FEBRUARY 14, 2008

QUARTERLY MONITORING REPORT
FOURTH QUARTER 2007
GROUNDWATER TREATMENT SYSTEM
HENDERSON, NEVADA

HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

HARGIS + ASSOCIATES, INC.
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February 14, 2008

VIA FEDERAL EXPRESS

Dr. Marysia Skorska & Mr. Brian Rakvica
Nevada Division of Environmental Protection
2030 E. Flamingo Road, Suite 230
Las Vegas, Nevada 89119

Re: Transmittal of Quarterly Monitoring Report, Fourth Quarter 2007;
Henderson Groundwater Treatment System, Henderson, Nevada

Dear Dr. Skorska and Mr. Rakvica:

Enclosed is the document titled:

Quarterly Monitoring Report
Fourth Quarter 2007
Henderson Groundwater Treatment System
Henderson, Nevada

If you have any questions, please contact me at the number listed above.

HARGIS + ASSOCIATES, INC.

Brian R. Waggle, RG, CEM
Senior Hydrogeologist
State of Nevada CEM No. 1903 (Exp 05/27/08)

BRW/erl

Enclosure

cc: Mr. Paul Sundberg, Independent Consultant
Mr. Joseph Kelly, Montrose Chemical Corporation of California
Mr. Curt Richards, Olin Corporation
Mr. Mike Bellotti, Olin Corporation
Mr. Lee Erickson, Stauffer Management Company
Mr. Larry Hall, Stauffer Management Company
Mr. George Crouse, Syngenta Crop Protection, Inc.
Mr. Grant Williams, Geosyntec
Mr. Kelly Richardson, Latham and Watkins
Ms. Susan Crowley, Tronox
Mr. Dennis England, E2 Environmental, Inc.
Mr. Ed Modiano, *de maximis, inc.*
Mr. Nick Pogoncheff, PES Environmental

Other Offices:
San Diego, CA
Tucson, AZ

JURAT

I hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and to the best of my knowledge comply with all applicable federal, state and local statutes, regulations and ordinances.

For the services provided and attested to with this Jurat including the compilation of data and information collected by other firms pertaining to the groundwater treatment system for incorporation into this summary report:

HARGIS + ASSOCIATES, INC.

Brian R. Waggle, RG, CEM
Senior Hydrogeologist
Nevada Certified Environmental Manager
No. EM - 1903 (Expires 05/27/08)

Date Signed: February 14, 2008

HARGIS + ASSOCIATES, INC.

Michael R. Long, RG, CEM
Associate
Nevada Certified Environmental Manager
No. EM - 1891 (Expires 05/27/08)

Date Signed: February 14, 2008

JURAT

I hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and to the best of my knowledge comply with all applicable federal, state and local statutes, regulations and ordinances.

For the services provided and attested to with this Jurat including the collection of influent and effluent samples from the groundwater treatment system and analytical laboratory coordination:

I hereby certify that, with the exceptions noted below, all laboratory analytical data was generated by a laboratory certified by the NDEP for each constituent and media presented herein. Exceptions are as follows:

- Dimethyl disulfide using EPA Method SW8260B for influent and effluent sample analyses. Although the NDEP certified Silver State Analytical, Inc. (SSA) for EPA Method SW8260B, the lab has not been certified for dimethyl disulfide. SSA has initiated the process of obtaining certification of this analyte from NDEP.

- p-Chlorothioanisole using EPA Method 8121 for influent and effluent sample analyses. SSA has initiated the process of obtaining certification of this analyte from the NDEP.

STEWART ENVIRONMENTAL, INC.

Keith R. Stewart

Keith R. Stewart, CEM
President
Nevada Certified Environmental Manager
No. EM - 1111 (Expires 12/01/08)

Date Signed: February 5, 2008

JURAT

I hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and to the best of my knowledge comply with all applicable federal, state and local statutes, regulations and ordinances.

For the services provided and attested to with this Jurat including the collection of groundwater samples from the Consent Order monitor wells and transect wells and analytical laboratory coordination:

I hereby certify that, with the exceptions noted below, all laboratory analytical data was generated by a laboratory certified by the NDEP for each constituent and media presented herein. The exceptions are as follows:

- p-Chlorothioanisole (4-chlorophenyl methyl sulfide) using EPA Method 8270C for Consent Order monitor well groundwater sample analyses. NDEP has certified Test America, Inc. for EPA Method 8270C. However, the laboratory has not been certified for p-chlorothioanisole using this method. The laboratory has submitted the necessary documents and information to NDEP as part of the certification process, but has not received a response from NDEP to date.

- Dimethyl disulfide using EPA Method 8260B for Consent Order monitor well groundwater sample analyses. NDEP has certified Test America, Inc. for EPA Method 8260B. However, the laboratory has not been certified for dimethyl disulfide using this method. The laboratory has submitted the necessary documents and information to NDEP as part of the certification process, but has not received a response from NDEP to date.

- Carbophenothion and phosmet using EPA Method 8141 for Consent Order monitor well groundwater sample analyses. Test America, Inc. is not certified for this analysis. Test America, Inc. subcontracted these analyses to Silver State Labs, who in turn subcontracted the analyses to Anatek Labs, Inc.

de maximis, *inc*.

Edward Modiano
GWTS Program Manager
Nevada Certified Environmental Manager
EM No. 2107; Expires October 18, 2009

Date Signed: February 14, 2008

QUARTERLY MONITORING REPORT

FOURTH QUARTER 2007

HENDERSON GROUNDWATER TREATMENT SYSTEM

HENDERSON, NEVADA

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ACRONYMS AND ABBREVIATIONS

DAQEM	Clark County Department of Air Quality and Environmental Management
EPA	U.S. Environmental Protection Agency
gpm	gallons per minute
GAC	granular activated carbon
GWTS	groundwater treatment system
H+A	Hargis + Associates, Inc.
LGAC	liquid phase granular activated carbon
MCL	maximum contaminant level
Montrose	Montrose Chemical Corporation of California
NDEP	Nevada Division of Environmental Protection
Olin	Olin Corporation
mg/L	Milligrams per liter
PRGs	EPA Region IX Preliminary Remediation Goals for tap water
Silver State	Silver State Analytical Laboratories
Stauffer	Stauffer Chemical Company
SWT	selected wellhead treatment
TAMI	TestAmerica Analytical Corporation
TTHMs	total trihalomethanes
µg/L	micrograms per liter
VOCs	volatile organic compounds
VFD	variable frequency drives

QUARTERLY MONITORING REPORT
FOURTH QUARTER 2007
HENDERSON GROUNDWATER TREATMENT SYSTEM
HENDERSON, NEVADA

1.0 INTRODUCTION

This quarterly monitoring report has been prepared to present a summary of the operation and monitoring of the Henderson Groundwater Treatment System (GWTS), located in Henderson, Nevada (Figure 1) for the fourth quarter 2007. The fourth quarter 2007 is defined as the period from October 1, 2007 through December 31, 2007.

1.1 BACKGROUND

The GWTS is operated under a Consent Order between the State of Nevada, Stauffer Chemical Company (Stauffer), and the Montrose Chemical Corporation of California (Montrose) to remediate contaminated groundwater (State of Nevada, 1983) and has been operational since December 1983. Presently, the GWTS is operated by de maximis, inc. with technical assistance provided by Olin Corporation (Olin) (formerly Pioneer Americas, LLC), Montrose and Stauffer Management Company LLC. These entities are collectively referred to herein as "the Companies".

The purpose of the GWTS is to extract and treat contaminated alluvial aquifer groundwater migrating northward from the former Stauffer and Montrose facilities located within the Olin property at the Black Mountain Industrial Center. This area is located regionally as shown on Figure 1. Contaminated groundwater is extracted from the alluvial aquifer by 13 extraction wells. The flow from selected extraction wells having elevated concentrations of volatile organic compounds (VOCs) is routed through a carbon adsorption unit (referred to as the Selected Wellhead Treatment [SWT] unit) to reduce the VOC load on the downstream air stripper. The pre-treated groundwater is then combined with extracted groundwater from the remainder of the

extraction wells and treated using air-stripping followed by activated carbon adsorption (referred to as the granular activated carbon [GAC] system). The treated groundwater is then returned to the alluvial aquifer downgradient of the extraction wells via three below-grade recharge trenches. The process flow diagrams for the GWTS are illustrated in Figures 2 through 4.

The Consent Order requires quarterly groundwater sampling and analyses for selected VOCs and other organic compounds (State of Nevada, 1983). Groundwater sampling is conducted at two upgradient well locations identified as Consent Order monitor wells H-18A and H-21R; and three downgradient well locations identified as Consent Order monitor wells H-49A, H-56A, and H-58A. Pertinent GWTS features and Consent Order monitor well locations are illustrated on Figure 5. Figure 6 presents a geologic cross section along the extraction well line that illustrates groundwater level elevations monitored in December 2007 with respect to the major hydrogeologic units underlying the wellfield.

1.2 OVERVIEW OF FOURTH QUARTER 2007 OPERATIONS

The GWTS operated throughout the fourth quarter 2007. Extracted groundwater was treated by 1) the SWT system, and 2) by a combination of the GWTS air stripper and the GAC system that treats all extracted groundwater to remove VOCs, pesticides and semi-VOCs. During the quarter, routine and non-routine maintenance was conducted. Non-routine maintenance activities were conducted in mid-November as a result of issues associated with the electrical power supplying the GWTS.

Groundwater levels were monitored in the GWTS extraction wells, monitor wells, and piezometers located in the vicinity of the GWTS to generate contours for capture analysis and reporting pursuant to the Consent Order. In addition to the routine GWTS process monitoring/sampling and Consent Order well sampling, groundwater samples were collected from seven transect monitor wells located downgradient of the GWTS. The purpose of this additional groundwater sampling is to evaluate groundwater quality immediately downgradient of the GWTS rather than farther downgradient at the three downgradient Consent Order wells.

2.0 CONSENT ORDER MONITOR WELL GROUNDWATER SAMPLING

Groundwater samples were collected for the fourth quarter from Consent Order monitor wells H-18A, H-21R, H-49A, H-56A, and H-58A on November 14 and 15, 2007 by Converse Consultants. Groundwater samples were collected from each monitor well using a decontaminated electric submersible pump with the intake placed in the approximate midpoint of each screened interval after purging. A low flow sampling technique is used during collection of the groundwater samples as detailed in the Standard Operating Procedures prepared by Hargis + Associates, Inc. (H+A) (2007).

The groundwater samples were analyzed for the parameters required by the Consent Order:

- VOCs using U.S. Environmental Protection Agency (EPA) Method 8260B;
- p-Chlorothioanisole using EPA Method 8270C;
- Selected organic acids using high performance liquid chromatography (upgradient Consent Order monitor wells H-18A and H-21R only), and
- Consent Order pesticides (phosmet and carbophenothion) using EPA Method 8141A (upgradient Consent Order monitor wells H-18A and H-21R only).

All chemical analyses were conducted by TestAmerica Analytical Testing Corporation (TAMI), and by subcontractor laboratories to TAMI (Alpha Analytical and Anatek Labs, Inc.). Analytical laboratory reports and field sampling forms have been provided (Appendix A).

The results of the chemical analyses are summarized in Table 1. Graphs illustrating concentration trends of benzene, chlorobenzene and chloroform for each Consent Order monitor well are provided in Appendix B. These chemicals have been selected for presentation because they are the prominent VOCs present in the GWTS area. The graphs are structured to illustrate trends in concentrations over the total duration of the monitoring program and for the last five years. A water level hydrograph illustrating water level elevations for each Consent Order monitor well over the total duration of the monitoring program is also included in Appendix B.

The graphs also include Maximum Contaminant Level (MCL) concentration lines for each of the three compounds plotted. For chloroform, the MCL cited is the 80 micrograms per liter (µg/L) established by EPA for total trihalomethanes (TTHMs) in drinking water. Chloroform is one of the components of TTHMs along with bromodichloromethane, dibromochloromethane, and bromoform. Of the TTHMs, only chloroform was present in fourth quarter 2007 groundwater samples.

2.1 UPGRADIENT RESULTS

At monitor well H-18A, p-chlorothioanisole, and Consent Order pesticides were not detected above their respective limits of detection in the groundwater sample collected during the fourth quarter 2007. Two VOCs were detected in the H-18A sample: 1,1-dichloroethane and chloroform (Table 1; Appendix A). The compound 1,1-dichloroethane was also detected in third quarter 2007 samples and chloroform was detected in both the first and second quarter 2007 samples collected from this monitor well. One organic acid was detected in the H-18A sample: diethyl phosphorodithioic acid. This compound was previously detected on only one occasion in samples collected from this well in July 2006.

At monitor well H-21R, p-chlorothioanisole and Consent Order pesticides were not detected while several VOCs and organic acids were detected above their respective limits of detection in the groundwater sample collected during the fourth quarter 2007 (Table 1; Appendix A). Of the detected compounds, several were not detected in samples collected during the previous quarter primarily because the lab achieved significantly lower detection limits for the December samples then it did for the July 2007 samples. All of the detected compounds had been detected in one or more samples collected during the time period 2005 through 2007 at similar concentrations as detected in the December 2007 samples.

Water quality data for the upgradient Consent Order monitor wells during the past five years were reviewed to determine if the November 2007 concentrations of chlorobenzene, benzene, and chloroform exceeded historical detected ranges for these compounds. None of these compounds exceeded historical maximum concentrations (period of record November 2002 to November 2007).

The detected concentrations in the upgradient monitor well groundwater samples were compared to the MCLs to identify any exceedances in fourth quarter 2007 samples. If an MCL was not available for a compound, then the EPA Region IX Preliminary Remediation Goals (PRGs) for tap water were used for the comparison. The MCL and PRG values are displayed on Table 1.

MCLs were exceeded in the groundwater sample collected from upgradient Consent Order monitor well H-21R for the following compounds: 1,2,4-trichlorobenzene, 1,2-dichlorobenzene, 1,2-dichloroethane, 1,4-dichlorobenzene, benzene, chlorobenzene, tetrachloroethene, and trichloroethene. For those compounds that had no MCL established, none exceeded their respective PRG (Table 1).

2.2 DOWNGRADIENT RESULTS

A limited number of VOCs were detected in the groundwater samples collected from the three downgradient Consent Order monitor wells during the fourth quarter 2007 (Table 1; Appendix A). p-Chlorothioanisole was not detected in any of the groundwater samples collected from the downgradient Consent Order monitor wells.

Water quality data for the downgradient Consent Order monitor wells during the past five years were reviewed to determine if the November 2007 concentrations of chlorobenzene, benzene, and chloroform exceeded historical detected ranges for these compounds. None of these compounds exceeded historical maximum concentrations detected in samples collected from downgradient Consent Order monitor wells (period of record November 2002 to November 2007).

The detected concentrations in the downgradient monitor well samples were compared to the MCLs and PRGs to identify any exceedances in fourth quarter 2007 samples. None of the detected compounds exceeded their respective MCL. For those compounds that had no MCLs established, none exceeded their respective PRG (Table 1).

3.0 SYSTEM OPERATION AND MONITORING

This section summarizes GWTS operational and monitoring data, and GWTS area water level and wellfield capture conditions. This section also provides a summary of air and groundwater quality compliance for the fourth quarter 2007.

3.1 OPERATION

All extraction wells were operable during the fourth quarter 2007. However, wells were off-line for short periods of time due to: 1) maintenance of various submersible pump, pipe fittings, pressure gage, flow meter or controller at individual wells; 2) well rehabilitation activities at well G; 3) system shutdowns due to high equalization tank levels or high air stripper sump levels; 4) shutdowns of wells F, G and L as required for SWT system maintenance; 5) system shut down to install two Cla-val control valves and to replace faulty relay on the air stripper blower monitoring probe; 6) system shutdown for electrical repairs during mid-November; and 7) bypass of water to the air stripper over a five day period in late-December in order to comply with the air permit conditions.

For the quarter, the overall total extraction well flowrate averaged 166 gallons per minute (gpm). During the past four quarters, the average overall extraction well flowrate for the quarter has been in the range of 190 to 215 gpm. The extraction well flow rate during the fourth quarter was below this range due to the GWTS downtime in mid-November. The total volume of groundwater processed during the fourth quarter 2007 was 21,991,290 gallons. A graph illustrating the quarterly volume of groundwater processed for the last five years is presented in Figure 7.

All treated effluent was discharged to the eastern, center, and western recharge trenches during the fourth quarter 2007.

3.2 INFLUENT AND EFFLUENT MONITORING

Influent and effluent samples were collected and analyzed during the fourth quarter 2007 pursuant to the Consent Order. The sampling ports used to collect samples from the treatment system are illustrated on Figure 3. All influent and effluent samples were collected by Stewart Environmental, Inc. and were analyzed for:

- Benzene, chlorobenzene, chloroform, dimethyl disulfide, 1,3-dichlorobenzene, 1,4-dichlorobenzene, 1,3-dichlorobenzene, and 1,2,4-trichlorobenzene using EPA Method 8260B, and
- p-Chlorothioanisole using EPA Method 8270C.

All chemical analyses were conducted by Silver State Analytical Laboratories (Silver State). Silver State reported detection limit units of milligrams per liter (mg/L) during fourth quarter 2007 analyses of p-chlorothioanisole, however the numerical value of the detection limit remained the same as the historical value for this compound (0.1). Historically, Silver State reported the detection limit for this compound in units of µg/L. This change in detection limit was discussed in detail with Silver State. Silver State confirmed that the detection limit was raised to 0.1 mg/L during the fourth quarter 2007. However, future p-chlorothioanisole analyses will be reported to a detection limit of 0.01 mg/l.

Influent Monitoring Results

Concentrations of VOCs detected in influent samples were generally consistent throughout the fourth quarter 2007 (Table 2; Figure 8).

Maximum concentrations of benzene, chloroform, and chlorobenzene detected in the influent samples were all less than the maximum concentrations detected in samples collected during the third quarter 2007 as summarized in the table below.

Compound	Maximum Concentration For Third Quarter 2007 (µg/L)	Maximum Concentration For Fourth Quarter 2007 (µg/L)
Benzene	9,540	1,750
Chloroform	4,520	2,060
Chlorobenzene	3,550	2,780

The VOC compounds 1,2-dichlorobenzene, 1,3-dichlorobenzene, 1,4-dichlorobenzene, and 1,2,4-trichlorobenzene were also detected at concentrations less than the third quarter 2007 maximum concentrations. The VOC compound 1,2,4-trichlorobenzene was the only compound detected in influent samples at a higher concentration (79 µg/L) in fourth quarter samples than in third quarter samples (62 µg/L).

Air Stripper Effluent Monitoring and Liquid Phase Granular Activated Carbon (LGAC) Midpoint Monitoring Results

The air stripper effluent samples and LGAC midpoint samples were analyzed for the eight parameters listed above using EPA Method 8260B to evaluate treatment performance. The results of the chemical analyses are summarized in Table 2. These samples were collected for the purpose of evaluating system performance and providing data for air permit reporting.

GWTS Discharge Monitoring Results

Chlorobenzene and chloroform were sporadically detected in the system effluent samples (LGAC Discharge) collected during October and November 2007. In the December 21, 2007 weekly composite sample, chloroform, chlorobenzene, and chloroform were all detected at relatively higher concentrations (Table 2). The concentrations detected in the sample were suspected to be associated with bio-fouling in the air stripper trays. The air stripper was bypassed during the period December 20 through December 24, 2007 in order to remain in compliance with the air permit. After the stripper was reactivated, the December 28 composite sample contained concentrations of only chloroform. None of the detected concentrations in these samples exceeded the weekly or monthly Consent Order discharge limits (Table 2).

3.3 MASS REMOVED

The total mass of VOCs removed during the fourth quarter 2007 was approximately 1,487 pounds (Table 3). This mass represents approximately 675 pounds of VOCs removed by activated carbon, and approximately 812 pounds of VOCs removed by air stripping. A graph illustrating the mass removed for the last five years is presented in Figure 9.

3.4 AIR PERMIT COMPLIANCE

Except for the five-day shutdown described in Section 3.1 above, and during maintenance conducted as described in Section 4.1, the air stripper operated continuously during the fourth quarter 2007, during which approximately 812 pounds of VOCs were treated (Table 3). The combined total for calendar year 2007 was 4,312 pounds of VOCs treated. The January 12, 2006 Clark County Department of Air Quality and Environmental Management (DAQEM) permit allows a maximum of 4,400 pounds of VOCs annually (calendar year).

4.0 SYSTEM STATUS

4.1 MAINTENANCE

Maintenance of the extraction and treatment system during the fourth quarter consisted of routine maintenance, cleaning the air stripper trays to remove bio-fouling, replacement of air stripper components, and minor repairs and equipment replacements at several wells. Non-routine maintenance activities were associated with the electrical power supplying the GWTS and high pressure drops across the LGAC vessels.

Routine Maintenance

Routine maintenance activities were performed during the fourth quarter 2007. Routine maintenance activities included the inspection of pumps, flow meters, valves, pipelines, pressure gages, electrical connections and other miscellaneous components to ensure that the GWTS continued to operate as designed. The stripping trays were cleaned monthly during the fourth quarter 2007.

Carbon Replacement

GAC System

During the fourth quarter 2007, the activated carbon in the GAC system continued to experience high pressure loss across the system, however, a carbon changeout was not required during this period. The Companies continue to evaluate the GAC system to resolve the high pressure losses. On November 16, the system was down for EQ Tank cleaning and clean-out of the line leading from the EQ Tank to the LGAC vessels. Serious electrical problems were encountered when a system restart was attempted and the system would not come back on-line. After extensive troubleshooting by Stewart Environmental, Inc. and the system controller manufacturer, the GWTS was back on line on November 28 after changeout of a variable frequency drive (VFD).

SWT System

Following installation of the permanent SWT system, carbon was removed from the temporary vessels on September 13, 2007 and the new permanent vessels were filled virgin carbon. A carbon changeout was not required during the fourth quarter.

GWTS Modifications

On July 17, piping was installed to allow water from well L to flow directly to the GWTS air-stripper rather than pass through the SWT system as it has in the past. This modification was made when records of the discharge emissions from the air-stripper indicated pre-treatment of the water extracted at well L was no longer necessary to keep the air-stripper within the annual emission limit. On August 29, to improve the performance of the air stripper effluent pumps, 3-inch diameter suction lines were replaced with 4-inch PVC lines and butterfly valves, and the suction check valve was eliminated. These changes were made to increase the GWTS treatment system's flow rate capacity to handle potential future increases groundwater extraction rates due to the installation of additional extraction wells. The GWTS was not modified further during the fourth quarter 2007.

Well Rehabilitation and Repairs

During the fourth quarter 2007, three extraction wells were rehabilitated. On October 19, wells old E, G, and H-21R were rehabilitated by WDC Exploration and Wells. Various extraction well repairs were required during the fourth quarter: the pump motor on well E was replaced; a bad check valve on well B was replaced; and a compression fitting on well A was replaced.

Non Routine Maintenance

During the quarter, non-routine maintenance activities were conducted as a result of the electrical power supplying the GWTS. On November 16, 2007, the GWTS shut down due to harmonics in the grid power supplying the GWTS. Harmonics are not uncommon in electrical power and occur at varying levels on a daily basis. The effects of harmonics are the general decay of equipment over time, such as, pumps and computer programmed equipment. Upon inspection of the GWTS equipment, it was determined that the VFDs associated with the GAC system pumps were corrupted by the effects of harmonics. The VFDs were replaced and the GWTS restarted on November 28, 2007. The Companies continue to evaluate the ongoing

effects of harmonics. Additionally, the Companies are evaluating the potential for alternative power supply as well.

4.2 PERMANENT SWT INSTALLATION

A temporary SWT system, consisting of multi-vessel activated carbon adsorption units, was placed into service on September 1, 2006 to treat extracted groundwater from selected extraction wells showing elevated VOC concentration prior to introduction to the main GWTS treatment train. The pre-treatment of the groundwater allows the air stripper to operate within the yearly emissions limit of 4,400 pounds. Due to continuous elevated GWTS influent concentrations and the successful operation of the temporary SWT, it was determined that a permanent SWT system should be installed. The decommissioning of the temporary SWT and subsequent installation of the permanent SWT system occurred from August 28 to 30, 2007.

The permanent SWT system consists of the following major pieces of equipment: 4 LGAC vessels capable of holding 2,000 pounds of activated carbon each, three 100-micron bag filters in parallel, and an automated Biocide Chemical Injection Pump. This system is depicted in Figure 4.

SWT Maintenance

Following installation of the permanent SWT, minor modifications and repairs were performed to optimize the system. Air buildup in the SWT influent bag filters was being noted during the first two weeks of the permanent SWT operation. Air release valves were added on September 10 to the bag filters to allow for degassing. The SWT system ran without significant problems during the fourth quarter 2007.

4.3 SPECIAL SAMPLING PROGRAMS

A special groundwater sampling program has been conducted by the Companies at a transect of monitoring wells located directly downgradient of the GWTS approximately on a quarterly basis since March 2004. This transect was sampled again during the fourth quarter 2007. The original purpose of this special sampling program was to evaluate the effectiveness of the

GWTS renovations and upgrades by monitoring concentrations of selected VOCs, pesticides, and organic acids in groundwater immediately downgradient of the GWTS. The location of the transect wells are closer to the GWTS recharge trenches than the three downgradient Consent Order monitoring wells and, therefore, will reflect changes in groundwater conditions caused by the renovations and upgrades more quickly than the Consent Order monitor wells, thus, providing a more timely assessment of changes in groundwater quality attributed to the upgrade program. While the upgrade program is now complete, the special sampling of the downgradient transect has been retained by the Companies to assist in the overall evaluation of capture effectiveness.

The special sampling included collection of groundwater samples from seven alluvial aquifer monitor wells and piezometers located immediately downgradient of the GWTS recharge trenches (Figure 5) during the time period from December 20 through 21, 2007. All samples were analyzed for VOCs by Method 8260B, pesticides by Method 8081A, and organic acids by high performance liquid chromatography. Table 4 presents the analytical data for the December 2007 samples along with detection limits and the applicable MCLs and PRGs for the individual analytes.

Hydrographs in Appendix B illustrate the changes in chlorobenzene, benzene, and chloroform concentrations during the time period during which the transect program has been conducted. Copies of the complete analytical reports for the samples are included in Appendix A.

4.4 GROUNDWATER LEVEL MONITORING AND HYDRAULIC CAPTURE

A groundwater elevation contour map was constructed for the period December 11 through 13, 2007, using water level measurements collected from 112 locations, including the alluvial aquifer monitor wells, piezometers, and extraction wells.

Using the same methods as used in previous quarters, the water level data collected during December 2007 were initially contoured using Surfer 7.0 and then adjusted by hand using professional judgment and the current understanding of the groundwater flow in the vicinity of the GWTS. The resulting groundwater elevation contour map is presented in Figure 10. Review of the groundwater elevation contours indicates that overlapping cones of depression

can be demonstrated, as required by the Consent Order, for the all but a small portion of the GWTS near extraction well J. This conclusion is consistent with the evaluation of the GWTS conducted by the Companies during the third quarter of this year.

The Companies submitted a letter-workplan to the Nevada Division of Environmental Protection (NDEP) on January 17, 2008 outlining a path forward to develop multiple lines of evidence for plume capture in the GWTS area (H+A, 2008). NDEP provided a letter of concurrence on January 24, 2008 (NDEP, 2008). The Companies are presently developing a schedule of implementation to be provided to NDEP during the first quarter 2008.

4.5 RENOVATION AND UPGRADE PROGRAM STATUS

No renovation or upgrade work was conducted during the fourth quarter 2007.

5.0 REFERENCES CITED

Hargis + Associates, Inc. (H+A), 2007. *Field Sampling and Standard Operating Procedures, Site-Wide Soil and Groundwater Investigations*, Former Montrose and Stauffer Sites, Henderson, Nevada. May 11, 2007.

_____, 2008. *Proposed Path Forward to Develop Multiple Lines of Evidence for Plume Capture, Henderson Groundwater Treatment System,* Henderson, Nevada. January 17, 2008.

Nevada Division of Environmental Protection (NDEP), 2008. *NDEP Response to: Proposed Path Forward to Develop Multiple Lines of Evidence for Plume Capture,* Henderson Groundwater Treatment System, Henderson, Nevada. January 23, 2008.

State of Nevada, 1983. *Consent Order by and between the State of Nevada, Department of Conservation and Natural Resources, Division of Environmental Protection; and Stauffer Chemical Company and Montrose Chemical Corporation of California*. April 4, 1983.