- Flushing of the VOCs appears to be the primary mechanism by which VOC impacts to the shallow zone aquifer are being remediated. Flushing via the groundwater extraction/injection system continues to reduce the concentration of VOCs in the saturated portion of the shallow zone aquifer. The concentrations of the contaminants in the groundwater monitoring wells are decreasing.

The shallow zone aquifer contains perched groundwater that is recharged by precipitation and other naturally occurring events and/or from possible anthropogenic sources. As a result, complete dewatering of the shallow aquifer appears to be unlikely. As stated before, monitoring data indicate that flushing is the primary mechanism by which the VOCs are being reduced to levels below their respective ARARs.

From system startup through July 2005, approximately 900,000 gallons of groundwater have been extracted and treated from the shallow zone aquifer. The aerial extent of the groundwater with VOC concentrations above ARARs is being reduced due to the continued groundwater extraction.

In order to ensure that the remedial actions are as effective as possible, the following two recommendations are made for OU # 5:

- The remedial activities in the southern portion of OU# 5 should focus on enhancing and optimizing the contaminant recovery and the groundwater remediation system in this area.

- The constituent 1,4-dioxane should be added to the list of Site COC's. 1,4-dioxane was used as a stabilizer for various solvents that were historically used by GEAE.

The EPA and NMED will periodically split influent and effluent samples with GEAE at the treatment plant to ensure that the system is functioning as designed.

The results of the five-year review indicate that the remedy for OU #5 has been, and is expected to continue to be, protective of human health and the environment. The remedial actions have been functioning as designed, and have been operated and maintained in an appropriate manner. On-going optimization of the remedial system shall be continued.

Summary and Recommendations at OU # 6

The remedial action for the site was designed as specified in the ROD for GEAE Operable Unit # 6, and consisted of pumping, treating, and reinjecting groundwater to remediate impacts of the following Site related VOCs: TCE, PCE, 1,1-DCE, 1,1-DCA, and vinyl chloride.

OU # 6 currently consists of four high volume extraction wells that remove groundwater with concentrations of VOCs in excess of ARARs, a treatment system that removes the VOCs from the extracted water by air stripping followed by redundant treatment using liquid-phase granulated activated carbon. After treatment, the water is returned to the aquifer via 12 injection wells at approximately the same elevation where it was extracted. Monitoring wells are located within and proximate to the extraction and injection area to provide a means to monitor the progress of the remediation.

Construction of the original remedial system was completed in April 1996. During operation of the remedial system from April 1996 through July 2005, over 3.7 billion gallons of groundwater were extracted, treated, and returned to the subsurface at an average flow rate of over 900 gallons per minute. Since the system was started, approximately 1,400 pounds of VOC mass have been removed.

In addition to the operation of the groundwater remedial system, the remedial action for the site includes a groundwater monitoring program, which was designed to monitor the effectiveness of the remedial action. The analysis of the data shows that the remedial system has contained the area of groundwater impacted by the site-related VOCs and is decreasing the size of the contaminant plume.

The deep groundwater remediation system has been effective in capturing the groundwater contaminant plume associated with OU # 6". A complete lateral capture zone has been established and maintained. The capture zone is bounded by the monitoring wells located up-gradient (west) and down-gradient (east) of the contaminant plume and by monitoring wells located north and south of the plume. A complete vertical capture zone has been maintained from an elevation of 4,840 feet above mean sea level (msl) to an elevation of about 4,570 feet above msl.

The deep zone remediation system has been effective in the following ways:

- The VOC plume has been captured by the deep zone remediation system. Flushing continues to reduce the concentrations of VOCs within the deep zone plume, as is evidenced by the decreasing constituent concentrations.
- There are no VOCs above ARARs in the down gradient sentry wells that include P83-

30D-2, and the cluster P83-19U, -19M, -19LR, and -19D-2. As a result, the deep zone plume has been captured and the spread of the contaminant constituent plume has been mitigated.

- The treatment system has been effective in removing all VOC constituents to concentrations below the ARARs, and water injected back into the Deep Zone Aquifer is in compliance with the applicable discharge requirements. At the compliance sampling point prior to injection, the VOC concentrations continue to be below detection limits.

Community members requested that the EPA split samples with GEAE to ensure the effectiveness of the treatment plant. EPA and NMED split samples on August 22, 2005, and will continue to do so periodically.

The deep zone groundwater remediation system is operating as designed, has maintained capture of impacted groundwater in the deep zone plume, and has reduced concentrations of VOCs within the area influenced by the remediation system. VOCs above ARARs have not been detected in any monitoring or water supply wells down-gradient of the remediation system.

The results of the review indicate that the remedy for OU # 6 has been, and is expected to continue to be, protective of human health and the environment. The remedial actions have been functioning as designed, and have been operated and maintained in an appropriate manner. It is recommended that GEAE continue to pursue the use of innovative technologies which may enhance future system performance of the remedial activities.

Institutional Controls

In October 1991, the EPA issued a Unilateral Administrative Order (UAO) to Chevron USA, Inc, Phillips Pipe Line Company, Texaco Pipeline Inc., and West Emerald Pipeline Corporation. The UAO required the parties to take any and all necessary action to prevent interference of petroleum and petroleum related products from interfering with the remedial activities at Edmunds Street remediation. The UAO continues to be implemented.

Both GEAE and VW&R have the appropriate access agreements with landowners for the groundwater monitoring wells, extraction wells, and injection wells utilized for remedial actions. During EPA's and NMED's inspections of the Site, all observed wells were locked and secured.

A press release was issued in December 1988, from the New Mexico State Engineer's office, restricting access within the shallow groundwater aquifer in the San Jose area near the Site. The State Engineer requires specific well construction and completion procedures to protect the public from appropriation of contaminated water and prevent further groundwater degradation. NMED contacted the State Engineer's office in September 2005 to discuss the implementation of the requirements of the 1988 press release. Additional coordination and communication between the State Engineer's office, NMED, and EPA is required to ensure that wells are installed in a manner that will not compromise groundwater in the vicinity of the Site and to ensure the protection of public health.

It should be noted that the groundwater remedial systems at the South Valley Superfund Site have been very effective in recovering and treating approximately 4.5 billion gallons of water since the

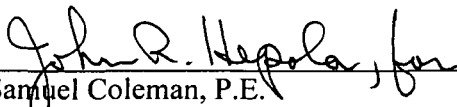
remedial systems went on-line. Almost the entire amount of this large volume of water has been returned to the aquifer from which it was extracted, allowing the groundwater to be returned back to its beneficial use.

ARARs Analysis

The Safe Drinking Water Act and the New Mexico Water Quality Control Commission regulations were reviewed to determine if any changes are applicable to the Site. No changes in ARARs were identified since the last five-year was conducted for the Site in September 2000.

Determinations

I have determined that the remedies for the South Valley Superfund Site are expected to be protective of human health and the environment, and will remain so provided the recommendations identified above are addressed.



Samuel Coleman, P.E.
Director
Superfund Division
U.S. Environmental Protection Agency
Region 6

9/28/05

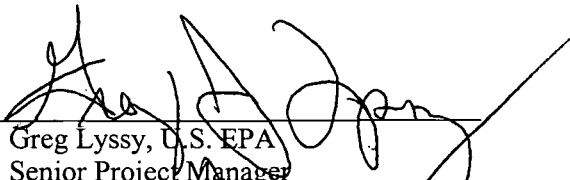
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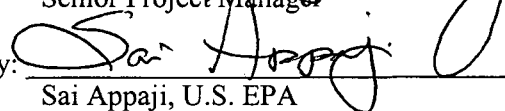
Attachment A - VW&R Five Year Review Report CD

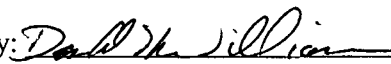
Attachment B - GEAE Five Year Review Report CD


Concurrences
for
the Third Five-Year Review Report
at
the South Valley Superfund Site
Albuquerque, New Mexico

September 2005

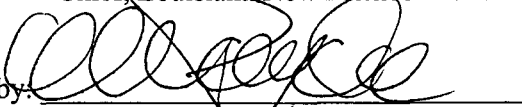
Concurred by: 
Greg Lyssy, U.S. EPA
Senior Project Manager
Date: 9/26/05

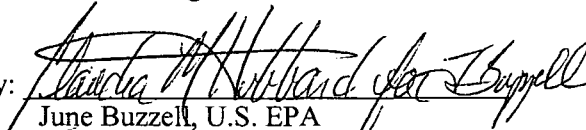
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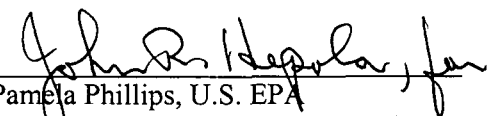
Concurred by: 
Don Williams, U.S. EPA
Team Leader, New Mexico Team
Date: 9/26/05

Concurred by: 
Joseph Compton, U.S. EPA
Office of Regional Counsel
Date: 9/26/05

Concurred by: 
Wren Stenger, U.S. EPA
Chief, Louisiana/New Mexico Branch
Date: 9/26/05

Concurred by: 
Mark A. Peycke, U.S. EPA
Office of Regional Counsel
Date: 09/27/05

Concurred by: 
June Buzzell, U.S. EPA
Writer Editor, Superfund Division
Date: 9/28/05

Concurred by: 
Pamela Phillips, U.S. EPA
Deputy Director, Superfund Division
Date: 9/28/05