Technical Memorandum

FINAL

To: Mr. Michael Kubatz

Date: 3 May 2011

Subject: Final Remedial Action Operation Technical Memorandum
Nevada Air National Guard
Environmental Restoration Program Site 7
Permit Number A-10-0013
1776 National Guard Way, Reno, Nevada

This *Final Remedial Action Operation Technical Memorandum* summarizes the operation and maintenance of the air sparge/soil vapor extraction (AS/SVE) system that was in operation at Environmental Restoration Program (ERP) Site 7 of the Nevada Air National Guard (ANG) in Reno, Nevada, between 12 July and 20 September 2010. Additionally, this memorandum presents the results of AS and SVE radius of influence (ROI) studies conducted during system operation and provides an evaluation of system performance based on mass removal and contaminant capture.

This memorandum was prepared under Task 4B of Delivery Order 0130, Contract DAHA92-01-D-0005.

SITE DESCRIPTION

The Reno ANGB consists of approximately 60 acres of land in the southern portion of the northwestern quadrant of the Reno-Tahoe International Airport complex. The complex is approximately 5 miles southeast of downtown Reno, Nevada (Figure 1).

ERP Site 7 is the former Petroleum, Oil, and Lubricants Storage Area at the Reno ANGB (Figure 2). Four 25,000-gallon underground storage tanks containing jet propulsion fuel No. 4 (JP-4) previously existed in this area.

Numerous small JP-4 spills occurred around the refueling area of Building 42. Most of the spills occurred between 1973 and 1985, when the fuel trucks were top-loading vehicles. On several occasions, JP-4 spills of up to 1,000 gallons occurred in this area. A fuel spill of up to 300 gallons occurred in June 1986 when a bottom-loading shutoff valve on a refueling unit failed to operate properly. Other smaller spills of up to 100 gallons occurred during defueling of fuel trucks. Prior to the early 1980s, most of these spills were flushed into the soil/graveled areas surrounding the refueling stand.

PREVIOUS REMEDIAL ACTIVITIES

Previous remediation activities included product skimming, groundwater extraction and treatment, soil excavation, and the addition of oxygen releasing compounds into the bottom of select excavations.

Product skimming was initiated in 1995 and a groundwater treatment system was installed and operated in several configurations between 1998 and 2003. The system significantly reduced the thickness of measurable floating petroleum hydrocarbons in site wells, and by 2003, product recovery mass had declined to near zero and groundwater concentrations were observed to be relatively stable.

During the period of operation, multiple phases of investigation were performed to delineate the extent and potential sources for groundwater impacts. The total petroleum hydrocarbons (TPH) were determined to be a blend of JP-4 and JP-8 aviation fuels; however, the volatile fraction of the TPH is much more characteristic of JP-4. The thickest product accumulations were observed near the current and historical underground storage tank (UST) locations.

The groundwater extraction and treatment system was shut down in 2003 to facilitate the removal of the USTs in September and October of that year. To accommodate removal of the USTs, groundwater near the USTs was drawn down to approximately 12 feet below ground surface (bgs) by the extraction of approximately 110 gallons per minute from two groundwater extraction wells.

Following the decommissioning of the USTs, a remedial process optimization (RPO) study was conducted to evaluate the effectiveness of the current remedial approach conducted at ERP Site 7. The RPO study recommended that future remediation consist of the removal of impacted soil in the source area and residual groundwater treatment using chemical oxidation or enhanced bioremediation.

The remedial actions recommended in the RPO were implemented in 2005. The remedial action included excavation and disposal of approximately 6,000 cubic yards of jet-fuel-impacted soil from two areas to approximately 9 feet bgs, approximately 1 foot below the lowest average groundwater elevation. Additionally, over 300,000 gallons of water that entered the excavation was treated and disposed of under an existing National Pollutant Discharge Elimination System permit. Backfilling and compaction was completed immediately after excavation confirmation sampling. Site restoration was completed in spring 2006.

The results of the soil excavation confirmation sampling showed that soils at the excavation limits contain hydrocarbons and volatile organic compounds (VOCs) above

their cleanup goals. Visual inspection and screening of the soils with a photoionization detector (PID) suggest that the bulk of the residual contamination is located within 1 to 2 feet of the water table and is representative of smear zone and capillary fringe impacts from the former plume of floating free-phase product and the existing dissolved-phase plume. Additional funding was not available at the time of this work to complete additional excavation to reach remedial goals. Also, excavation would not have been technically feasible or practical in some directions because of the location of the flight apron, vicinity of building foundations, and proximity to previously excavated areas.

To address residual dissolved-phase impacts, 1,425 pounds of oxygen-releasing compound (ORC) was placed within the excavation backfill in 2005 and an additional 5,400 pounds of ORC slurry was injected at 180 locations in spring 2006. Additionally, an impermeable layer was installed in 2005 along the southern portion of ERP Site 7 to preclude migration of dissolved-phase impacts along the storm water utility line.

Following the injection of ORC material, four quarterly groundwater monitoring events were conducted between August 2006 and May 2007. Biological indicators (dissolved oxygen [DO] and oxygen-reduction potential [ORP]) and decreases in concentrations of hydrocarbons after excavation and ORC injection activities in 2005 and 2006 indicated that the remediation was initially successful. By the final groundwater monitoring event in May 2007, benzene was the only constituent of concern that was still detected in groundwater monitoring wells at concentrations greater than the action levels.

The remedial action objectives investigation and decommissioning of the groundwater extraction and treatment system was completed in the fall of 2008. Visual and field screening of soils with a PID during the installation of temporary wells indicated that hydrocarbon-impacted soil left in place in 2005 is likely contributing TPH to groundwater.

Based on prior remedial actions at the site and input from the Nevada Division of Environmental Protection (NDEP) on 17 June 2009, AS/SVE was selected as the preferred technology for an interim remedial action at ERP Site 7 to achieve cleanup levels for benzene in groundwater. An AS/SVE system was installed in June 2010 in accordance with the design criteria provided in the *Final Remedial Design and Implementation Plan* (Final RDIP, April 2010) and the system began operation on 12 July 2010. The system consisted of seven AS wells, four SVE wells, seven vapor monitoring points, AS compressor, SVE blower, a knockout drum and pump, and two 2,000-pound granular activated carbon (GAC) vessels. The location of the AS and SVE wells and vapor monitoring points are shown in Figures 3 and 4. The system was shutdown on 20 September 2010 and all AS/SVE wells and select monitoring wells were abandoned to facilitate construction of a new firehouse on the site.

SUMMARY OF REMEDIATION SYSTEM OPERATION AND MAINTENANCE

System operation and maintenance (O&M) activities performed between 9 July and 20 September 2010 included the following:

- Briefly activated SVE system on 9 July 2010 for calibration and equipment check;
- Activated and sampled SVE system on 12 July 2010;
- Continued system shakedown and conducted weekly site visits on 19, 29, and 30 July 2010 and on 5, 11, 17, and 18 August 2010;
- Accompanied NDEP during inspection of AS/SVE system on 29 July 2010;
- Performed SVE ROI study on 11 August 2010;
- Activated AS system on 17 August 2010;
- Sampled SVE system on 18 August 2010;
- Conducted AS ROI study on 26 August 2010;
- Sampled and deactivated AS/SVE system on 20 September 2010; and
- Prepared carbon usage estimate.

Details concerning the activities listed above are provided below. Copies of the field notes and logsheets are provided in Appendix A.

- The SVE system was turned on for a short period on 9 July 2010 to perform initial system calibrations, determine if all gauges and equipment were working correctly, and to check for leaks in the lines and fittings. Additionally, total volatile organic compound (TVOC) concentrations in the system influent vapor stream were measured using a PID. PID measurements of TVOC concentrations in the influent and effluent vapor streams are provided on Table 1.
- The SVE system was activated on 12 July 2010 and measurements for TVOCs using a PID and methane (CH_4), carbon dioxide (CO_2), and oxygen (O_2) using a field instrument were taken from seven (VM-01 through VM-07) vapor monitoring points and four (SV-01 through SV-04) SVE wells (Table 2). Additionally, a sample was collected from the influent vapor stream and submitted to Air Toxics, Ltd. (Air Toxics) of Folsom, California, for VOCs by United States Environmental Protection Agency (USEPA) Method TO-15. The analytical results for the influent vapor stream sample are summarized on Table 3.
- A site visit was conducted on 19 July 2010 to inspect the system after the initial week of operation. Measurements for TVOCs using a PID and for CH_4, CO_2, and O_2 using field instruments were collected from seven (VM-01 through VM-07) vapor monitoring points and four (SV-01 through SV-04) SVE wells (Table 2).

Additionally, TVOC concentrations in the system influent vapor stream were measured using a PID (Table 1).

- A site visit was conducted on 29 July 2010 to inspect the system and accompany Mr. Ramon Naranjo of the NDEP during an inspection of the SVE system. With the exception of water in the SVE extraction pipes, NDEP noted no significant areas of concern during the inspection. Water was observed in the extraction pipes at three (SV-01, SV-03, and SV-04) of the four SVE wells with the system vacuum set at 9 inches of mercury (in. Hg). To reduce water accumulation, the system SVE vacuum was reduced to 6 in. Hg. However, water could not be efficiently drained from the piping without the presence of cleanouts. Measurements for TVOCs using a PID and for CH_4, CO_2, and O_2 using field instruments were collected from seven (VM-01 through VM-07) vapor monitoring points and four (SV-01 through SV-04) SVE wells (Table 2). Additionally, TVOC concentrations in the system influent vapor stream were measured using a PID (Table 1). Readings were taken from the gauges on the various system components and the system was determined to be running within design parameters.
- Cleanouts were installed on the SVE influent piping on 30 July 2010 to facilitate drainage of the lines. A total of 20 gallons of water were removed from the SVE lines and placed in a 55-gallon drum. The drum was placed inside the system building and properly labeled. Readings were taken from the gauges on the various system components and the system was determined to be running within design parameters.
- System inspection and maintenance was performed on 5 August 2010. The SVE system was operating at a vacuum of 6 in. Hg and water was observed in the pipelines for SVE wells SV-01 SV-03, and SV-04. The SVE system was temporarily shut down, the lines were drained, the vacuum was reduced to 4 in. Hg, and the SVE system was turned back on. A total of 15 gallons of water were removed from SVE lines and was added to the water in the 55-gallon drum from the previous drain cleanout. Measurements for TVOCs using a PID and for CH_4, CO_2, and O_2 using field instruments were collected from seven (VM-01 through VM-07) vapor monitoring points and four (SV-01 through SV-04) SVE wells (Table 2). Additionally, TVOC concentrations in the influent vapor stream were measured using a PID (Table 1). TVOC concentrations in the influent vapor stream did not significantly decrease relative to those noted during the previous site visit after vacuum was reduced. Readings were taken from the gauges on the various system components and the system was determined to be running within design parameters.
- An SVE ROI study was conducted on 11 August 2010, as requested by the NDEP in their comments on the RDIP. The results of the SVE ROI study are presented later in this memorandum. A significant accumulation of water was not observed in the

SVE conveyance piping on this date. After completion of the SVE ROI Study, system operation was returned to normal and readings were collected with all SVE wells open and under a system vacuum of 4 in. Hg.

- System inspection and maintenance was performed and the AS system was activated on 17 August 2010. An accumulation of water was observed in the conveyance piping for only one (SV-02) of the four SVE wells. Approximately three gallons of water was drained from the piping and added to the 55-gallon drum containing water previously purged from the system. Measurements for TVOCs using a PID and for CH_4, CO_2, and O_2 using field instruments were collected from the seven (VM-01 through VM-07) vapor monitoring points and four (SV-01 through SV-04) SVE wells prior to, and after, activation of the AS system (Table 2). Readings were taken from the gauges on the various system components and the system was determined to be running within design parameters.
- System inspection and sampling was performed on 18 August 2010. Measurements for TVOCs using a PID and for CH_4, CO_2, and O_2 using field instruments were taken from the seven (VM-01 through VM-07) vapor monitoring points and four (SV-01 through SV-04) SVE wells. In accordance with the RDIP, samples were collected from the influent and effluent vapor streams 24 hours after the initiation of air sparging and submitted to Air Toxics for VOC analysis by USEPA Method TO-15. The analytical results for the influent and effluent vapor samples are summarized on Table 3. Readings were taken from the gauges on the various system components and the system was shut down in preparation of the AS ROI study to be conducted the week of 23 August 2010.
- An AS ROI study was conducted on 26 August 2010 as requested by the NDEP in their comments on the RDIP. The results of the AS ROI study are presented later in this document. A rubber boot connection on the outlet side of the AS compressor ruptured after initiation of the study and as a result, AS injection pressure during the ROI study was maintained at 3 pounds per square inch (psi) instead of the intended 8 psi. The connection boot was replaced following completion of the study and prior to startup of both the AS and SVE system.
- The AS/SVE system was shutdown on 20 September 2010 and all aboveground piping was dismantled to allow construction of the new firehouse on the site. Additionally, the seven AS wells, four SVE wells, and seven vapor monitoring points associated with the AS/SVE system and 10 selected groundwater monitoring wells were abandoned between 20 and 23 September. Prior to shutdown, readings were taken from the gauges on the various system components and samples were collected from the influent effluent vapor streams. Influent and effluent vapor samples were submitted to Air Toxics for VOC analysis by USEPA Method TO-15. The analytical results for the influent and effluent vapor stream samples are summarized on Table 3.

SOIL VAPOR EXTRACTION RADIUS OF INFLUENCE STUDY

A SVE ROI study was conducted on 11 August 2010 as requested by the NDEP in comments on the RDIP. Soil vapor extraction well SV-01 was selected because it is located in the central portion of the groundwater plume and surrounded by numerous SVE wells and vapor monitoring points that could be used to obtain the data needed to calculate the ROI.

Soil Vapor Extraction Radius of Influence Testing Procedures

Various extraction rates were applied to vapor extraction well SV-01, and three (VM-01, VM-02, VM-06) vapor monitoring points and one (SV-03) SVE well were monitored for changes in vacuum and VOC, CO_2, and O_2 concentrations.

Radius of Influence Results and Conclusions

As requested by NDEP, the ROI under normal system operation was calculated using a vacuum of 0.5 inch of water (in. H_2O) as the target value. The induced wellhead vacuum observed in each of the four monitoring points after 15 and 20 minutes of 4 in. Hg vacuum on the primary well (SV-01) is presented on the table below.

Monitoring Point	Vacuum after 15 Minutes (in. H_2O)	Vacuum after 20 Minutes (in H_2O)	Distance from SV-01 (feet)
VM-06	0.5	0.2	11
VM-01	0.0	0.2	26
VM-02	0.6	0.4	20
SV-03	0.5	0.7	17

The distance from SVE well SV-01 to each of the four vacuum monitoring locations was plotted against the observed vacuum. A linear regression was then used to calculate the distance at which the target vacuum was maintained. Based on the vacuum observed in the four monitoring locations at 15 and 20 minutes, an ROI of 17.5 feet can be achieved around SVE well SV-01 under a vacuum of 4 in. Hg.

AIR SPARGE RADIUS OF INFLUENCE STUDY

An AS ROI study was conducted on 26 August 2010, as requested by the NDEP in comments on the RDIP. Air sparge well AS-06 was selected for the study because of its

location in proximity to several vapor monitoring points and sparge wells that could be used to obtain the data required to calculate the ROI.

Pilot Testing Equipment

The following equipment was used during the AS ROI study:

- Existing AS/SVE system;
- An air flow meter;
- Pressure and vacuum gauges;
- PID meter;
- DO meter (in situ groundwater);
- ORP meter (in situ groundwater);
- Measuring wheel; and
- Water level indicator.

Air Sparge Radius of Influence Testing Procedures

Air sparging was conducted at AS-06, and surrounding wells were monitored for the following:

- Variation in water level (mounding) in response to air injection at AS-04, AS-05, AS-07, MW-07, MW-25, and T-18;
- Change to in situ groundwater DO and ORP concentrations at MW-07, MW-25, and T-18; and
- Variations in PID at MW-07, MW-25, and T-18.

Radius of Influence Results and Conclusions

As previously stated, a rubber boot connection was partially loosened on the outlet side of the AS compressor after the first round of readings was collected. As a result, the sparge pressure at AS-06 was reduced from approximately 8 psi to 3 psi. The distance from AS-06 to each of the six monitoring locations was plotted against observed groundwater mounding, DO levels, and ORP levels. A linear regression was then used for each parameter to calculate the distance at which influence was observed. Based on the collected data, the AS ROI was estimated at approximately 40 feet at the operating sparge pressure of 3 to 8 psi. This estimated ROI is reasonable based on the system losing sparge pressure during the ROI study and the site lithology. A graphical presentation of the AS ROI data is presented in Appendix B.

SAMPLE ANALYSIS AND DATA VALIDATION

Samples were collected from the influent and effluent vapor streams and analyzed for VOCs using USEPA Method TO-15. The results of the VOC analysis of the vapor samples are summarized on Table 3 and below. Laboratory analytical reports for the samples are included in Appendix C.

Analytical data were reviewed following the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (USEPA, October 1999). Qualifiers applied in accordance with these procedures are provided on the data tables in Appendix D. The quality assurance/quality control review determined that the data generated during this investigation is acceptable for the preparation of technically defensible documents (Appendix D).

VOCs detected in the samples collected from the influent vapor stream, and their maximum detected concentrations, were benzene up to 350,000 micrograms per cubic meter ($\mu g/m^3$); cyclohexane up to 3,300,000 $\mu g/m^3$; cumene up to 17,000 $\mu g/m^3$; ethylbenzene up to 81,000 $\mu g/m^3$; 4-ethyltoluene up to 34,000 $\mu g/m^3$; heptane up to 1,000,000 $\mu g/m^3$; hexane up to 1,900,000 $\mu g/m^3$; propylbenzene up to 15,000 $\mu g/m^3$; tetrachloroethene up to 40,000 $\mu g/m^3$; tetrahydrofuran up to 4,800 $\mu g/m^3$; 1,2,4-trimethylbenzene up to 27,000 $\mu g/m^3$; 1,3,5-trimethylbenzene up to 15,000 $\mu g/m^3$; m,p-xylenes up to 230,000 $\mu g/m^3$; and o-xylenes up to 14,000 $\mu g/m^3$.

SYSTEM PERFORMANCE

To reduce water production and accumulation in the SVE lines, the system vacuum was reduced from 9 in. Hg to 4 in. Hg after 24 days of operation and was operated at that vacuum until deactivated on 20 September 2011. At 4 in. Hg, the influent flow rate was at roughly 25 percent of the system design criteria. The production of water will be addressed in the final design of the AS/SVE system.

Samples were collected from the influent and effluent vapor streams and analyzed for VOCs using USEPA Method TO-15 to allow calculation of the mass removed during system operation. Additionally, TVOC concentration measurements were taken from the influent vapor stream to calculate capture efficiency of the GAC. The removal of mass by the AS/SVE system and capture efficiency during the operational period (12 July through 20 September 2010) are discussed below.

Mass Removal

Recovery rates for benzene during the period of operation (12 July through 20 September 2010) were calculated using the benzene concentrations detected in the influent and effluent vapor streams samples (Tables 3 and 4). As indicated on Table 4, approximately 22 pounds of benzene was removed by the AS/SVE treatment system during the period of operation.

Capture Efficiency

Weekly capture efficiency tests were performed to monitor the GAC units for breakthrough in accordance with Washoe County Permit #A10-0013 (Appendix E). The capture efficiency tests consisted of the measurement of TVOC concentrations in the influent and effluent vapor streams using a PID. PID measurements for TVOC concentrations are presented on Table 1.

As indicated on Table 1, capture efficiency of the GAC during the period of operation was above the minimum criteria of 90 percent specified in the permit.

RESULTS OF GROUNDWATER SAMPLING

Groundwater monitoring and sampling was performed at ERP Site 7 in June 2010 prior to activation of the AS/SVE system, and in September 2010 prior to deactivation of the system. The results of the groundwater monitoring and sampling are presented in the *June 2010 Groundwater Monitoring Memorandum* (7 December 2010) and the *September 2010 Groundwater Monitoring Memorandum* (8 December 2010). Benzene concentrations in groundwater in June and September 2010 and the locations of the AS and SVE wells are shown in Figures 3 and 4, respectively.

As shown in the figures, the extent of chemicals in groundwater remained relatively unchanged between June and September 2010. However, with the exception of one well (T-23), benzene concentrations in groundwater decreased during the period of operation of the AS/SVE system. The data suggest that although the SVE system was operating at only 25 percent of its design criteria during much of the operating period, it was successful in reducing benzene concentrations in the groundwater.

Changes in the natural attenuation parameters between June and September 2010 also indicated that contaminant reduction in groundwater at the site is primarily the result of volatilization produced by the AS/SVE system instead of bioremediation.

WELL ABANDONMENTS

To facilitate construction of a new firehouse, 28 groundwater monitoring, dewatering, vapor monitoring, AS/SVE wells at ERP Site 7 were abandoned between 20 and 23 September 2010, by a Nevada State-licensed well driller, in accordance with Nevada Administrative Codes 534.420, 534.4353, and 534.4365. The 28 wells included 10 groundwater monitoring wells, seven AS wells, four SVE wells, and seven vapor monitoring points. Eleven groundwater monitoring wells not within the boundary of the new firehouse were not abandoned and will be used for future monitoring. The locations of the 28 abandoned wells are shown in Figures 3 and 4 and construction details for these wells are provided on Table 5.

The vault for each well was removed and the well screen and casing were abandoned by injecting cement-bentonite grout under pressure into the casing. The injection of grout continued until the top of the grout in the casing stabilized at a depth of 4 to 5 feet bgs. After allowing the bentonite-cement grout to settle and solidify, the well casing was cut off at a depth of 5 feet bgs. Soil that may have fallen into the borehole while cutting and removing the casing was removed using an air-knife (vacuum) and the upper 5 feet of the borehole was backfilled to the surface with cement/bentonite grout. Because the asphalt at the site is to be removed as part of the firehouse construction, the base engineer concurred that patching the locations with asphalt was not warranted. Driller abandonment logs were filed with the State of Nevada Division of Water Resources following completion of the work.

The breathing zone was monitored for the presence of TVOCs using a PID and the abandonment activities and PID readings were documented in field notes (Appendix F).

DISPOSITION OF PROGRAM-DERIVED WASTE

All inert, solid waste materials generated during the program activities described above were placed in domestic waste containers at the site. All soil generated during abandonment of the wells was placed in a lined 20-cubic yard bin and temporarily stored on base pending off-site disposal. Water removed from the SVE lines and water displaced during abandonment of the wells will be contained in 55-gallon drums, labeled as nonhazardous waste, and temporarily stored at the base pending off-site disposal.

PLANNED FUTURE ACTIVITIES

The reduction of benzene concentrations in soil and groundwater and further evaluation of the southern extent of hydrocarbons in groundwater will be the primary focus of future investigations and remedial actions at ERP Site 7.

Operation of the AS/SVE system for 2 months prior to having to be dismantled to allow construction of the new firehouse provided crucial information regarding the ROI of the AS/SVE, as well as estimates of carbon usage and system discharge concentrations. Additionally, groundwater monitoring and sampling performed during that period provided data regarding the extent and concentrations of benzene and other hydrocarbons in groundwater. The data indicate that continuation of AS/SVE will be successful in reducing benzene concentrations in soil and groundwater at ERP Site 7.

The ROI and groundwater data will be used to revise the configuration of the AS/SVE and groundwater monitoring well fields to most effectively remove and monitor contaminants given the accessibility constraints posed by the footprint of the new firehouse. The blower, vacuum, and GAC treatment components of the AS/SVE system will remain unchanged, but the pipelines between the system and the individual AS and SVE wells will be placed in underground conduits. Currently, it is anticipated that the AS, SVE, and groundwater monitoring wells and the underground conduits will be installed in April or May 2011. Connection of the AS and SVE wells with the system will be performed as soon as possible following the completion of the firehouse construction activities.

Anticipated future investigation activities at the site include the installation of groundwater monitoring wells in the vicinity of the fiber optics bank near the former air traffic control tower south of ERP Site 7. The purpose of the groundwater monitoring wells is to determine whether a secondary source of groundwater contamination is present in that area and to assess the southern extent of hydrocarbons in groundwater originating from ERP Site 7.

Figures

Project No. 0104707.3B2
Date: 11/30/10
Drawn By: J. Estrada
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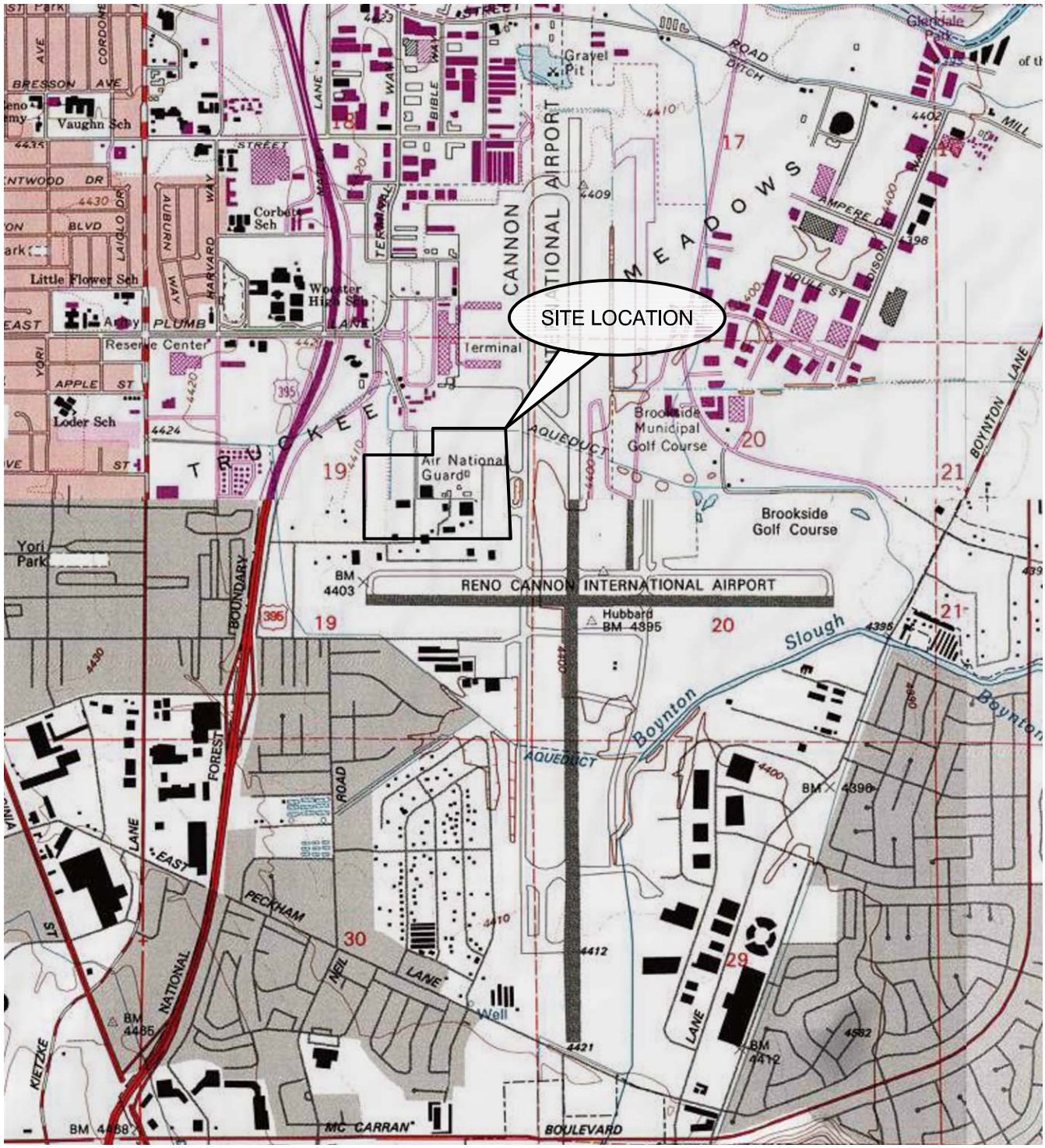

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Figure 1
Reno ANG Location Map
152nd Airlift Wing
Nevada Air National Guard
Reno, Nevada

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References:
TOPO!® Software
U.S.G.S. 7.5 Minute Series (Topographic) Quadrangle,
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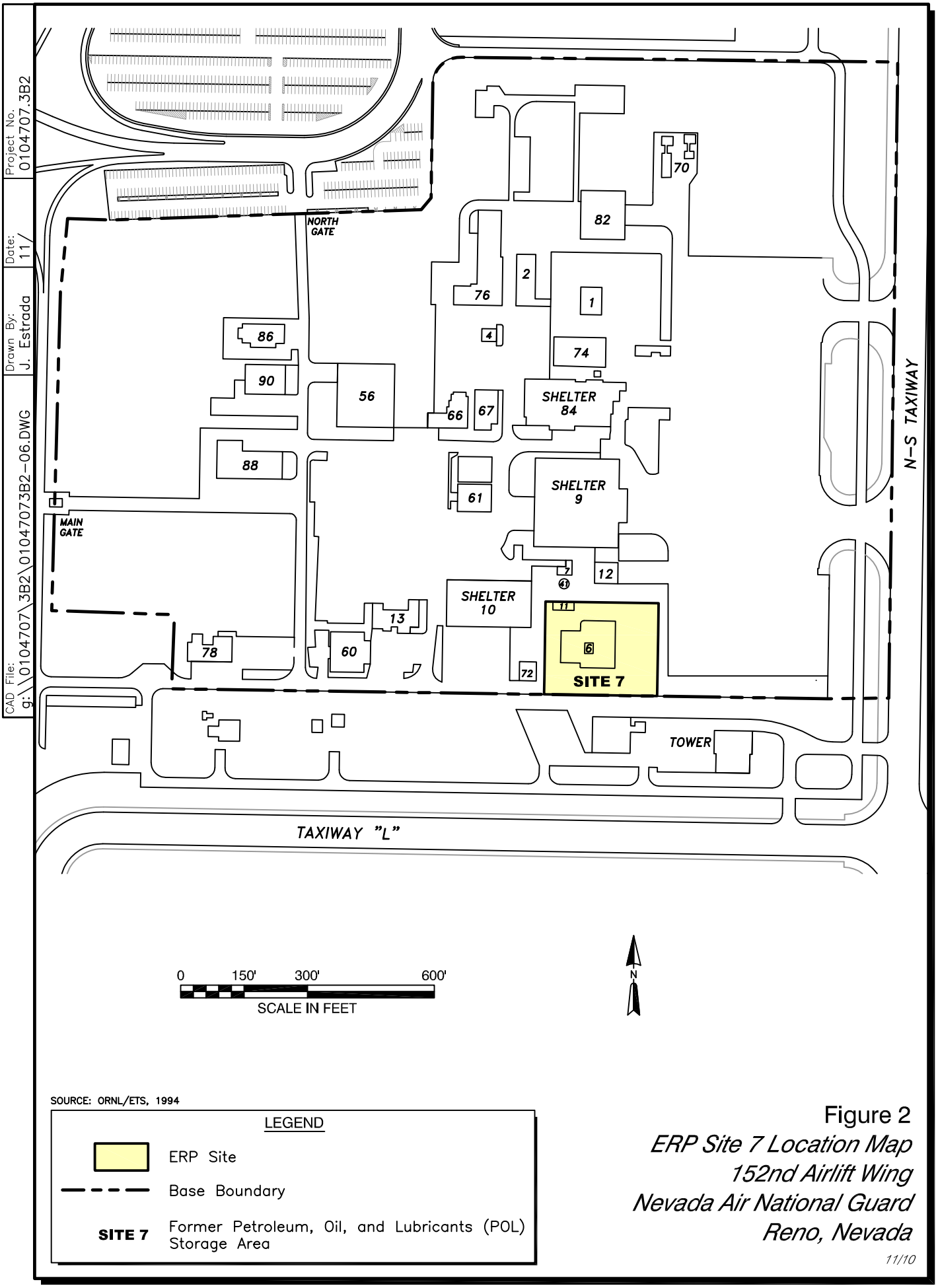

Figure 2
ERP Site 7 Location Map
152nd Airlift Wing
Nevada Air National Guard
Reno, Nevada

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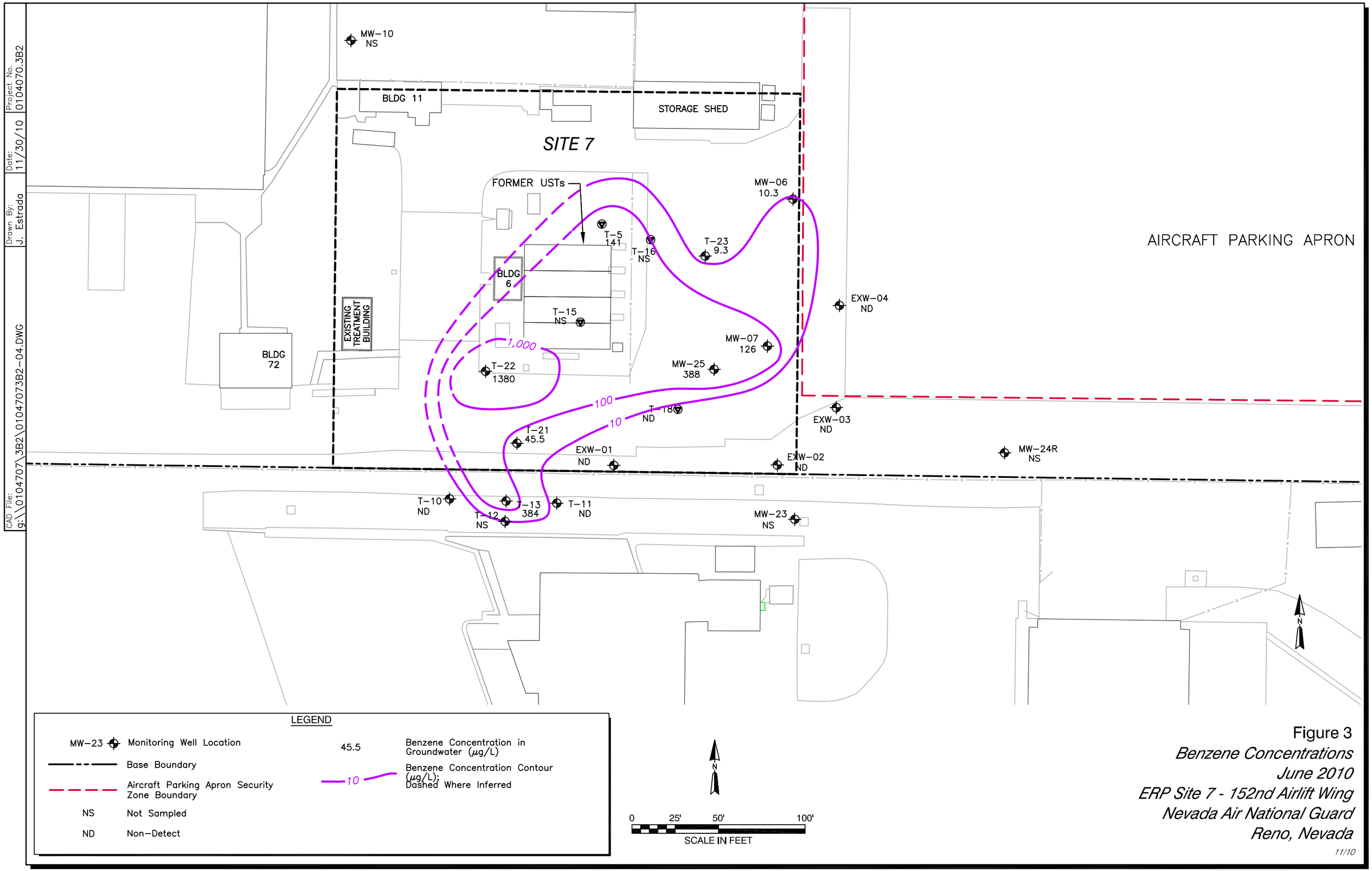

Figure 3
Benzene Concentrations
June 2010
ERP Site 7 - 152nd Airlift Wing
Nevada Air National Guard
Reno, Nevada

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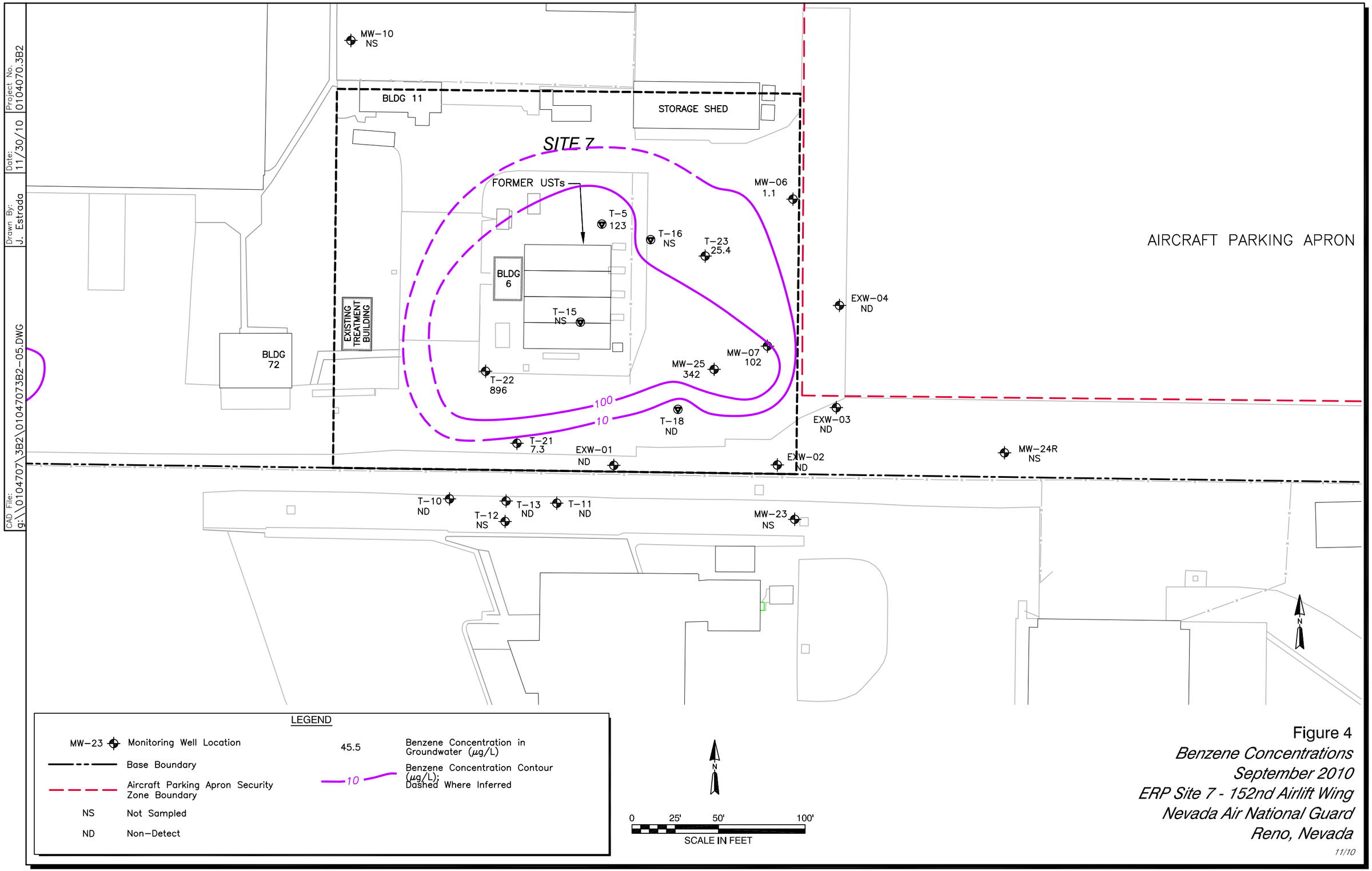

Figure 4
Benzene Concentrations
September 2010
ERP Site 7 - 152nd Airlift Wing
Nevada Air National Guard
Reno, Nevada

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Tables

TABLE 1

Total Volatile Organic Compound Concentrations and Treatment Efficiency
July - August 2010
ERP Site 7
152nd Airlift Wing, Nevada Air National Guard
Reno, Nevada

Date	Time	Influent TVOC Concentration (ppm)	Effluent TVOC Concentration (ppm)	Treatment Effeciency (%)
7/9/2010	8:00	135.6	2.7	98.01
7/19/2010	8:00	141.9	3.9	97.25
7/29/2010	12:00	30.3	0.1	99.67
7/29/2010	13:00	20.4	0.3	98.53
8/5/2010	8:00	22.2	0.0	100.00
8/11/2010	12:00	27.4	1.0	96.35
8/17/2010	12:30	38.6	0.9	97.67
8/17/2010	14:30	160.1	1.5	99.06
8/17/2010	13:30	845.2	13.9	98.36
8/26/2010	17:30	314.1	0.1	99.97

Notes:

All readings taken with a calibrated MiniRae300 PID
% = Percent
ppm = Parts per million
TVOC = Total volatile organic compound

TABLE 2

Air Sparge/Soil Vapor Extraction System Monitoring Data
July - August 2010
ERP Site 7
152nd Airlift Wing, Nevada Air National Guard
Reno, Nevada

Monitoring Point	Date	Time	TVOC Concentration (ppm)	Methane Concentration (%)	Carbon Dioxide Concentration (%)	Oxygen Concentration (%)
VM-1	07/09/10	0800	148.5	1.1	1.7	17.3
	07/12/10	0930	132.8	0.7	4.1	15.3
	07/12/10	1600	94.5	0.1	0.9	18.8
	07/19/10	0800	7.1	0.0	1.2	18.3
	07/29/10	1115	3.4	0.0	0.1	19.6
	08/05/10	0800	6.2	0.0	0.3	20.3
	08/11/10	0800	9.0	0.5	19.9	NM
	08/17/10	1430	397.1	39.2	1.7	17.9
	08/17/10	1630	517.6	AICR	2.8	17.8
VM-2	07/09/10	0800	136.9	0.5	0.5	12.6
	07/12/10	0930	151.9	0.3	0.1	8.3
	07/12/10	1600	64.0	0.0	1.7	17.8
	07/19/10	0800	1.9	0.0	1.0	18.6
	07/29/10	1115	1.9	0.0	0.1	19.7
	08/05/10	0800	2.7	0.0	0.2	20.4
	08/11/10	0800	1.8	0.4	20.1	No Entry
	08/17/10	1430	2.3	0.0	0.0	20.1
	08/17/10	1630	203.4	5.1	0.8	19.1
VM-3	07/09/10	0800	263.1	2.9	2.7	15.5
	07/12/10	0930	144.9	26.5	5.1	11.5
	07/12/10	1600	228.5	2.9	0.9	18.3
	07/19/10	0800	180.1	0.0	0.4	17.6
	07/29/10	1115	3.6	0.0	0.0	19.5
	08/05/10	0800	4.1	0.0	0.3	20.3
	08/11/10	0800	2.1	0.5	19.9	No Entry
	08/17/10	1430	168.5	0.8	0.4	19.4
	08/17/10	1630	394.6	4.3	0.5	19.4
VM-4	07/09/10	0800	221.5	3.2	7.6	16.5
	07/12/10	0930	145.2	59.7	4.4	13.9
	07/12/10	1600	162.0	29.1	6.1	8.7
	07/19/10	0800	180.1	0.3	1.3	17.4
	07/29/10	1115	125.1	0.0	0.9	18.1
	08/05/10	0800	39.1	0.0	0.9	19.2
	08/11/10	0800	12.2	2.2	17.8	No Entry
	08/17/10	1430	37.2	0.1	0.8	18.7
	08/17/10	1630	396.4	24.4	2.6	16.7
VM-5	07/09/10	0800	106.7	0.7	3.1	17.4
	07/12/10	0930	152.2	153.5	7.1	4.6
	07/12/10	1600	153.9	2.7	0.3	19.2
	07/19/10	0800	158.1	0.2	3.3	13.1
	07/29/10	1115	48.1	0.0	2.1	17.0
	08/05/10	0800	14.0	0.0	1.6	18.1
	08/11/10	0800	8.6	2.7	16.8	No Entry
	08/17/10	1430	116.3	1.0	1.4	17.8
	08/17/10	1630	196.7	25.8	3.0	16.3

TABLE 2

Air Sparge/Soil Vapor Extraction System Monitoring Data
July - August 2010
ERP Site 7
152nd Airlift Wing, Nevada Air National Guard
Reno, Nevada

Monitoring Point	Date	Time	TVOC Concentration (ppm)	Methane Concentration (%)	Carbon Dioxide Concentration (%)	Oxygen Concentration (%)
VM-6	07/09/10	0800	226.6	7.8	3.7	16.2
	07/12/10	0930	740.5	7.7	7.0	12.7
	07/12/10	1600	20.9	27.5	0.2	19.5
	07/19/10	0800	77.7	4.8	3.1	14.1
	07/29/10	1115	166.7	>>	4.6	14.1
	08/05/10	0800	221.4	>>>	3.7	16.8
	08/11/10	0800	16.0	7.8	4.8	No Entry
	08/17/10	1430	56.5	>>>	1.3	18.3
	08/17/10	1630	136.4	>>>	6.2	13.5
VM-7	07/09/10	0800	160.2	0.3	2.2	17.5
	07/12/10	0930	28.7	0.5	2.3	17.6
	07/12/10	1600	252.7	0.7	0.0	20.0
	07/19/10	0800	0.7	0.0	0.5	19.5
	07/29/10	1115	8.4	0.1	0.0	20.1
	08/05/10	0800	7.0	0.1	0.0	20.6
	08/11/10	0800	1.4	0.3	20.2	No Entry
	08/17/10	1430	14.2	0.0	0.4	19.1
	08/17/10	1630	119.8	24.5	3.0	15.9
SV-01	07/09/10	0800	276.6	1.4	0.5	20.0
	07/12/10	0930	273.3	8.7	1.7	18.2
	07/12/10	1600	297.1	1.6	0.4	19.4
	07/19/10	0800	250.1	0.8	0.3	19.7
	07/29/10	1115	2.9	0.0	0.0	20.4
	08/05/10	0800	10.4	0.0	0.0	20.6
	08/11/10	0800	No Entry	No Entry	No Entry	No Entry
	08/17/10	1430	300.5	2.7	1.1	17.8
	08/17/10	1630	150.1	26.9	2.7	15.8
SV-02	07/09/10	0800	56.0	0.8	0.2	19.6
	07/12/10	0930	149.5	34.5	3.7	14.2
	07/12/10	1600	188.6	2.2	0.8	18.5
	07/19/10	0800	133.8	0.2	1.4	18.1
	07/29/10	1115	49.1	0.0	0.7	19.4
	08/05/10	0800	23.4	0.0	0.8	19.4
	08/11/10	0800	1.3	0.0	20.9	No Entry
	08/17/10	1430	25.4	0.1	1.1	18.1
	08/17/10	1630	256.1	18.8	2.6	15.7
SV-03	07/09/10	0800	229.4	0.6	0.0	20.1
	07/12/10	0930	294.8	0.3	0.0	20.2
	07/12/10	1600	243.8	1.0	0.0	20.0
	07/19/10	0800	99.0	0.1	0.0	20.2
	07/29/10	1115	14.1	0.0	0.0	20.2
	08/05/10	0800	62.6	0.1	0.0	20.7
	08/11/10	0800	315.0	0.0	20.8	No Entry
	08/17/10	1430	282.8	0.4	0.0	20.0
	08/17/10	1630	44.1	0.3	0.0	19.9

TABLE 2

Air Sparge/Soil Vapor Extraction System Monitoring Data
July - August 2010
ERP Site 7
152nd Airlift Wing, Nevada Air National Guard
Reno, Nevada

Monitoring Point	Date	Time	TVOC Concentration (ppm)	Methane Concentration (%)	Carbon Dioxide Concentration (%)	Oxygen Concentration (%)
SV-04	07/09/10	0800	196.4	1.2	1.7	19.3
	07/12/10	0930	322.7	24.6	1.3	18.7
	07/12/10	1600	331.9	7.1	0.3	19.4
	07/19/10	0800	314.5	2.8	0.2	19.7
	07/29/10	1115	3.1	0.0	0.0	19.9
	08/05/10	0800	23.1	0.0	0.0	21.0
	08/11/10	0800	235.8	0.1	21.1	No Entry
	08/17/10	1430	258.4	0.5	0.0	20.4
	08/17/10	1630	119.7	0.6	0.0	20.5

Notes:
% = Percent
AICR = Above instrument calibration reading
NM = Not measured
ppm = Parts per million
TVOC = Total volatile organic compound

TABLE 3

Analytical Results of Vapor Samples
ERP Site 7
152nd Airlift Wing, Nevada Air National Guard
Reno, Nevada

Sample ID	Sample Date	Freon 12	Freon 114	CM	VC	1,3-BUT	BM	CE	Freon 11	Ethanol	Freon 113	1,1-DCE	ACE	2-Prop	CDSD	3-CP	DCM	MTBE	trans-1,2-DCE	Hexane	1,1-DCA	2-BUT	cis-1,2-DCE	THDF	CF	1,1,1-TCA	Cyclo-hexane	CCL	2,2,4-TMP	BZ	1,2-DCA	HEP
SYSTEM INFLUENT	07/12/2010	<1,300	<1,800	<2,200	<670	<580	<1,000	<700	<1,500	<2,000	<2,000	<1,000	<2,500	<2,600	<820	<3,300	<920	<950	<1,000	**2,400**	<1,100	<780	<1,000	**4,800**	<1,300	<1,400	**170,000**	<1,600	<1,200	**13,000**	<1,100	<1,100
	08/18/2010	<6,800	<9,600	<11,000	<3,500	<3,000	<5,400	<3,600	<7,800	<10,000	<10,000	<5,500	<13,000	<14,000	<4,300	<17,000	<4,800	<5,000	<5,500	**1,900,000**	<5,600	<4,100	<5,500	<4,100	<6,700	<7,500	**3,300,000**	<8,700	<6,400	**350,000**	<5,600	**1,000,000**
	09/20/2010	<360	<520	<610	<190	<160	<290	<200	<420	<560	<570	<290	<700	<730	<230	<930	<260	<270	<290	**8,100**	<300	<220	<290	<220	<360	<400	**34,000**	<460	<340	**2,300**	<300	**2,900**
SYSTEM EFFLUENT	08/18/2010	<6.1	<8.6	<10	<3.2	<2.7	<4.8	<3.2	<6.9	**22**	<9.5	<4.9	**18**	<12	<3.8	<15	<4.3	<4.4	<4.9	**4.3**	<5.0	**4.9**	<4.9	<3.6	<6.0	<6.7	**8.3**	<7.8	<5.8	<3.9	<5.0	<5.1
	09/20/2010	<6.2	<8.8	<10	<3.2	<2.8	<4.9	<3.3	<7.1	<9.5	<9.6	<5.0	**17**	<12	<3.9	<16	<4.4	<4.5	<5.0	<4.4	<5.1	**4.4**	<5.0	**8.6**	<6.2	<6.9	**21**	<7.9	<5.9	<4.0	<5.1	<5.2

TABLE 3

Results of Volatile Organic Compound Analysis of Soil Gas
ERP Site 7
152nd Airlift Wing, Nevada Air National Guard
Reno, Nevada

Sample ID	Sample Date	TCE	1,2-DCP	1,4-DIOX	BDCM	cis-1,3-DCP	4-M-2-P	TOL	trans-1,3-DCP	1,1,2-TCA	PCE	2-HEX	DBCM	1,2-DBM	CB	EB	m,p-XYL	o-XYL	STY	BF	Cumene	1,1,2,2-PCA	PB	4-ET	1,3,5-TMB	1,2,4-TMB	1,3-DCB	1,4-DCB	alpha-CT	1,2-DCB	1,2,4-TCB	HCBU	NAP
SYSTEM INFLUENT	07/12/2010	<1,400	<1,200	<3,800	<1,800	<1,200	<1,100	<990	<1,200	<1,400	<1,800	<4,300	<2,200	<2,000	<1,200	**1,400**	**4,000**	<1,100	<1,100	<2,700	<1,300	<1,800	**1,400**	**1,600**	<1,300	**1,600**	<1,600	<1,600	<1,400	<1,600	<7,800	<11,000	<5,500
	08/18/2010	<7,400	<6,400	<20,000	<9,200	<6,300	<5,600	<5,200	<6,300	<7,500	**40,000**	<23,000	<12,000	<11,000	<6,400	**81,000**	**230,000**	**14,000**	<5,900	<14,000	**17,000**	<9,500	**15,000**	**34,000**	**15,000**	**27,000**	<8,300	<8,300	<7,100	<8,300	<41,000	<59,000	<29,000
	09/20/2010	<400	<340	<1,100	<500	<340	<300	<280	<340	<400	<500	<1,200	<630	<570	<340	<320	**1,800**	<320	<320	<760	<360	<510	<360	**370**	**590**	**410**	<440	<440	<380	<440	<2,200	<3,200	<1,600
SYSTEM EFFLUENT	08/18/2010	**15**	<5.7	<18	<8.3	<5.6	<5.0	<4.6	<5.6	<6.7	<8.4	<20	<10	<9.5	<5.7	<5.4	<5.4	<5.4	<5.3	<13	<6.1	<8.5	<6.1	<6.1	<6.1	<6.1	<7.4	<7.4	<6.4	<7.4	<37	<53	<26
	09/20/2010	<6.8	<5.8	<18	<8.4	<5.7	<5.2	<4.7	<5.7	<6.9	<8.5	<21	<11	<9.7	<5.8	<5.5	**7.0**	<5.5	<5.4	<13	<6.2	<8.6	<6.2	<6.2	<6.2	<6.2	<7.6	<7.6	<6.5	<7.6	<37	<54	<26

Key:
All concentrations reported in micrograms per cubic meter ($\mu g/m^3$).
< = Less than noted laboratory reporting limit.

Volatile Organic Compounds Abbreviations

CM	Chloromethane	CCL	Carbon Tetrachloride	CB	Chlorobenzene
VC	Vinyl Chloride	2,2,4-TMP	2,2,4-Trimethylpentane	EB	Ethyl Benzene
1,3-BUT	1,3-Butadiene	BZ	Benzene	m,p-XYL	m,p-Xylene
BM	Bromomethane	1,2-DCA	1,2-Dichloroethane	o-XYL	o-Xylene
CE	Chloroethane	HEP	Heptane	STY	Styrene
1,1-DCE	1,1-Dichloroethene	TCE	Trichloroethene	BF	Bromoform
ACE	Acetone	1,2-DCP	1,2-Dichloropropane	1,1,2,2-PCA	1,1,2,2-Tetrachloroethane
2-Prop	2-Propanol	1,4-DIOX	1,4-Dioxane	PB	Propylbenzene
CDSD	Carbon Disulfide	BDCM	Bromodichloromethane	4-ET	4-Ethyltoluene
3-CP	3-Chloropropene	cis-1,3-DCP	cis-1,3-Dichloropropene	1,3,5-TMB	1,3,5-Trimethylbenzene
DCM	Methylene Chloride	4-M-2-P	4-Methyl-2-pentanone	1,2,4-TMB	1,2,4-Trimethylbenzene
MTBE	Methyl tert-butyl ether	TOL	Toluene	1,3-DCB	1,3-Dichlorobenzene
trans-1,2-DCE	trans-1,2-Dichloroethene	trans-1,3-DCP	trans-1,3-Dichloropropene	1,4-DCB	1,4-Dichlorobenzene
1,1-DCA	1,1-Dichloroethane	1,1,2-TCA	1,1,2-Trichloroethane	alpha-CT	alpha-Chlorotoluene
2-BUT	2-Butanone (Methyl Ethyl Ketone)	PCE	Tetrachloroethene	1,2-DCB	1,2-Dichlorobenzene
cis-1,2-DCE	cis-1,2-Dichloroethene	2-HEX	2-Hexanone	1,2,4-TCB	1,2,4-Trichlorobenzene
THDF	Tetrahydrofuran	DBCM	Dibromochloromethane	HCBU	Hexachlorobutadiene
CF	Chloroform	1,2-DBM	1,2-Dibromoethane (EDB)	NAP	Naphthalene
1,1,1-TCA	1,1,1-Trichloroethane				

TABLE 4

Total Mass of Benzene Removed by System
July - August 2010
ERP Site 7
152nd Airlift Wing, Nevada Air National Guard
Reno, Nevada

Analyte	Estimated Mass Removed									Total Estimated Mass Removed (lbs)
	July 2010			August 2010			September 2010			
	(lbs/day)	(lbs/mo)	SCFM	(lbs/day)	(lbs/mo)	SCFM	(lbs/day)	(lbs/mo)	SCFM	
Benzene	0.0269	0.5372	23	0.6917	21.4418	22	0.0048	0.1093	23	22.0882

Note:
Mass Removal (lbs/day) = Concentration ($\mu g/m^3$) * Flow Rate (scfm) * Unit Correction Factor (8.98272*E-8)

Key:
lbs = Pounds
mo = Month
NA = Not available
SCFM = Standard cubic feet per minute

TABLE 5

Construction Data for Wells Abandoned in September 2010
ERP Site 7
152nd Airlift Wing, Nevada Air National Guard
Reno, Nevada

Well Identifier	Well Diameter (in)	Total Depth of Borehole (ft bgs)	Screened Interval (ft bgs)	Top of Filter Pack (ft bgs)
Monitoring and Extraction Wells				
DW-2[a]	6	13.0	NA	NA
MW-07	2	14.5	4 to 14	3.0
MW-25	6	14.0	3 to 13	1.5
T-5	6	27.0	3.5 to 13.5	3.0
T-15[b]	6	10.0	4 to 10	2.0
T-16[b]	6	10.0	4 to 10	2.0
T-18	2	15.0	5 to 15	3.0
T-21	2	14.5	4 to 14	3.5
T-22	2	14.5	4 to 14	3.5
T-23	2	14.5	4 to 14	3.5
Air Sparge Wells				
AS-01	1	25.0	23.0 to 25.0	21.0
AS-02	1	25.0	23.0 to 25.0	21.0
AS-03	1	25.0	23.0 to 25.0	21.0
AS-04	1	25.0	23.0 to 25.0	21.0
AS-05	1	25.0	23.0 to 25.0	21.0
AS-06	1	25.0	23.0 to 25.0	21.0
AS-07	1	25.0	23.0 to 25.0	21.0
Soil Vapor Extraction Wells				
SV-01	2	8.0	3.0 to 8.0	2.5
SV-02	2	8.0	3.0 to 8.0	2.5
SV-03	2	8.0	3.0 to 8.0	2.5
SV-04	2	8.0	3.0 to 8.0	2.5
Vapor Monitoring Wells				
VM-01	1	8.0	3.0 to 8.0	2.5
VM-02	1	8.0	3.0 to 8.0	2.5
VM-03	1	8.0	3.0 to 8.0	2.5
VM-04	1	8.0	3.0 to 8.0	2.5
VM-05	1	8.0	3.0 to 8.0	2.5
VM-06	1	8.0	3.0 to 8.0	2.5
VM-07	1	8.0	3.0 to 8.0	2.5

Notes and Key:

a = Dewatering well installed by McGinley and Associates in November 2003 to facilitate removal of USTs.
b = Well installed by Schauer Excavation in backfill following removal of USTs.
ft bgs = Feet below ground surface
in = Inches
NA = Not available
UST = Underground storage tank

Appendix A
Field Notes and System Operation Logs

AS/SVE SYSTEM MONTHLY FIELD MONITORING LOG
Reno ANG Site 7
Reno, NV

Date: 7/9/10
Time: 8:00
Name: V. BLAKE JR.

System Status on Arival: AS: ON I OFF SVE: ON I OFF
System Status on Departure: AS: ON I OFF SVE: ON I OFF

MONTHLY MONITORING PARAMETERS

GENERAL MEASUREMENT	READING		UNIT	Comments
Treatment System Building				
Dilution Valve			% Open	
Temperature	160		oF	
Total Operating Hours			hours	
Heat Exchanger	0.3		hrs	
Transfer Pump	0		hrs	
Knockout Tank Level (approx.)	0		gal	
Knockout Tank Vacuum	-9.5		in hg	
Air Sparge Compressor				
Total Operating Hours			hours	
Outlet Total Pressure			psig	
Vapor Carbon Vessels				
Influent	135.6		ppm	
Mid-Carbon	3.3		ppm	
Effluent	2.7		ppm	
Influent Total Flow			scfm	
Mid Carbon Total Flow			scfm	
Effluent Total Flow			scfm	
SVE Piping				
SV-01 Flow Rate		6	scfm	
SV-01 Valve Position		100	% open	
SV-01 Vacuum at Manifold			In H_20	
SV-01 Vacuum at Wellhead			In H_20	
SV-02 Flow Rate		10	scfm	
SV-02 Valve Position		100	% open	
SV-02 Vacuum at Manifold			In H_20	
SV-02 Vacuum at Wellhead			In H_20	
SV-03 Flow Rate		0	scfm	
SV-03 Valve Position		100	% open	
SV-03 Vacuum at Manifold			In H_20	
SV-03 Vacuum at Wellhead			In H_20	
SV-04 Flow Rate		12	scfm	
SV-04 Valve Position		100	% open	
SV-04 Vacuum at Manifold			In H_20	
SV-04 Vacuum at Wellhead			In H_20	

AS/SVE SYSTEM MONTHLY FIELD MONITORING LOG
Reno ANG Site 7
Reno, NV

Date: 7-9-10 Name: V. BLAKE JR.
Time: 8:00

Air Sparge Manifold			
AS-1 Flow			scfm
AS-1 Valve Position			% open
AS-2 Flow			scfm
AS-2 Valve Position			% open
AS-3 Flow			scfm
AS-3 Valve Position			% open
AS-4 Flow			scfm
AS-4 Valve Position			% open
AS-5 Flow			scfm
AS-5 Valve Position			% open
AS-6 Flow			scfm
AS-6 Valve Position			% open
AS-7 Flow			scfm
AS-7 Valve Position			% open

MONTHLYSOIL GAS READINGS

Well ID	PID (ppm)	CH_4 (%)	CO_2 (%)	O_2 (%)	Vacuum (In H20)	Comments
VM-1	148.5	01.1	01.7	17.3		
VM-2	136.9	00.5	00.5	12.6		
VM-3	263.1	02.9	02.7	15.5		
VM-4	221.5	03.2	07.6	16.5		
VM-5	106.7	00.7	03.1	17.4		
VM-6	226.6	07.8	03.7	16.2		
VM-7	160.2	00.3	02.2	17.5		
SV-01	276.6	01.4	00.5	20		
SV-02	56.0	00.8	00.2	19.6		
SV-03	229.4	00.6	00.0	20.1		
SV-04	196.4	01.2	01.7	19.3		
Pre-Carbon						
Mid-Carbon						
Post-Carbon						

AS/SVE SYSTEM MONTHLY FIELD MONITORING LOG
Reno ANG Site 7
Reno, NV

Date: 7-12-10 Name: V. BLAKE JR.
Time: 1600

Air Sparge Manifold			
AS-1 Flow			scfm
AS-1 Valve Position			% open
AS-2 Flow			scfm
AS-2 Valve Position			% open
AS-3 Flow			scfm
AS-3 Valve Position			% open
AS-4 Flow			scfm
AS-4 Valve Position			% open
AS-5 Flow			scfm
AS-5 Valve Position			% open
AS-6 Flow			scfm
AS-6 Valve Position			% open
AS-7 Flow			scfm
AS-7 Valve Position			% open

MONTHLYSOIL GAS READINGS

Well ID	PID (ppm)	CH_4 (%)	CO_2 (%)	O_2 (%)	Vacuum (In H20)	Comments
VM-1	94.5	00.1	00.9	18.8		
VM-2	64.0	00.0	01.7	17.8		
VM-3	228.5	02.9	00.9	18.3		
VM-4	162.0	29.1	06.1	08.7		
VM-5	153.9	02.7	00.3	19.2		
VM-6	20.9	27.5	00.2	19.5		
VM-7	252.7	00.7	00.0	20.0		
SV-01	297.1	01.6	00.4	19.4		
SV-02	188.6	02.2	00.8	18.5		
SV-03	243.8	01.0	00.0	20.0		
SV-04	331.9	07.1	00.3	19.4		
Pre-Carbon						
Mid-Carbon						
Post-Carbon						

AS/SVE SYSTEM MONTHLY FIELD MONITORING LOG
Reno ANG Site 7
Reno, NV

Date: 7-12-10 Name: V. BLAKE SR.
Time: 930

Air Sparge Manifold			
AS-1 Flow			scfm
AS-1 Valve Position			% open
AS-2 Flow			scfm
AS-2 Valve Position			% open
AS-3 Flow			scfm
AS-3 Valve Position			% open
AS-4 Flow			scfm
AS-4 Valve Position			% open
AS-5 Flow			scfm
AS-5 Valve Position			% open
AS-6 Flow			scfm
AS-6 Valve Position			% open
AS-7 Flow			scfm
AS-7 Valve Position			% open

MONTHLYSOIL GAS READINGS

Well ID	PID (ppm)	CH_4 (%)	CO_2 (%)	O_2 (%)	Vacuum (In H20)	Comments
VM-1	132.8	00.7	04.1	15.3		
VM-2	151.9	00.3	00.1	08.3		
VM-3	144.9	26.5	05.1	11.5		
VM-4	145.2	59.7	04.4	13.9		
VM-5	152.2	153.5	07.1	04.6		
VM-6	740.5	07.7	07.0	12.7		
VM-7	28.7	00.5	02.3	17.6		
SV-01	273.3	08.7	01.7	18.2		
SV-02	149.5	34.5	03.7	14.2		
SV-03	294.8	00.3	00.0	20.2		
SV-04	322.7	24.6	01.3	18.7		
Pre-Carbon						
Mid-Carbon						
Post-Carbon						

AS/SVE SYSTEM MONTHLY FIELD MONITORING LOG
Reno ANG Site 7
Reno, NV

Date: 7 - 19 - 10 Name: V. BLAKE JR
Time: 0800

System Status on Arival: AS: ON I OFF SVE: ON I OFF | System Status on Departure: AS: ON I OFF SVE: ON I OFF

MONTHLY MONITORING PARAMETERS

GENERAL MEASUREMENT	READING		UNIT	Comments
Treatment System Building				
Dilution Valve	70		% Open	
Temperature	180		oF	
Total Operating Hours	174		hours	
Heat Exchanger	0.3		hrs	
Transfer Pump	0		hrs	
Knockout Tank Level (approx.)	0		gal	
Knockout Tank Vacuum			in hg	
Air Sparge Compressor				
Total Operating Hours	~~174~~ 0.5		hours	
Outlet Total Pressure			psig	
Vapor Carbon Vessels				
Influent	141.9		ppm	
Mid-Carbon	1.5		ppm	
Effluent	3.9		ppm	
Influent Total Flow	0		scfm	
Mid Carbon Total Flow			scfm	
Effluent Total Flow			scfm	
SVE Piping				
SV-01 Flow Rate	0		scfm	
SV-01 Valve Position	100		% open	
SV-01 Vacuum at Manifold			In H_20	
SV-01 Vacuum at Wellhead			In H_20	
SV-02 Flow Rate	0		scfm	
SV-02 Valve Position	100		% open	
SV-02 Vacuum at Manifold			In H_20	
SV-02 Vacuum at Wellhead			In H_20	
SV-03 Flow Rate	0		scfm	
SV-03 Valve Position	100		% open	
SV-03 Vacuum at Manifold			In H_20	
SV-03 Vacuum at Wellhead			In H_20	
SV-04 Flow Rate	0		scfm	
SV-04 Valve Position	100		% open	
SV-04 Vacuum at Manifold			In H_20	
SV-04 Vacuum at Wellhead			In H_20	

AS/SVE SYSTEM MONTHLY FIELD MONITORING LOG
Reno ANG Site 7
Reno, NV

Date: 7-19-10 Name: V. BLAKE JR.
Time: 0800

Air Sparge Manifold			
AS-1 Flow			scfm
AS-1 Valve Position			% open
AS-2 Flow			scfm
AS-2 Valve Position			% open
AS-3 Flow			scfm
AS-3 Valve Position			% open
AS-4 Flow			scfm
AS-4 Valve Position			% open
AS-5 Flow			scfm
AS-5 Valve Position			% open
AS-6 Flow			scfm
AS-6 Valve Position			% open
AS-7 Flow			scfm
AS-7 Valve Position			% open

MONTHLYSOIL GAS READINGS

Well ID	PID (ppm)	CH_4 (%)	CO_2 (%)	O_2 (%)	Vacuum (In H20)	Comments
VM-1	7.1	00.0	01.2	18.3		
VM-2	1.9	00.0	01.0	18.6		
VM-3	180.1	00.0	00.4	17.6		
VM-4	180.1	00.3	01.3	17.4		
VM-5	158.1	00.2	03.3	13.1		
VM-6	77.7	04.8	03.1	14.1		
VM-7	0.7	00.0	00.5	19.6		
SV-01	250.1	00.8	00.3	19.7		
SV-02	133.8	00.2	01.4	18.1		
SV-03	99.0	00.1	00.0	20.2		
SV-04	314.5	02.8	00.2	19.7		
Pre-Carbon						
Mid-Carbon						
Post-Carbon						

in Hg 4 = 54 in H_2O 2 = 27
3 = 40 1 = 14

6 Turns
6.5 close

50
5 open

AS/SVE SYSTEM MONTHLY FIELD MONITORING LOG
Reno ANG Site 7
Reno, NV

Date: 8-5-00 Name: V. Blake d
Time: 8:00

System Status on Arival: AS: ON I OFF SVE: ON I OFF | System Status on Departure: AS: ON I OFF SVE: ON I OFF

MONTHLY MONITORING PARAMETERS

GENERAL MEASUREMENT	READING		UNIT	Comments
Treatment System Building				
SVE Blower				
Dilution Valve	40		% Open	70 % open
Temperature	130		°F	
Total Operating Hours	5716.4		hours	
Heat Exchanger	0		hrs	
Transfer Pump	0		hrs	
Knockout Tank Level (approx.)	0		gal	
Knockout Tank Vacuum	-4 / -3 / -4		in hg	Changed ~~-4~~ to -3 Back to -4
Air Sparge Compressor				
Total Operating Hours			hours	
Outlet Total Pressure			psig	
Vapor Carbon Vessels				
Influent	22.2	20.4	ppm	
Mid-Carbon	6.4		ppm	
Effluent	0.0		ppm	
Influent Total Flow	45.0	41.15	scfm	
Mid Carbon Total Flow	24.29		scfm	
Effluent Total Flow	221.30		scfm	
SVE Piping				~~PID SVE 1 = 10.4~~
SV-01 Flow Rate	6		scfm	
SV-01 Valve Position	25	100/25	% open	
SV-01 Vacuum at Manifold	37.7		In H_2O	19.1 / ~~21.2~~ 24.1
SV-01 Vacuum at Wellhead	31.0		In H_2O	
SV-02 Flow Rate	6		scfm	
SV-02 Valve Position	50	100/~~25~~	% open	
SV-02 Vacuum at Manifold	1.1		In H_2O	1.1
SV-02 Vacuum at Wellhead	1.1		In H_2O	
SV-03 Flow Rate	6		scfm	
SV-03 Valve Position	25	100/25	% open	
SV-03 Vacuum at Manifold	52.5		In H_2O	13.2 / 18.5
SV-03 Vacuum at Wellhead	42.7		In H_2O	
SV-04 Flow Rate	6		scfm	
SV-04 Valve Position	25	100/25	% open	
SV-04 Vacuum at Manifold	43.0		In H_2O	20.1 / ~~24.2~~ 26.3
SV-04 Vacuum at Wellhead	34.5		In H_2O	
Air Sparge Manifold				
AS-1 Inlet Pressure			psig	
AS-1 Valve Position			% open	
AS-2 Inlet Pressure			psig	
AS-2 Valve Position			% open	
AS-3 Inlet Pressure			psig	
AS-3 Valve Position			% open	
AS-4 Inlet Pressure			psig	
AS-4 Valve Position			% open	
AS-5 Inlet Pressure			psig	
AS-5 Valve Position			% open	
AS-6 Inlet Pressure			psig	
AS-6 Valve Position			% open	
AS-7 Inlet Pressure			psig	
AS-7 Valve Position			% open	

AS/SVE SYSTEM MONTHLY FIELD MONITORING LOG
Reno ANG Site 7
Reno, NV

Date: 8-5-10 Name: V. Blake Jr
Time:

MONTHLYSOIL GAS READINGS

Well ID	PID (ppm)	CH_4 (%)	CO_2 (%)	O_2 (%)	Comments
VM-1	6.2	00.0	00.3	20.3	
VM-2	2.7	00.0	00.2	20.4	
VM-3	4.1	00.0	00.3	20.3	
VM-4	39.1	00.0	00.9	19.2	
VM-5	14.0	00.0	01.6	18.1	
VM-6	221.4	777	03.7	16.8	
VM-7	7.0	00.1	00.0	20.6	
SV-01	10.4	00.0	00.0	20.5	
SV-02	23.4	00.0	00.8	19.4	
SV-03	62.6	00.1	00.0	20.7	
SV-04	23.1	00.0	00.0	21.0	Water in the line. Drained Before Sampling

AS/SVE SYSTEM MONTHLY FIELD MONITORING LOG
Reno ANG Site 7
Reno, NV

Date: 8-11-10
Time: 1200
Name: V. BLAKE JR.

System Status on Arival: AS: ON I OFF SVE: ON I OFF
System Status on Departure: AS: ON I OFF SVE: ON I OFF

MONTHLY MONITORING PARAMETERS

GENERAL MEASUREMENT	READING		UNIT	Comments
Treatment System Building				
Dilution Valve			% Open	
Temperature	118		oF	
Total Operating Hours			hours	
Heat Exchanger			hrs	
Transfer Pump			hrs	
Knockout Tank Level (approx.)			gal	
Knockout Tank Vacuum	3		in hg	
Air Sparge Compressor				
Total Operating Hours			hours	
Outlet Total Pressure			psig	
Vapor Carbon Vessels				
Influent	27.4		ppm	
Mid-Carbon	0.9		ppm	
Effluent	1		ppm	
Influent Total Flow	22.5		scfm	
Mid Carbon Total Flow	23.6		scfm	
Effluent Total Flow	232.5		scfm	
SVE Piping				
SV-01 Flow Rate			scfm	
SV-01 Valve Position	25		% open	
SV-01 Vacuum at Manifold			In H_20	
SV-01 Vacuum at Wellhead	24		In H_20	
SV-02 Flow Rate			scfm	
SV-02 Valve Position	100		% open	
SV-02 Vacuum at Manifold			In H_20	
SV-02 Vacuum at Wellhead	0.6		In H_20	
SV-03 Flow Rate			scfm	
SV-03 Valve Position	25		% open	
SV-03 Vacuum at Manifold			In H_20	
SV-03 Vacuum at Wellhead	17.9		In H_20	
SV-04 Flow Rate			scfm	
SV-04 Valve Position	25		% open	
SV-04 Vacuum at Manifold			In H_20	
SV-04 Vacuum at Wellhead	25.2		In H_20	

AS/SVE SYSTEM MONTHLY FIELD MONITORING LOG
Reno ANG Site 7
Reno, NV

Date: 8/11/10 Name: V. BLAKE JR.
Time: 0800

Air Sparge Manifold

AS-1 Flow			scfm
AS-1 Valve Position			% open
AS-2 Flow			scfm
AS-2 Valve Position			% open
AS-3 Flow			scfm
AS-3 Valve Position			% open
AS-4 Flow			scfm
AS-4 Valve Position			% open
AS-5 Flow			scfm
AS-5 Valve Position			% open
AS-6 Flow			scfm
AS-6 Valve Position			% open
AS-7 Flow			scfm
AS-7 Valve Position			% open

MONTHLYSOIL GAS READINGS

Well ID	PID (ppm)	CH_4 (%)	CO_2 (%)	O_2 (%)	Vacuum (In H20)	Comments
VM-1	9.0	00.5	19.9			
VM-2	1.8	00.4	20.1			
VM-3	2.1	00.5	19.9			
VM-4	12.2	02.2	17.8			
VM-5	8.6	02.7	16.8			
VM-6	16.0	7.77	04.8			
VM-7	1.4	00.3	20.2			
SV-01	~~27.1~~					
SV-02	1.3	00.0	20.9			
SV-03	315	00.0	20.8			
SV-04	235.8	00.1	21.1			
Pre-Carbon						
Mid-Carbon						
Post-Carbon						

(2)

AS/SVE SYSTEM MONTHLY FIELD MONITORING LOG
Reno ANG Site 7
Reno, NV

Date: 8-17-10
Time: 14:30
Name: V. Blake Jr

System Status on Arival: AS: ON I OFF SVE: ON I OFF
System Status on Departure: AS: ON I OFF SVE: ON I OFF

MONTHLY MONITORING PARAMETERS

GENERAL MEASUREMENT	READING		UNIT	Comments
Treatment System Building				
Dilution Valve			% Open	
Temperature			oF	
Total Operating Hours			hours	
Heat Exchanger			hrs	
Transfer Pump			hrs	
Knockout Tank Level (approx.)			gal	
Knockout Tank Vacuum			in hg	
Air Sparge Compressor				
Total Operating Hours	2.5		hours	
Outlet Total Pressure	75		psig	
Vapor Carbon Vessels				
Influent	160.1		ppm	
Mid-Carbon	4.5		ppm	
Effluent	1.5		ppm	
Influent Total Flow	20.10		scfm	
Mid Carbon Total Flow	42.30		scfm	
Effluent Total Flow	2.10		scfm	
SVE Piping				
SV-01 Flow Rate			scfm	
SV-01 Valve Position			% open	
SV-01 Vacuum at Manifold			In H_2O	
SV-01 Vacuum at Wellhead		33.4	In H_2O	
SV-02 Flow Rate			scfm	
SV-02 Valve Position			% open	
SV-02 Vacuum at Manifold			In H_2O	
SV-02 Vacuum at Wellhead			In H_2O	
SV-03 Flow Rate			scfm	
SV-03 Valve Position			% open	
SV-03 Vacuum at Manifold			In H_2O	
SV-03 Vacuum at Wellhead			In H_2O	
SV-04 Flow Rate			scfm	
SV-04 Valve Position			% open	
SV-04 Vacuum at Manifold			In H_2O	
SV-04 Vacuum at Wellhead			In H_2O	

AS/SVE SYSTEM MONTHLY FIELD MONITORING LOG
Reno ANG Site 7
Reno, NV

Date: 8/17/10 Name:
Time:

Air Sparge Manifold

AS-1 Inlet Pressure	2 CFM			psig
AS-1 Valve Position				% open
AS-2 Inlet Pressure	2 CFM			psig
AS-2 Valve Position				% open
AS-3 Inlet Pressure	2 CFM			psig
AS-3 Valve Position				% open
AS-4 Inlet Pressure	2 CFM			psig
AS-4 Valve Position				% open
AS-5 Inlet Pressure	2 CFM			psig
AS-5 Valve Position				% open
AS-6 Inlet Pressure	2 CFM			psig
AS-6 Valve Position				% open
AS-7 Inlet Pressure	2 CFM			psig
AS-7 Valve Position				% open

MONTHLYSOIL GAS READINGS

Well ID	PID (ppm)	CH_4 (%)	CO_2 (%)	O_2 (%)	Comments
VM-1	397.1	39.2	01.7	17.9	0.0 In WC Vacuum
VM-2	2.3	00.0	00.0	20.1	0.0
VM-3	168.5	00.8	00.4	19.4	0.0
VM-4	37.2	00.1	00.8	18.7	0.0
VM-5	116.3	01.0	01.4	17.8	0.3
VM-6	56.5	777	01.3	18.3	~~0.2~~ VB -9.0
VM-7	14.2	00.0	00.4	19.1	0.2
SV-01	300.5	02.7	01.1	17.8	33.4 In WC Vacuum Wellhead
SV-02	25.4	00.1	01.1	18.1	0.4 " "
SV-03	VB ~~2~~82.8	00.4	00.0	20.0	23.4 " "
SV-04	258.4	00.5	00.0	20.4	33.6 " "

(3)

AS/SVE SYSTEM MONTHLY FIELD MONITORING LOG
Reno ANG Site 7
Reno, NV

Date: 8-17-10
Time: 16:30
Name: V. Blakedr

System Status on Arival: AS: ON I OFF SVE: ON I OFF
System Status on Departure: AS: ON I OFF SVE: ON I OFF

MONTHLY MONITORING PARAMETERS

GENERAL MEASUREMENT	READING		UNIT	Comments
Treatment System Building				Took system readings after well readings.
Dilution Valve	70		% Open	
Temperature	129		oF	
Total Operating Hours			hours	
Heat Exchanger	4		hrs	
Transfer Pump	~~4~~ 0		hrs	
Knockout Tank Level (approx.)	0		gal	
Knockout Tank Vacuum	-4		in hg	
Air Sparge Compressor				
Total Operating Hours	4		hours	
Outlet Total Pressure	9		psig	
Vapor Carbon Vessels				
Influent			ppm	
Mid-Carbon	20.8		ppm	
Effluent	36.4		ppm	
Influent Total Flow	31.44		scfm	
Mid Carbon Total Flow	18.70		scfm	
Effluent Total Flow	212.20		scfm	
SVE Piping				
SV-01 Flow Rate	8		scfm	
SV-01 Valve Position	50		% open	
SV-01 Vacuum at Manifold	31.3		In H_2O	
SV-01 Vacuum at Wellhead	33.8		In H_2O	
SV-02 Flow Rate	4		scfm	
SV-02 Valve Position	50		% open	
SV-02 Vacuum at Manifold	0.3		In H_2O	
SV-02 Vacuum at Wellhead	0.3		In H_2O	
SV-03 Flow Rate	4		scfm	
SV-03 Valve Position	50		% open	
SV-03 Vacuum at Manifold	22.1		In H_2O	
SV-03 Vacuum at Wellhead	24.1		In H_2O	
SV-04 Flow Rate	4		scfm	
SV-04 Valve Position	50		% open	
SV-04 Vacuum at Manifold	31.2		In H_2O	
SV-04 Vacuum at Wellhead	33.8		In H_2O	

AS/SVE SYSTEM MONTHLY FIELD MONITORING LOG
Reno ANG Site 7
Reno, NV

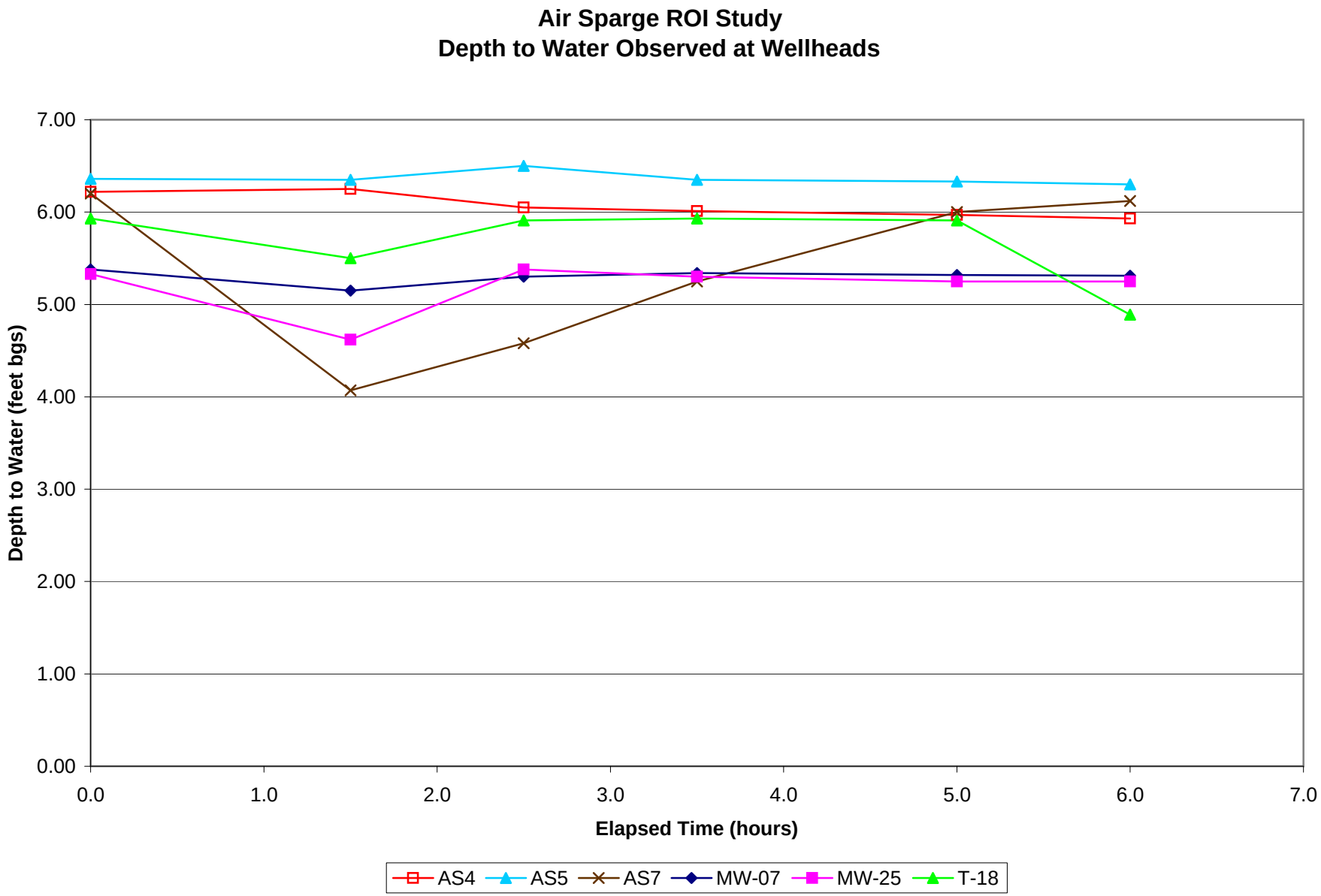
Date: 8/17/10 Name:
Time:

Air Sparge Manifold				
AS-1 Inlet Pressure		9		psig
AS-1 Valve Position	2 CFM	8		% open
AS-2 Inlet Pressure		9		psig
AS-2 Valve Position	2 CFM			% open
AS-3 Inlet Pressure		9		psig
AS-3 Valve Position	2 CFM			% open
AS-4 Inlet Pressure		9		psig
AS-4 Valve Position	2 CFM			% open
AS-5 Inlet Pressure		9		psig
AS-5 Valve Position	2 CFM			% open
AS-6 Inlet Pressure		9		psig
AS-6 Valve Position	2 CFM			% open
AS-7 Inlet Pressure		9		psig
AS-7 Valve Position	2 CFM			% open

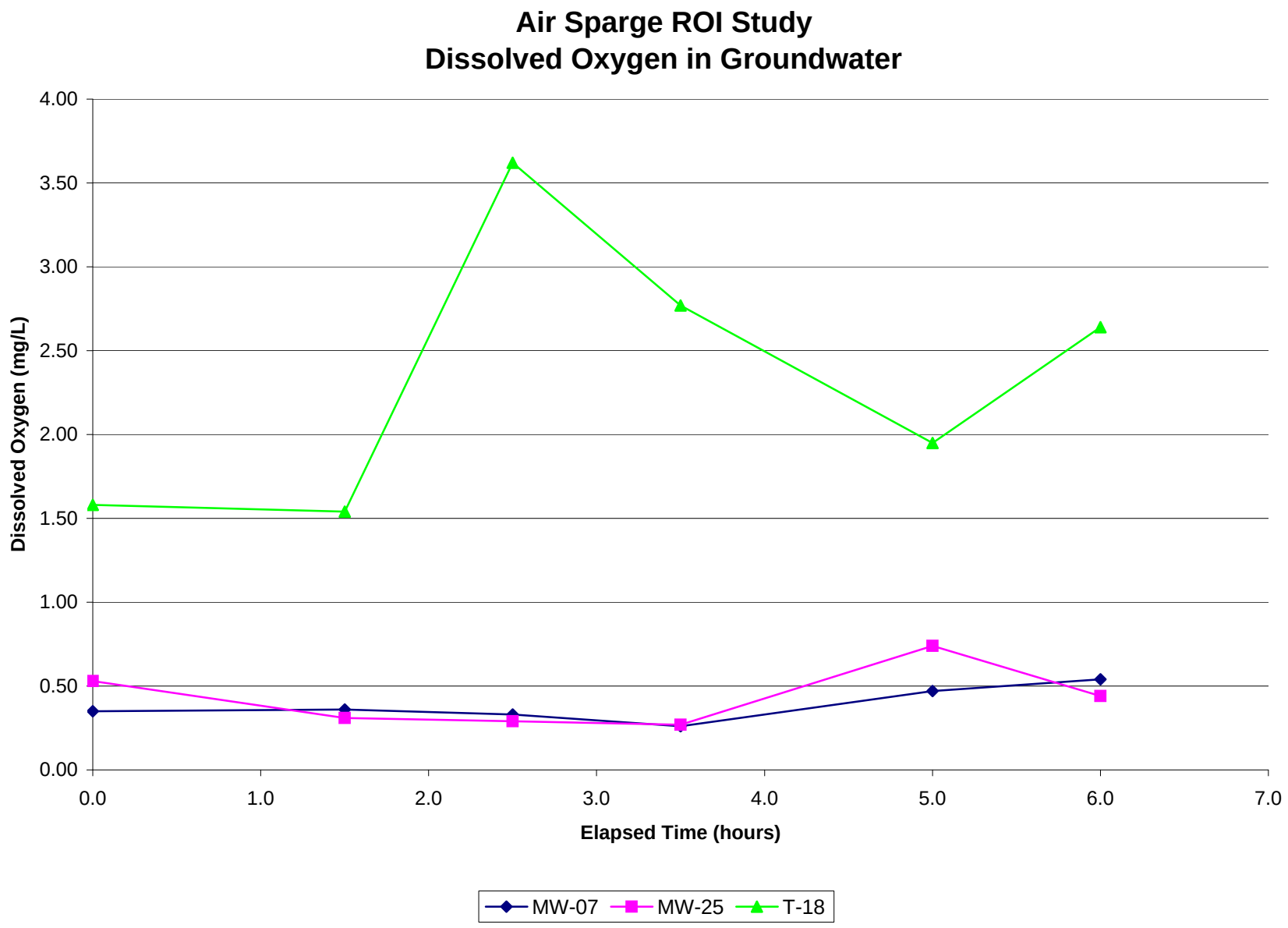
MONTHLYSOIL GAS READINGS

Well ID	PID (ppm)	CH_4 (%)	CO_2 (%)	O_2 (%)	Comments
VM-1	517.6	>77	01.8	17.8	0.0 In WC Vacuum
VM-2	203.4	05.1	00.8	19.1	0.0
VM-3	394.6	04.3	00.5	19.4	0.0
VM-4	396.4	24.4	02.6	16.7	0.0
VM-5	196.7	25.8	03.0	16.3	0.0
VM-6	136.4	>>>	06.2	~~83.8~~ 13.5	-14.5
VM-7	119.8	24.5	03.0	15.9	0.3
SV-01	150.1	26.9	02.7	15.8	33.8 In WC Vacuum
SV-02	256.1	18.8	02.6	15.7	0.3 "
SV-03	44.1	00.3	00.0	19.9	24.1
SV-04 B	~~33.~~ 119.7	~~119.7~~ 00.6 B	00.0	~~0~~ 20.5 B	33.8

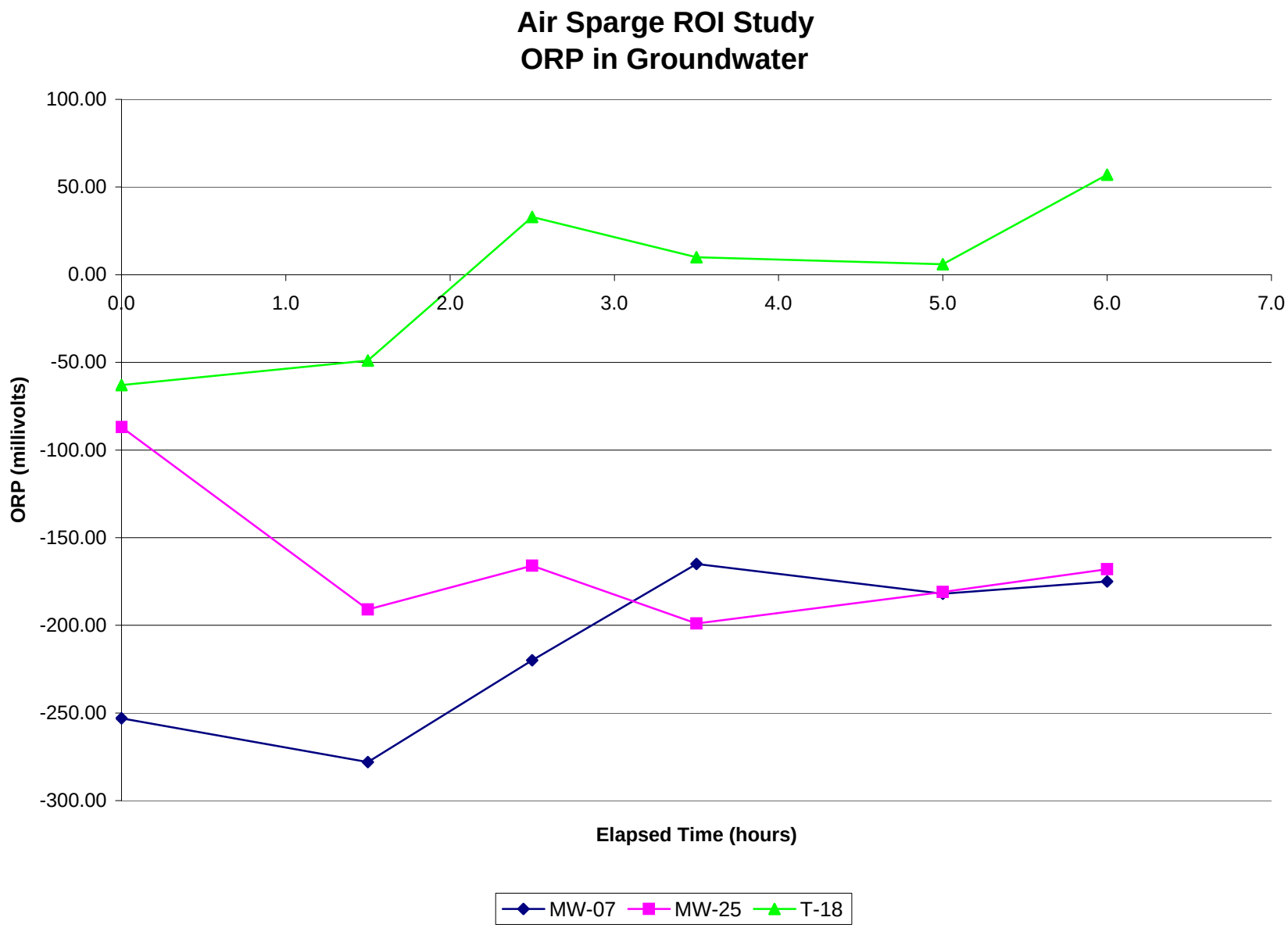
Appendix B
Air Sparge Radius of Influence Data



ROI = Radius of Influence
bgs = Below ground surface



ROI = Radius of Influence
mg/L = Milligrams per liter



ROI = Radius of Influence
ORP = Oxidation Reduction Potential

Appendix C
Laboratory Reports and
Chains-of-Custody

Air Toxics LTD.
Laboratory Services Since 1989

7/29/2010
Mr. Bruce Lewis
ERM-West
2525 Natomas Park Drive
Suite 350
Sacramento CA 95833

Project Name: Reno ANG
Project #: 0104707-3A1
Workorder #: 1007310

Dear Mr. Bruce Lewis

The following report includes the data for the above referenced project for sample(s) received on 7/15/2010 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 (5&20 ppbv) are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Karen Lopez at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Karen Lopez

Karen Lopez
Project Manager

Air Toxics LTD.
Laboratory Services Since 1989

WORK ORDER #: 1007310

Work Order Summary

CLIENT:	Mr. Bruce Lewis ERM-West 2525 Natomas Park Drive Suite 350 Sacramento, CA 95833	**BILL TO:**	Accounts Payable ERM-West 1277 Treat Blvd Suite 500 Walnut Creek, CA 94597
PHONE:	916-924-9378	**P.O. #**	0104707.31A
FAX:	916-924-5313	**PROJECT #**	0104707-3A1 Reno ANG
DATE RECEIVED:	07/15/2010	**CONTACT:**	Karen Lopez
DATE COMPLETED:	07/29/2010		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	RENO-ANG-IN	Modified TO-15 (5&20 ppbv	10.8 "Hg	15 psi
02A	Lab Blank	Modified TO-15 (5&20 ppbv	NA	NA
03A	CCV	Modified TO-15 (5&20 ppbv	NA	NA
04A	LCS	Modified TO-15 (5&20 ppbv	NA	NA

CERTIFIED BY: Linda J. Freeman

Laboratory Director

DATE: 07/29/10

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763,
NY NELAP - 11291, UT NELAP - 9166389892, AZ Licensure AZ0719
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/09, Expiration date: 06/30/10
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Air Toxics Ltd.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15 Soil Gas
ERM-West
Workorder# 1007310

One 1 Liter Summa Canister sample was received on July 15, 2010. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode. The method involves concentrating up to 50 mLs of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	***TO-15***	***ATL Modifications***
Daily CCV	+- 30% Difference	</= 30% Difference with two allowed out up to </=40%.; flag and narrate outliers
Sample collection media	Summa canister	ATL recommends use of summa canisters to insure data defensibility, but will report results from Tedlar bags at client request
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

Receiving Notes

Sample collection date was incomplete on the Chain of Custody (COC) for sample RENO-ANG-IN. The sampling date was taken from the tag.

Analytical Notes

All Quality Control Limit exceedences and affected sample results are noted by flags. Each flag is defined at the bottom of this Case Narrative and on each Sample Result Summary page. Target compound non-detects in the samples that are associated with high bias in QC analyses have not been flagged.

Dilution was performed on sample RENO-ANG-IN due to the presence of high level non-target species.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.

UJ- Non-detected compound associated with low bias in the CCV

N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:

a-File was requantified

b-File was quantified by a second column and detector

r1-File was requantified for the purpose of reissue

Air Toxics LTD.
Laboratory Services Since 1989

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS

Client Sample ID: RENO-ANG-IN

Lab ID#: 1007310-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Hexane	260	690	930	2400
Tetrahydrofuran	260	1600	780	4800
Cyclohexane	260	50000	910	170000
Benzene	260	4000	840	13000
Ethyl Benzene	260	310	1100	1400
m,p-Xylene	260	930	1100	4000
Propylbenzene	260	290	1300	1400
4-Ethyltoluene	260	330	1300	1600
1,2,4-Trimethylbenzene	260	330	1300	1600

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: RENO-ANG-IN

Lab ID#: 1007310-01A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**b072130**	**Date of Collection:**	**7/12/10 2:08:00 PM**
Dil. Factor:	**52.7**	**Date of Analysis:**	**7/22/10 08:59 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	260	Not Detected	1300	Not Detected
Freon 114	260	Not Detected	1800	Not Detected
Chloromethane	1000	Not Detected	2200	Not Detected
Vinyl Chloride	260	Not Detected	670	Not Detected
1,3-Butadiene	260	Not Detected	580	Not Detected
Bromomethane	260	Not Detected	1000	Not Detected
Chloroethane	260	Not Detected	700	Not Detected
Freon 11	260	Not Detected	1500	Not Detected
Ethanol	1000	Not Detected	2000	Not Detected
Freon 113	260	Not Detected	2000	Not Detected
1,1-Dichloroethene	260	Not Detected	1000	Not Detected
Acetone	1000	Not Detected	2500	Not Detected
2-Propanol	1000	Not Detected	2600	Not Detected
Carbon Disulfide	260	Not Detected	820	Not Detected
3-Chloropropene	1000	Not Detected	3300	Not Detected
Methylene Chloride	260	Not Detected	920	Not Detected
Methyl tert-butyl ether	260	Not Detected	950	Not Detected
trans-1,2-Dichloroethene	260	Not Detected	1000	Not Detected
Hexane	260	690	930	2400
1,1-Dichloroethane	260	Not Detected	1100	Not Detected
2-Butanone (Methyl Ethyl Ketone)	260	Not Detected	780	Not Detected
cis-1,2-Dichloroethene	260	Not Detected	1000	Not Detected
Tetrahydrofuran	260	1600	780	4800
Chloroform	260	Not Detected	1300	Not Detected
1,1,1-Trichloroethane	260	Not Detected	1400	Not Detected
Cyclohexane	260	50000	910	170000
Carbon Tetrachloride	260	Not Detected	1600	Not Detected
2,2,4-Trimethylpentane	260	Not Detected	1200	Not Detected
Benzene	260	4000	840	13000
1,2-Dichloroethane	260	Not Detected	1100	Not Detected
Heptane	260	Not Detected	1100	Not Detected
Trichloroethene	260	Not Detected	1400	Not Detected
1,2-Dichloropropane	260	Not Detected	1200	Not Detected
1,4-Dioxane	1000	Not Detected	3800	Not Detected
Bromodichloromethane	260	Not Detected	1800	Not Detected
cis-1,3-Dichloropropene	260	Not Detected	1200	Not Detected
4-Methyl-2-pentanone	260	Not Detected	1100	Not Detected
Toluene	260	Not Detected	990	Not Detected
trans-1,3-Dichloropropene	260	Not Detected	1200	Not Detected
1,1,2-Trichloroethane	260	Not Detected	1400	Not Detected
Tetrachloroethene	260	Not Detected	1800	Not Detected

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: RENO-ANG-IN

Lab ID#: 1007310-01A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**b072130**	**Date of Collection:**	**7/12/10 2:08:00 PM**
Dil. Factor:	**52.7**	**Date of Analysis:**	**7/22/10 08:59 AM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2-Hexanone	1000	Not Detected	4300	Not Detected
Dibromochloromethane	260	Not Detected	2200	Not Detected
1,2-Dibromoethane (EDB)	260	Not Detected	2000	Not Detected
Chlorobenzene	260	Not Detected	1200	Not Detected
Ethyl Benzene	260	310	1100	1400
m,p-Xylene	260	930	1100	4000
o-Xylene	260	Not Detected	1100	Not Detected
Styrene	260	Not Detected	1100	Not Detected
Bromoform	260	Not Detected	2700	Not Detected
Cumene	260	Not Detected	1300	Not Detected
1,1,2,2-Tetrachloroethane	260	Not Detected	1800	Not Detected
Propylbenzene	260	290	1300	1400
4-Ethyltoluene	260	330	1300	1600
1,3,5-Trimethylbenzene	260	Not Detected	1300	Not Detected
1,2,4-Trimethylbenzene	260	330	1300	1600
1,3-Dichlorobenzene	260	Not Detected	1600	Not Detected
1,4-Dichlorobenzene	260	Not Detected	1600	Not Detected
alpha-Chlorotoluene	260	Not Detected	1400	Not Detected
1,2-Dichlorobenzene	260	Not Detected	1600	Not Detected
1,2,4-Trichlorobenzene	1000	Not Detected	7800	Not Detected
Hexachlorobutadiene	1000	Not Detected UJ	11000	Not Detected UJ
Naphthalene	1000	Not Detected	5500	Not Detected

UJ = Non-detected compound associated with low bias in the CCV

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	128	70-130
Toluene-d8	115	70-130
4-Bromofluorobenzene	94	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: Lab Blank

Lab ID#: 1007310-02A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**b072106**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 7/21/10 07:38 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	5.0	Not Detected	25	Not Detected
Freon 114	5.0	Not Detected	35	Not Detected
Chloromethane	20	Not Detected	41	Not Detected
Vinyl Chloride	5.0	Not Detected	13	Not Detected
1,3-Butadiene	5.0	Not Detected	11	Not Detected
Bromomethane	5.0	Not Detected	19	Not Detected
Chloroethane	5.0	Not Detected	13	Not Detected
Freon 11	5.0	Not Detected	28	Not Detected
Ethanol	20	Not Detected	38	Not Detected
Freon 113	5.0	Not Detected	38	Not Detected
1,1-Dichloroethene	5.0	Not Detected	20	Not Detected
Acetone	20	Not Detected	48	Not Detected
2-Propanol	20	Not Detected	49	Not Detected
Carbon Disulfide	5.0	Not Detected	16	Not Detected
3-Chloropropene	20	Not Detected	63	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	5.0	Not Detected	18	Not Detected
trans-1,2-Dichloroethene	5.0	Not Detected	20	Not Detected
Hexane	5.0	Not Detected	18	Not Detected
1,1-Dichloroethane	5.0	Not Detected	20	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.0	Not Detected	15	Not Detected
cis-1,2-Dichloroethene	5.0	Not Detected	20	Not Detected
Tetrahydrofuran	5.0	Not Detected	15	Not Detected
Chloroform	5.0	Not Detected	24	Not Detected
1,1,1-Trichloroethane	5.0	Not Detected	27	Not Detected
Cyclohexane	5.0	Not Detected	17	Not Detected
Carbon Tetrachloride	5.0	Not Detected	31	Not Detected
2,2,4-Trimethylpentane	5.0	Not Detected	23	Not Detected
Benzene	5.0	Not Detected	16	Not Detected
1,2-Dichloroethane	5.0	Not Detected	20	Not Detected
Heptane	5.0	Not Detected	20	Not Detected
Trichloroethene	5.0	Not Detected	27	Not Detected
1,2-Dichloropropane	5.0	Not Detected	23	Not Detected
1,4-Dioxane	20	Not Detected	72	Not Detected
Bromodichloromethane	5.0	Not Detected	34	Not Detected
cis-1,3-Dichloropropene	5.0	Not Detected	23	Not Detected
4-Methyl-2-pentanone	5.0	Not Detected	20	Not Detected
Toluene	5.0	Not Detected	19	Not Detected
trans-1,3-Dichloropropene	5.0	Not Detected	23	Not Detected
1,1,2-Trichloroethane	5.0	Not Detected	27	Not Detected
Tetrachloroethene	5.0	Not Detected	34	Not Detected

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: Lab Blank

Lab ID#: 1007310-02A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**b072106**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 7/21/10 07:38 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2-Hexanone	20	Not Detected	82	Not Detected
Dibromochloromethane	5.0	Not Detected	42	Not Detected
1,2-Dibromoethane (EDB)	5.0	Not Detected	38	Not Detected
Chlorobenzene	5.0	Not Detected	23	Not Detected
Ethyl Benzene	5.0	Not Detected	22	Not Detected
m,p-Xylene	5.0	Not Detected	22	Not Detected
o-Xylene	5.0	Not Detected	22	Not Detected
Styrene	5.0	Not Detected	21	Not Detected
Bromoform	5.0	Not Detected	52	Not Detected
Cumene	5.0	Not Detected	24	Not Detected
1,1,2,2-Tetrachloroethane	5.0	Not Detected	34	Not Detected
Propylbenzene	5.0	Not Detected	24	Not Detected
4-Ethyltoluene	5.0	Not Detected	24	Not Detected
1,3,5-Trimethylbenzene	5.0	Not Detected	24	Not Detected
1,2,4-Trimethylbenzene	5.0	Not Detected	24	Not Detected
1,3-Dichlorobenzene	5.0	Not Detected	30	Not Detected
1,4-Dichlorobenzene	5.0	Not Detected	30	Not Detected
alpha-Chlorotoluene	5.0	Not Detected	26	Not Detected
1,2-Dichlorobenzene	5.0	Not Detected	30	Not Detected
1,2,4-Trichlorobenzene	20	Not Detected	150	Not Detected
Hexachlorobutadiene	20	Not Detected UJ	210	Not Detected UJ
Naphthalene	20	Not Detected	100	Not Detected

UJ = Non-detected compound associated with low bias in the CCV

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	115	70-130
Toluene-d8	103	70-130
4-Bromofluorobenzene	91	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: CCV

Lab ID#: 1007310-03A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**b072104**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 7/21/10 05:47 PM**

Compound	%Recovery
Freon 12	100
Freon 114	91
Chloromethane	110
Vinyl Chloride	138 Q
1,3-Butadiene	129
Bromomethane	107
Chloroethane	104
Freon 11	101
Ethanol	108
Freon 113	94
1,1-Dichloroethene	108
Acetone	101
2-Propanol	95
Carbon Disulfide	108
3-Chloropropene	96
Methylene Chloride	98
Methyl tert-butyl ether	96
trans-1,2-Dichloroethene	106
Hexane	107
1,1-Dichloroethane	110
2-Butanone (Methyl Ethyl Ketone)	101
cis-1,2-Dichloroethene	111
Tetrahydrofuran	104
Chloroform	110
1,1,1-Trichloroethane	103
Cyclohexane	105
Carbon Tetrachloride	101
2,2,4-Trimethylpentane	109
Benzene	110
1,2-Dichloroethane	113
Heptane	103
Trichloroethene	106
1,2-Dichloropropane	108
1,4-Dioxane	100
Bromodichloromethane	107
cis-1,3-Dichloropropene	98
4-Methyl-2-pentanone	92
Toluene	108
trans-1,3-Dichloropropene	96
1,1,2-Trichloroethane	102
Tetrachloroethene	96

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: CCV

Lab ID#: 1007310-03A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**b072104**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 7/21/10 05:47 PM**	

Compound	**%Recovery**
2-Hexanone	95
Dibromochloromethane	97
1,2-Dibromoethane (EDB)	101
Chlorobenzene	104
Ethyl Benzene	102
m,p-Xylene	100
o-Xylene	101
Styrene	106
Bromoform	96
Cumene	106
1,1,2,2-Tetrachloroethane	111
Propylbenzene	104
4-Ethyltoluene	103
1,3,5-Trimethylbenzene	108
1,2,4-Trimethylbenzene	100
1,3-Dichlorobenzene	98
1,4-Dichlorobenzene	97
alpha-Chlorotoluene	102
1,2-Dichlorobenzene	96
1,2,4-Trichlorobenzene	71
Hexachlorobutadiene	66 Q
Naphthalene	98

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	114	70-130
Toluene-d8	106	70-130
4-Bromofluorobenzene	95	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCS

Lab ID#: 1007310-04A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**b072105**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 7/21/10 06:30 PM**

Compound	%Recovery
Freon 12	111
Freon 114	105
Chloromethane	118
Vinyl Chloride	134 Q
1,3-Butadiene	139
Bromomethane	123
Chloroethane	118
Freon 11	116
Ethanol	109
Freon 113	97
1,1-Dichloroethene	109
Acetone	110
2-Propanol	106
Carbon Disulfide	122
3-Chloropropene	106
Methylene Chloride	102
Methyl tert-butyl ether	107
trans-1,2-Dichloroethene	117
Hexane	118
1,1-Dichloroethane	119
2-Butanone (Methyl Ethyl Ketone)	117
cis-1,2-Dichloroethene	124
Tetrahydrofuran	118
Chloroform	123
1,1,1-Trichloroethane	115
Cyclohexane	119
Carbon Tetrachloride	114
2,2,4-Trimethylpentane	122
Benzene	124
1,2-Dichloroethane	128
Heptane	118
Trichloroethene	120
1,2-Dichloropropane	123
1,4-Dioxane	115
Bromodichloromethane	121
cis-1,3-Dichloropropene	115
4-Methyl-2-pentanone	100
Toluene	118
trans-1,3-Dichloropropene	112
1,1,2-Trichloroethane	116
Tetrachloroethene	106

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCS

Lab ID#: 1007310-04A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**b072105**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 7/21/10 06:30 PM**

Compound	%Recovery
2-Hexanone	108
Dibromochloromethane	113
1,2-Dibromoethane (EDB)	120
Chlorobenzene	120
Ethyl Benzene	118
m,p-Xylene	117
o-Xylene	117
Styrene	123
Bromoform	112
Cumene	119
1,1,2,2-Tetrachloroethane	130
Propylbenzene	119
4-Ethyltoluene	118
1,3,5-Trimethylbenzene	125
1,2,4-Trimethylbenzene	117
1,3-Dichlorobenzene	116
1,4-Dichlorobenzene	117
alpha-Chlorotoluene	119
1,2-Dichlorobenzene	113
1,2,4-Trichlorobenzene	83
Hexachlorobutadiene	84
Naphthalene	116

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	113	70-130
Toluene-d8	106	70-130
4-Bromofluorobenzene	97	70-130

Environmental Resources Management

CHAIN OF CUSTODY RECORD

1007310

NO: SP: 7935

2525 Natomas Park Drive, Suite 350 • Sacramento, CA • 95833 • (916) 924-9378 • FAX (916) 920-9378

Page 1 of 1

PROJECT #	PROJECT NAME
0104707-3A1	Reno ANG

SAMPLER: (PRINT NAME)	(SIGNATURE)
Virgil Blake Jr	Virgil Blake Jr

RECEIVING LABORATORY: Air Toxics Folsom. CA

	SAMPLE I. D.	DATE	TIME	COMP	GRAB	SAMPLING METHOD	PRESERVATIVE	ICE Y/N	SAMPLING VOLUME	# OF CONTAINERS	MATRIX SOIL	MATRIX WATER	MATRIX GAS	TO-15								Vacuum	Canister #
01A	RENO-ANG-IN	7/12	14:08		X	Port	None	N	1L	1			X	✓								-25/-6	3849

REQUESTED PARAMETERS

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME
Virgil Blake Jr.	7/14/10	1600	FedEx		
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME
			Monica Gregsen ATL	7/15/10	840
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME

FIELD REMARKS

REMARKS ON SAMPLE RECEIPT

☐ BOTTLE INTACT ☐ CUSTODY SEALS ☐ CHILLED
☐ PRESERVED ☐ SEALS INTACT ☐ SEE REMARKS

CUSTODY SEAL INTACT? Y N NONE

TEMP: NA

FedEx

SEND REPORT TO: bruce.lewis@erm.com

WHITE - LABORATORY PINK - DATABASE MANAGER GOLD - PROJECT FILE

Air Toxics LTD.
Laboratory Services Since 1989

9/2/2010
Mr. Bruce Lewis
ERM-West
2525 Natomas Park Drive
Suite 350
Sacramento CA 95833

Project Name: Reno ANG
Project #: 0104707.3 A2
Workorder #: 1008534

Dear Mr. Bruce Lewis

The following report includes the data for the above referenced project for sample(s) received on 8/23/2010 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Karen Lopez at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Karen Lopez

Karen Lopez
Project Manager

Air Toxics LTD.
Laboratory Services Since 1989

WORK ORDER #: 1008534

Work Order Summary

CLIENT:	Mr. Bruce Lewis ERM-West 2525 Natomas Park Drive Suite 350 Sacramento, CA 95833	**BILL TO:**	Accounts Payable ERM-West 1277 Treat Blvd Suite 500 Walnut Creek, CA 94597
PHONE:	916-924-9378	**P.O. #**	0104707.31A
FAX:	916-924-5313	**PROJECT #**	0104707.3 A2 Reno ANG
DATE RECEIVED:	08/23/2010	**CONTACT:**	Karen Lopez
DATE COMPLETED:	09/02/2010		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	RENO ANG EFFLUENT	Modified TO-15	5.5 "Hg	15 psi
02A	RENO ANG INFLUENT	Modified TO-15	8.0 "Hg	15 psi
03A	Lab Blank	Modified TO-15	NA	NA
03B	Lab Blank	Modified TO-15	NA	NA
04A	CCV	Modified TO-15	NA	NA
04B	CCV	Modified TO-15	NA	NA
05A	LCS	Modified TO-15	NA	NA
05B	LCS	Modified TO-15	NA	NA

CERTIFIED BY: Linda J. Freeman DATE: 09/02/10

Laboratory Director

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763,
NY NELAP - 11291, UT NELAP - 9166389892, AZ Licensure AZ0719
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/09, Expiration date: 06/30/10
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Air Toxics Ltd.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
EPA Method TO-15
ERM-West
Workorder# 1008534

Two 1 Liter Summa Canister samples were received on August 23, 2010. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the full scan mode.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

All Quality Control Limit exceedences and affected sample results are noted by flags. Each flag is defined at the bottom of this Case Narrative and on each Sample Result Summary page. Target compound non-detects in the samples that are associated with high bias in QC analyses have not been flagged.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the reporting limit.
UJ- Non-detected compound associated with low bias in the CCV
N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

Air Toxics LTD.
Laboratory Services Since 1989

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

Client Sample ID: RENO ANG EFFLUENT

Lab ID#: 1008534-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Ethanol	4.9	12	9.3	22
Acetone	4.9	7.4	12	18
Hexane	1.2	1.2	4.4	4.3
2-Butanone (Methyl Ethyl Ketone)	1.2	1.6	3.6	4.9
Cyclohexane	1.2	2.4	4.2	8.3
Trichloroethene	1.2	2.8	6.6	15

Client Sample ID: RENO ANG INFLUENT

Lab ID#: 1008534-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Hexane	1400	540000	4900	1900000
Cyclohexane	1400	960000	4800	3300000
Benzene	1400	110000	4400	350000
Heptane	1400	260000	5600	1000000
Tetrachloroethene	1400	5900	9400	40000
Ethyl Benzene	1400	19000	6000	81000
m,p-Xylene	1400	52000	6000	230000
o-Xylene	1400	3100	6000	14000
Cumene	1400	3400	6800	17000
Propylbenzene	1400	3000	6800	15000
4-Ethyltoluene	1400	7000	6800	34000
1,3,5-Trimethylbenzene	1400	3000	6800	15000
1,2,4-Trimethylbenzene	1400	5400	6800	27000

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: RENO ANG EFFLUENT

Lab ID#: 1008534-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**6082720**	**Date of Collection:**	**8/18/10 6:08:00 PM**
Dil. Factor:	**2.47**	**Date of Analysis:**	**8/27/10 05:01 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.2	Not Detected	6.1	Not Detected
Freon 114	1.2	Not Detected	8.6	Not Detected
Chloromethane	4.9	Not Detected	10	Not Detected
Vinyl Chloride	1.2	Not Detected	3.2	Not Detected
1,3-Butadiene	1.2	Not Detected	2.7	Not Detected
Bromomethane	1.2	Not Detected	4.8	Not Detected
Chloroethane	1.2	Not Detected	3.2	Not Detected
Freon 11	1.2	Not Detected	6.9	Not Detected
Ethanol	4.9	12	9.3	22
Freon 113	1.2	Not Detected	9.5	Not Detected
1,1-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Acetone	4.9	7.4	12	18
2-Propanol	4.9	Not Detected	12	Not Detected
Carbon Disulfide	1.2	Not Detected	3.8	Not Detected
3-Chloropropene	4.9	Not Detected	15	Not Detected
Methylene Chloride	1.2	Not Detected	4.3	Not Detected
Methyl tert-butyl ether	1.2	Not Detected	4.4	Not Detected
trans-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Hexane	1.2	1.2	4.4	4.3
1,1-Dichloroethane	1.2	Not Detected	5.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	1.2	1.6	3.6	4.9
cis-1,2-Dichloroethene	1.2	Not Detected	4.9	Not Detected
Tetrahydrofuran	1.2	Not Detected	3.6	Not Detected
Chloroform	1.2	Not Detected	6.0	Not Detected
1,1,1-Trichloroethane	1.2	Not Detected	6.7	Not Detected
Cyclohexane	1.2	2.4	4.2	8.3
Carbon Tetrachloride	1.2	Not Detected	7.8	Not Detected
2,2,4-Trimethylpentane	1.2	Not Detected	5.8	Not Detected
Benzene	1.2	Not Detected	3.9	Not Detected
1,2-Dichloroethane	1.2	Not Detected	5.0	Not Detected
Heptane	1.2	Not Detected	5.1	Not Detected
Trichloroethene	1.2	2.8	6.6	15
1,2-Dichloropropane	1.2	Not Detected	5.7	Not Detected
1,4-Dioxane	4.9	Not Detected	18	Not Detected
Bromodichloromethane	1.2	Not Detected	8.3	Not Detected
cis-1,3-Dichloropropene	1.2	Not Detected	5.6	Not Detected
4-Methyl-2-pentanone	1.2	Not Detected	5.0	Not Detected
Toluene	1.2	Not Detected	4.6	Not Detected
trans-1,3-Dichloropropene	1.2	Not Detected	5.6	Not Detected
1,1,2-Trichloroethane	1.2	Not Detected	6.7	Not Detected
Tetrachloroethene	1.2	Not Detected	8.4	Not Detected

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: RENO ANG EFFLUENT

Lab ID#: 1008534-01A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**6082720**	**Date of Collection:**	**8/18/10 6:08:00 PM**
Dil. Factor:	**2.47**	**Date of Analysis:**	**8/27/10 05:01 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2-Hexanone	4.9	Not Detected	20	Not Detected
Dibromochloromethane	1.2	Not Detected	10	Not Detected
1,2-Dibromoethane (EDB)	1.2	Not Detected	9.5	Not Detected
Chlorobenzene	1.2	Not Detected	5.7	Not Detected
Ethyl Benzene	1.2	Not Detected	5.4	Not Detected
m,p-Xylene	1.2	Not Detected	5.4	Not Detected
o-Xylene	1.2	Not Detected	5.4	Not Detected
Styrene	1.2	Not Detected	5.3	Not Detected
Bromoform	1.2	Not Detected	13	Not Detected
Cumene	1.2	Not Detected	6.1	Not Detected
1,1,2,2-Tetrachloroethane	1.2	Not Detected	8.5	Not Detected
Propylbenzene	1.2	Not Detected	6.1	Not Detected
4-Ethyltoluene	1.2	Not Detected	6.1	Not Detected
1,3,5-Trimethylbenzene	1.2	Not Detected	6.1	Not Detected
1,2,4-Trimethylbenzene	1.2	Not Detected	6.1	Not Detected
1,3-Dichlorobenzene	1.2	Not Detected	7.4	Not Detected
1,4-Dichlorobenzene	1.2	Not Detected	7.4	Not Detected
alpha-Chlorotoluene	1.2	Not Detected	6.4	Not Detected
1,2-Dichlorobenzene	1.2	Not Detected	7.4	Not Detected
1,2,4-Trichlorobenzene	4.9	Not Detected	37	Not Detected
Hexachlorobutadiene	4.9	Not Detected	53	Not Detected
Naphthalene	4.9	Not Detected	26	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	103	70-130
1,2-Dichloroethane-d4	112	70-130
4-Bromofluorobenzene	92	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: RENO ANG INFLUENT

Lab ID#: 1008534-02A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w082823**	**Date of Collection:**	**8/18/10 3:19:00 PM**
Dil. Factor:	**276**	**Date of Analysis:**	**8/28/10 09:38 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1400	Not Detected	6800	Not Detected
Freon 114	1400	Not Detected	9600	Not Detected
Chloromethane	5500	Not Detected	11000	Not Detected
Vinyl Chloride	1400	Not Detected	3500	Not Detected
1,3-Butadiene	1400	Not Detected	3000	Not Detected
Bromomethane	1400	Not Detected	5400	Not Detected
Chloroethane	1400	Not Detected	3600	Not Detected
Freon 11	1400	Not Detected	7800	Not Detected
Ethanol	5500	Not Detected	10000	Not Detected
Freon 113	1400	Not Detected	10000	Not Detected
1,1-Dichloroethene	1400	Not Detected	5500	Not Detected
Acetone	5500	Not Detected	13000	Not Detected
2-Propanol	5500	Not Detected	14000	Not Detected
Carbon Disulfide	1400	Not Detected	4300	Not Detected
3-Chloropropene	5500	Not Detected	17000	Not Detected
Methylene Chloride	1400	Not Detected	4800	Not Detected
Methyl tert-butyl ether	1400	Not Detected	5000	Not Detected
trans-1,2-Dichloroethene	1400	Not Detected	5500	Not Detected
Hexane	1400	540000	4900	1900000
1,1-Dichloroethane	1400	Not Detected	5600	Not Detected
2-Butanone (Methyl Ethyl Ketone)	1400	Not Detected	4100	Not Detected
cis-1,2-Dichloroethene	1400	Not Detected	5500	Not Detected
Tetrahydrofuran	1400	Not Detected	4100	Not Detected
Chloroform	1400	Not Detected	6700	Not Detected
1,1,1-Trichloroethane	1400	Not Detected	7500	Not Detected
Cyclohexane	1400	960000	4800	3300000
Carbon Tetrachloride	1400	Not Detected	8700	Not Detected
2,2,4-Trimethylpentane	1400	Not Detected	6400	Not Detected
Benzene	1400	110000	4400	350000
1,2-Dichloroethane	1400	Not Detected	5600	Not Detected
Heptane	1400	260000	5600	1000000
Trichloroethene	1400	Not Detected	7400	Not Detected
1,2-Dichloropropane	1400	Not Detected	6400	Not Detected
1,4-Dioxane	5500	Not Detected	20000	Not Detected
Bromodichloromethane	1400	Not Detected	9200	Not Detected
cis-1,3-Dichloropropene	1400	Not Detected	6300	Not Detected
4-Methyl-2-pentanone	1400	Not Detected	5600	Not Detected
Toluene	1400	Not Detected	5200	Not Detected
trans-1,3-Dichloropropene	1400	Not Detected	6300	Not Detected
1,1,2-Trichloroethane	1400	Not Detected	7500	Not Detected
Tetrachloroethene	1400	5900	9400	40000

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: RENO ANG INFLUENT

Lab ID#: 1008534-02A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w082823**	**Date of Collection:**	**8/18/10 3:19:00 PM**
Dil. Factor:	**276**	**Date of Analysis:**	**8/28/10 09:38 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2-Hexanone	5500	Not Detected	23000	Not Detected
Dibromochloromethane	1400	Not Detected	12000	Not Detected
1,2-Dibromoethane (EDB)	1400	Not Detected	11000	Not Detected
Chlorobenzene	1400	Not Detected	6400	Not Detected
Ethyl Benzene	1400	19000	6000	81000
m,p-Xylene	1400	52000	6000	230000
o-Xylene	1400	3100	6000	14000
Styrene	1400	Not Detected	5900	Not Detected
Bromoform	1400	Not Detected	14000	Not Detected
Cumene	1400	3400	6800	17000
1,1,2,2-Tetrachloroethane	1400	Not Detected	9500	Not Detected
Propylbenzene	1400	3000	6800	15000
4-Ethyltoluene	1400	7000	6800	34000
1,3,5-Trimethylbenzene	1400	3000	6800	15000
1,2,4-Trimethylbenzene	1400	5400	6800	27000
1,3-Dichlorobenzene	1400	Not Detected	8300	Not Detected
1,4-Dichlorobenzene	1400	Not Detected	8300	Not Detected
alpha-Chlorotoluene	1400	Not Detected	7100	Not Detected
1,2-Dichlorobenzene	1400	Not Detected	8300	Not Detected
1,2,4-Trichlorobenzene	5500	Not Detected	41000	Not Detected
Hexachlorobutadiene	5500	Not Detected	59000	Not Detected
Naphthalene	5500	Not Detected	29000	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	92	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	96	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: Lab Blank

Lab ID#: 1008534-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**6082706**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/27/10 09:47 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	2.0	Not Detected	4.1	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Bromomethane	0.50	Not Detected	1.9	Not Detected
Chloroethane	0.50	Not Detected	1.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
Ethanol	2.0	Not Detected	3.8	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	2.0	Not Detected	4.8	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	0.50	Not Detected	1.6	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	0.50	Not Detected	1.7	Not Detected
Methyl tert-butyl ether	0.50	Not Detected	1.8	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.50	Not Detected	1.5	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: Lab Blank

Lab ID#: 1008534-03A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**6082706**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/27/10 09:47 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2-Hexanone	2.0	Not Detected	8.2	Not Detected
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Styrene	0.50	Not Detected	2.1	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
Cumene	0.50	Not Detected	2.4	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,2,4-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected
Naphthalene	2.0	Not Detected	10	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	108	70-130
4-Bromofluorobenzene	92	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: Lab Blank

Lab ID#: 1008534-03B

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w082806**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/28/10 10:23 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	5.0	Not Detected	25	Not Detected
Freon 114	5.0	Not Detected	35	Not Detected
Chloromethane	20	Not Detected	41	Not Detected
Vinyl Chloride	5.0	Not Detected	13	Not Detected
1,3-Butadiene	5.0	Not Detected	11	Not Detected
Bromomethane	5.0	Not Detected	19	Not Detected
Chloroethane	5.0	Not Detected	13	Not Detected
Freon 11	5.0	Not Detected	28	Not Detected
Ethanol	20	Not Detected	38	Not Detected
Freon 113	5.0	Not Detected	38	Not Detected
1,1-Dichloroethene	5.0	Not Detected	20	Not Detected
Acetone	20	Not Detected	48	Not Detected
2-Propanol	20	Not Detected	49	Not Detected
Carbon Disulfide	5.0	Not Detected	16	Not Detected
3-Chloropropene	20	Not Detected	63	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	5.0	Not Detected	18	Not Detected
trans-1,2-Dichloroethene	5.0	Not Detected	20	Not Detected
Hexane	5.0	Not Detected	18	Not Detected
1,1-Dichloroethane	5.0	Not Detected	20	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.0	Not Detected	15	Not Detected
cis-1,2-Dichloroethene	5.0	Not Detected	20	Not Detected
Tetrahydrofuran	5.0	Not Detected	15	Not Detected
Chloroform	5.0	Not Detected	24	Not Detected
1,1,1-Trichloroethane	5.0	Not Detected	27	Not Detected
Cyclohexane	5.0	Not Detected	17	Not Detected
Carbon Tetrachloride	5.0	Not Detected	31	Not Detected
2,2,4-Trimethylpentane	5.0	Not Detected	23	Not Detected
Benzene	5.0	Not Detected	16	Not Detected
1,2-Dichloroethane	5.0	Not Detected	20	Not Detected
Heptane	5.0	Not Detected	20	Not Detected
Trichloroethene	5.0	Not Detected	27	Not Detected
1,2-Dichloropropane	5.0	Not Detected	23	Not Detected
1,4-Dioxane	20	Not Detected	72	Not Detected
Bromodichloromethane	5.0	Not Detected	34	Not Detected
cis-1,3-Dichloropropene	5.0	Not Detected	23	Not Detected
4-Methyl-2-pentanone	5.0	Not Detected	20	Not Detected
Toluene	5.0	Not Detected	19	Not Detected
trans-1,3-Dichloropropene	5.0	Not Detected	23	Not Detected
1,1,2-Trichloroethane	5.0	Not Detected	27	Not Detected
Tetrachloroethene	5.0	Not Detected	34	Not Detected

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: Lab Blank

Lab ID#: 1008534-03B

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w082806**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/28/10 10:23 AM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2-Hexanone	20	Not Detected	82	Not Detected
Dibromochloromethane	5.0	Not Detected	42	Not Detected
1,2-Dibromoethane (EDB)	5.0	Not Detected	38	Not Detected
Chlorobenzene	5.0	Not Detected	23	Not Detected
Ethyl Benzene	5.0	Not Detected	22	Not Detected
m,p-Xylene	5.0	Not Detected	22	Not Detected
o-Xylene	5.0	Not Detected	22	Not Detected
Styrene	5.0	Not Detected	21	Not Detected
Bromoform	5.0	Not Detected	52	Not Detected
Cumene	5.0	Not Detected	24	Not Detected
1,1,2,2-Tetrachloroethane	5.0	Not Detected	34	Not Detected
Propylbenzene	5.0	Not Detected	24	Not Detected
4-Ethyltoluene	5.0	Not Detected	24	Not Detected
1,3,5-Trimethylbenzene	5.0	Not Detected	24	Not Detected
1,2,4-Trimethylbenzene	5.0	Not Detected	24	Not Detected
1,3-Dichlorobenzene	5.0	Not Detected	30	Not Detected
1,4-Dichlorobenzene	5.0	Not Detected	30	Not Detected
alpha-Chlorotoluene	5.0	Not Detected	26	Not Detected
1,2-Dichlorobenzene	5.0	Not Detected	30	Not Detected
1,2,4-Trichlorobenzene	20	Not Detected	150	Not Detected
Hexachlorobutadiene	20	Not Detected	210	Not Detected
Naphthalene	20	Not Detected	100	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	80	70-130
Toluene-d8	98	70-130
4-Bromofluorobenzene	96	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: CCV

Lab ID#: 1008534-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**6082702**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 8/27/10 08:01 AM**

Compound	%Recovery
Freon 12	111
Freon 114	102
Chloromethane	120
Vinyl Chloride	103
1,3-Butadiene	92
Bromomethane	97
Chloroethane	94
Freon 11	114
Ethanol	100
Freon 113	101
1,1-Dichloroethene	95
Acetone	89
2-Propanol	94
Carbon Disulfide	86
3-Chloropropene	92
Methylene Chloride	111
Methyl tert-butyl ether	85
trans-1,2-Dichloroethene	98
Hexane	94
1,1-Dichloroethane	104
2-Butanone (Methyl Ethyl Ketone)	93
cis-1,2-Dichloroethene	95
Tetrahydrofuran	100
Chloroform	104
1,1,1-Trichloroethane	105
Cyclohexane	94
Carbon Tetrachloride	108
2,2,4-Trimethylpentane	97
Benzene	111
1,2-Dichloroethane	124
Heptane	106
Trichloroethene	107
1,2-Dichloropropane	112
1,4-Dioxane	105
Bromodichloromethane	116
cis-1,3-Dichloropropene	102
4-Methyl-2-pentanone	104
Toluene	105
trans-1,3-Dichloropropene	104
1,1,2-Trichloroethane	108
Tetrachloroethene	103

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: CCV

Lab ID#: 1008534-04A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**6082702**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/27/10 08:01 AM**	

Compound	%Recovery
2-Hexanone	101
Dibromochloromethane	110
1,2-Dibromoethane (EDB)	106
Chlorobenzene	102
Ethyl Benzene	102
m,p-Xylene	100
o-Xylene	99
Styrene	101
Bromoform	107
Cumene	103
1,1,2,2-Tetrachloroethane	106
Propylbenzene	106
4-Ethyltoluene	98
1,3,5-Trimethylbenzene	104
1,2,4-Trimethylbenzene	95
1,3-Dichlorobenzene	94
1,4-Dichlorobenzene	92
alpha-Chlorotoluene	101
1,2-Dichlorobenzene	93
1,2,4-Trichlorobenzene	82
Hexachlorobutadiene	86
Naphthalene	73

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	108	70-130
1,2-Dichloroethane-d4	106	70-130
4-Bromofluorobenzene	96	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: CCV

Lab ID#: 1008534-04B

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w082802**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/28/10 08:05 AM**	

Compound	%Recovery
Freon 12	86
Freon 114	97
Chloromethane	96
Vinyl Chloride	99
1,3-Butadiene	98
Bromomethane	96
Chloroethane	100
Freon 11	89
Ethanol	105
Freon 113	100
1,1-Dichloroethene	93
Acetone	102
2-Propanol	96
Carbon Disulfide	99
3-Chloropropene	96
Methylene Chloride	95
Methyl tert-butyl ether	94
trans-1,2-Dichloroethene	101
Hexane	100
1,1-Dichloroethane	95
2-Butanone (Methyl Ethyl Ketone)	99
cis-1,2-Dichloroethene	92
Tetrahydrofuran	102
Chloroform	109
1,1,1-Trichloroethane	107
Cyclohexane	111
Carbon Tetrachloride	107
2,2,4-Trimethylpentane	107
Benzene	115
1,2-Dichloroethane	101
Heptane	114
Trichloroethene	108
1,2-Dichloropropane	110
1,4-Dioxane	111
Bromodichloromethane	108
cis-1,3-Dichloropropene	108
4-Methyl-2-pentanone	115
Toluene	113
trans-1,3-Dichloropropene	110
1,1,2-Trichloroethane	117
Tetrachloroethene	117

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: CCV

Lab ID#: 1008534-04B

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w082802**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/28/10 08:05 AM**	

Compound	**%Recovery**
2-Hexanone	111
Dibromochloromethane	116
1,2-Dibromoethane (EDB)	115
Chlorobenzene	115
Ethyl Benzene	114
m,p-Xylene	116
o-Xylene	115
Styrene	126
Bromoform	121
Cumene	122
1,1,2,2-Tetrachloroethane	116
Propylbenzene	118
4-Ethyltoluene	125
1,3,5-Trimethylbenzene	120
1,2,4-Trimethylbenzene	122
1,3-Dichlorobenzene	113
1,4-Dichlorobenzene	116
alpha-Chlorotoluene	135 Q
1,2-Dichlorobenzene	113
1,2,4-Trichlorobenzene	73
Hexachlorobutadiene	84
Naphthalene	65

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	86	70-130
Toluene-d8	100	70-130
4-Bromofluorobenzene	100	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCS

Lab ID#: 1008534-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**6082703**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/27/10 08:32 AM**	

Compound	%Recovery
Freon 12	112
Freon 114	104
Chloromethane	118
Vinyl Chloride	103
1,3-Butadiene	96
Bromomethane	102
Chloroethane	96
Freon 11	114
Ethanol	95
Freon 113	90
1,1-Dichloroethene	85
Acetone	86
2-Propanol	92
Carbon Disulfide	85
3-Chloropropene	91
Methylene Chloride	102
Methyl tert-butyl ether	84
trans-1,2-Dichloroethene	98
Hexane	94
1,1-Dichloroethane	100
2-Butanone (Methyl Ethyl Ketone)	93
cis-1,2-Dichloroethene	93
Tetrahydrofuran	101
Chloroform	102
1,1,1-Trichloroethane	103
Cyclohexane	94
Carbon Tetrachloride	107
2,2,4-Trimethylpentane	96
Benzene	109
1,2-Dichloroethane	121
Heptane	104
Trichloroethene	106
1,2-Dichloropropane	113
1,4-Dioxane	105
Bromodichloromethane	113
cis-1,3-Dichloropropene	105
4-Methyl-2-pentanone	102
Toluene	99
trans-1,3-Dichloropropene	106
1,1,2-Trichloroethane	108
Tetrachloroethene	102

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCS

Lab ID#: 1008534-05A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**6082703**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/27/10 08:32 AM**	

Compound	**%Recovery**
2-Hexanone	104
Dibromochloromethane	110
1,2-Dibromoethane (EDB)	112
Chlorobenzene	103
Ethyl Benzene	104
m,p-Xylene	102
o-Xylene	100
Styrene	104
Bromoform	109
Cumene	101
1,1,2,2-Tetrachloroethane	110
Propylbenzene	107
4-Ethyltoluene	99
1,3,5-Trimethylbenzene	103
1,2,4-Trimethylbenzene	97
1,3-Dichlorobenzene	96
1,4-Dichlorobenzene	96
alpha-Chlorotoluene	101
1,2-Dichlorobenzene	96
1,2,4-Trichlorobenzene	79
Hexachlorobutadiene	86
Naphthalene	89

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
Toluene-d8	105	70-130
1,2-Dichloroethane-d4	103	70-130
4-Bromofluorobenzene	100	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCS

Lab ID#: 1008534-05B

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w082803**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/28/10 08:44 AM**	

Compound	%Recovery
Freon 12	100
Freon 114	113
Chloromethane	110
Vinyl Chloride	112
1,3-Butadiene	115
Bromomethane	104
Chloroethane	114
Freon 11	104
Ethanol	107
Freon 113	104
1,1-Dichloroethene	95
Acetone	109
2-Propanol	103
Carbon Disulfide	112
3-Chloropropene	108
Methylene Chloride	99
Methyl tert-butyl ether	106
trans-1,2-Dichloroethene	114
Hexane	114
1,1-Dichloroethane	105
2-Butanone (Methyl Ethyl Ketone)	113
cis-1,2-Dichloroethene	101
Tetrahydrofuran	106
Chloroform	101
1,1,1-Trichloroethane	100
Cyclohexane	106
Carbon Tetrachloride	102
2,2,4-Trimethylpentane	114
Benzene	105
1,2-Dichloroethane	98
Heptane	115
Trichloroethene	108
1,2-Dichloropropane	111
1,4-Dioxane	107
Bromodichloromethane	106
cis-1,3-Dichloropropene	109
4-Methyl-2-pentanone	110
Toluene	106
trans-1,3-Dichloropropene	112
1,1,2-Trichloroethane	117
Tetrachloroethene	117

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCS

Lab ID#: 1008534-05B

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w082803**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 8/28/10 08:44 AM**	

Compound	**%Recovery**
2-Hexanone	109
Dibromochloromethane	117
1,2-Dibromoethane (EDB)	120
Chlorobenzene	115
Ethyl Benzene	116
m,p-Xylene	118
o-Xylene	116
Styrene	126
Bromoform	119
Cumene	118
1,1,2,2-Tetrachloroethane	117
Propylbenzene	118
4-Ethyltoluene	126
1,3,5-Trimethylbenzene	121
1,2,4-Trimethylbenzene	122
1,3-Dichlorobenzene	114
1,4-Dichlorobenzene	118
alpha-Chlorotoluene	135 Q
1,2-Dichlorobenzene	117
1,2,4-Trichlorobenzene	97
Hexachlorobutadiene	104
Naphthalene	96

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	99	70-130
4-Bromofluorobenzene	97	70-130

Environmental Resources Management

CHAIN OF CUSTODY RECORD

1008534

NO: 10182

2525 Natomas Park Drive, Suite 350 • Sacramento, CA • 95833 • (916) 924-9378 • FAX (916) 920-9378

PROJECT #	PROJECT NAME
0104707.3A2	Reno ANG

SAMPLER: (PRINT NAME)	(SIGNATURE)
Virgil Blake Jr	Virgil Blake

RECEIVING LABORATORY: Air Toxics, Folsom, Ca.

	SAMPLE I.D.	DATE	TIME	COMP	GRAB	SAMPLING METHOD	PRESERVATIVE	ICE (Y/N)	SAMPLING VOLUME	# OF CONTAINERS	MATRIX: SOIL	MATRIX: WATER	MATRIX: GAS	TO-15							Vacuum	Canister #
01A	~~RENO ANG~~ EFFLUENT	8-18-10	18:08		x	Port	None	N	1 L	1			x	x							-26 / -2.5	94521
02A	RENO ANG INFLUENT	8-18-10	15:19		x	Port	None	N	1 L	1			x	x							-26 / -5	9459

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME
Virgil Blake	8-20-10	1500	Fed-Ex	8/24/10	1500
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME
			Rona Whittaker ATL	8/23/10	900
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME
			~~FEDEX~~		

FIELD REMARKS

REMARKS ON SAMPLE RECEIPT

☐ BOTTLE INTACT ☐ CUSTODY SEALS ☐ CHILLED
☐ PRESERVED ☐ SEALS INTACT ☐ SEE REMARKS

LAB REMARKS

CUSTODY SEAL INTACT? Y N NONE TEMP N/A

SEND REPORT TO:
Craig.Sanchez@erm.com
Aron.Rice@erm.com

WHITE – LABORATORY COPY CANARY – PROJECT FILE PINK – DATABASE

Air Toxics LTD.
Laboratory Services Since 1989

10/8/2010
Mr. Bruce Lewis
ERM-West
2525 Natomas Park Drive
Suite 350
Sacramento CA 95833

Project Name: ANG Reno
Project #: 0104707.4A
Workorder #: 1009596

Dear Mr. Bruce Lewis

The following report includes the data for the above referenced project for sample(s) received on 9/27/2010 at Air Toxics Ltd.

The data and associated QC analyzed by Modified TO-15 are compliant with the project requirements or laboratory criteria with the exception of the deviations noted in the attached case narrative.

Thank you for choosing Air Toxics Ltd. for your air analysis needs. Air Toxics Ltd. is committed to providing accurate data of the highest quality. Please feel free to contact the Project Manager: Karen Lopez at 916-985-1000 if you have any questions regarding the data in this report.

Regards,

Karen Lopez

Karen Lopez
Project Manager

Air Toxics LTD.
Laboratory Services Since 1989

WORK ORDER #: 1009596

Work Order Summary

CLIENT:	Mr. Bruce Lewis ERM-West 2525 Natomas Park Drive Suite 350 Sacramento, CA 95833	**BILL TO:**	Accounts Payable ERM-West 1277 Treat Blvd Suite 500 Walnut Creek, CA 94597
PHONE:	916-924-9378	**P.O. #**	0104707.31A
FAX:	916-924-5313	**PROJECT #**	0104707.4A ANG Reno
DATE RECEIVED:	09/27/2010	**CONTACT:**	Karen Lopez
DATE COMPLETED:	10/08/2010		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.	FINAL PRESSURE
01A	ANG RENO INFLUENT	Modified TO-15	9.5 "Hg	15 psi
02A	ANG RENO EFFLUENT	Modified TO-15	6.0 "Hg	15 psi
03A	Lab Blank	Modified TO-15	NA	NA
03B	Lab Blank	Modified TO-15	NA	NA
04A	CCV	Modified TO-15	NA	NA
04B	CCV	Modified TO-15	NA	NA
05A	LCS	Modified TO-15	NA	NA
05AA	LCSD	Modified TO-15	NA	NA
05B	LCS	Modified TO-15	NA	NA
05BB	LCSD	Modified TO-15	NA	NA

CERTIFIED BY: Linda J. Freeman DATE: 10/08/10

Laboratory Director

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763,
NY NELAP - 11291, UT NELAP - 9166389892, AZ Licensure AZ0719
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/09, Expiration date: 06/30/11
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

This report shall not be reproduced, except in full, without the written approval of Air Toxics Ltd.

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified TO-15 Std & Soil Gas
ERM-West
Workorder# 1009596

Two 1 Liter Summa Canister samples were received on September 27, 2010. The laboratory performed analysis via modified EPA Method TO-15 using GC/MS in the Full Scan mode. The method involves concentrating up to 1.0 liter of air. The concentrated aliquot is then flash vaporized and swept through a water management system to remove water vapor. Following dehumidification, the sample passes directly into the GC/MS for analysis.

This workorder was independently validated prior to submittal using 'USEPA National Functional Guidelines' as generally applied to the analysis of volatile organic compounds in air. A rules-based, logic driven, independent validation engine was employed to assess completeness, evaluate pass/fail of relevant project quality control requirements and verification of all quantified amounts.

Method modifications taken to run these samples are summarized in the table below. Specific project requirements may over-ride the ATL modifications.

Requirement	***TO-15***	***ATL Modifications***
Daily CCV	+- 30% Difference	</= 30% Difference with two allowed out up to </=40%.; flag and narrate outliers
Sample collection media	Summa canister	ATL recommends use of summa canisters to insure data defensibility, but will report results from Tedlar bags at client request
Method Detection Limit	Follow 40CFR Pt.136 App. B	The MDL met all relevant requirements in Method TO-15 (statistical MDL less than the LOQ). The concentration of the spiked replicate may have exceeded 10X the calculated MDL in some cases

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

Dilution was performed on sample ANG RENO INFLUENT due to the presence of high level non-target species.

Definition of Data Qualifying Flags

Eight qualifiers may have been used on the data analysis sheets and indicates as follows:

B - Compound present in laboratory blank greater than reporting limit (background subtraction not performed).

J - Estimated value.

E - Exceeds instrument calibration range.

S - Saturated peak.

Q - Exceeds quality control limits.

U - Compound analyzed for but not detected above the reporting limit.
UJ- Non-detected compound associated with low bias in the CCV
N - The identification is based on presumptive evidence.

File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

Summary of Detected Compounds
MODIFIED EPA METHOD TO-15 GC/MS

Client Sample ID: ANG RENO INFLUENT

Lab ID#: 1009596-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Hexane	74	2300	260	8100
Cyclohexane	74	10000	250	34000
Benzene	74	720	240	2300
Heptane	74	700	300	2900
m,p-Xylene	74	410	320	1800
4-Ethyltoluene	74	75	360	370
1,3,5-Trimethylbenzene	74	120	360	590
1,2,4-Trimethylbenzene	74	83	360	410

Client Sample ID: ANG RENO EFFLUENT

Lab ID#: 1009596-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Acetone	5.0	7.2	12	17
2-Butanone (Methyl Ethyl Ketone)	1.3	1.5	3.7	4.4
Tetrahydrofuran	1.3	2.9	3.7	8.6
Cyclohexane	1.3	6.0	4.3	21
m,p-Xylene	1.3	1.6	5.5	7.0

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: ANG RENO INFLUENT

Lab ID#: 1009596-01A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w100120**	**Date of Collection:**	**9/20/10 1:34:00 PM**
Dil. Factor:	**14.8**	**Date of Analysis:**	**10/2/10 03:27 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	74	Not Detected	360	Not Detected
Freon 114	74	Not Detected	520	Not Detected
Chloromethane	300	Not Detected	610	Not Detected
Vinyl Chloride	74	Not Detected	190	Not Detected
1,3-Butadiene	74	Not Detected	160	Not Detected
Bromomethane	74	Not Detected	290	Not Detected
Chloroethane	74	Not Detected	200	Not Detected
Freon 11	74	Not Detected	420	Not Detected
Ethanol	300	Not Detected	560	Not Detected
Freon 113	74	Not Detected	570	Not Detected
1,1-Dichloroethene	74	Not Detected	290	Not Detected
Acetone	300	Not Detected	700	Not Detected
2-Propanol	300	Not Detected	730	Not Detected
Carbon Disulfide	74	Not Detected	230	Not Detected
3-Chloropropene	300	Not Detected	930	Not Detected
Methylene Chloride	74	Not Detected	260	Not Detected
Methyl tert-butyl ether	74	Not Detected	270	Not Detected
trans-1,2-Dichloroethene	74	Not Detected	290	Not Detected
Hexane	74	2300	260	8100
1,1-Dichloroethane	74	Not Detected	300	Not Detected
2-Butanone (Methyl Ethyl Ketone)	74	Not Detected	220	Not Detected
cis-1,2-Dichloroethene	74	Not Detected	290	Not Detected
Tetrahydrofuran	74	Not Detected	220	Not Detected
Chloroform	74	Not Detected	360	Not Detected
1,1,1-Trichloroethane	74	Not Detected	400	Not Detected
Cyclohexane	74	10000	250	34000
Carbon Tetrachloride	74	Not Detected	460	Not Detected
2,2,4-Trimethylpentane	74	Not Detected	340	Not Detected
Benzene	74	720	240	2300
1,2-Dichloroethane	74	Not Detected	300	Not Detected
Heptane	74	700	300	2900
Trichloroethene	74	Not Detected	400	Not Detected
1,2-Dichloropropane	74	Not Detected	340	Not Detected
1,4-Dioxane	300	Not Detected	1100	Not Detected
Bromodichloromethane	74	Not Detected	500	Not Detected
cis-1,3-Dichloropropene	74	Not Detected	340	Not Detected
4-Methyl-2-pentanone	74	Not Detected	300	Not Detected
Toluene	74	Not Detected	280	Not Detected
trans-1,3-Dichloropropene	74	Not Detected	340	Not Detected
1,1,2-Trichloroethane	74	Not Detected	400	Not Detected
Tetrachloroethene	74	Not Detected	500	Not Detected

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: ANG RENO INFLUENT

Lab ID#: 1009596-01A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w100120**	**Date of Collection:**	**9/20/10 1:34:00 PM**
Dil. Factor:	**14.8**	**Date of Analysis:**	**10/2/10 03:27 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2-Hexanone	300	Not Detected	1200	Not Detected
Dibromochloromethane	74	Not Detected	630	Not Detected
1,2-Dibromoethane (EDB)	74	Not Detected	570	Not Detected
Chlorobenzene	74	Not Detected	340	Not Detected
Ethyl Benzene	74	Not Detected	320	Not Detected
m,p-Xylene	74	410	320	1800
o-Xylene	74	Not Detected	320	Not Detected
Styrene	74	Not Detected	320	Not Detected
Bromoform	74	Not Detected	760	Not Detected
Cumene	74	Not Detected	360	Not Detected
1,1,2,2-Tetrachloroethane	74	Not Detected	510	Not Detected
Propylbenzene	74	Not Detected	360	Not Detected
4-Ethyltoluene	74	75	360	370
1,3,5-Trimethylbenzene	74	120	360	590
1,2,4-Trimethylbenzene	74	83	360	410
1,3-Dichlorobenzene	74	Not Detected	440	Not Detected
1,4-Dichlorobenzene	74	Not Detected	440	Not Detected
alpha-Chlorotoluene	74	Not Detected	380	Not Detected
1,2-Dichlorobenzene	74	Not Detected	440	Not Detected
1,2,4-Trichlorobenzene	300	Not Detected	2200	Not Detected
Hexachlorobutadiene	300	Not Detected	3200	Not Detected
Naphthalene	300	Not Detected	1600	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	100	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: ANG RENO EFFLUENT

Lab ID#: 1009596-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3100319**	**Date of Collection:**	**9/20/10 1:45:00 PM**
Dil. Factor:	**2.52**	**Date of Analysis:**	**10/3/10 08:11 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	1.3	Not Detected	6.2	Not Detected
Freon 114	1.3	Not Detected	8.8	Not Detected
Chloromethane	5.0	Not Detected	10	Not Detected
Vinyl Chloride	1.3	Not Detected	3.2	Not Detected
1,3-Butadiene	1.3	Not Detected	2.8	Not Detected
Bromomethane	1.3	Not Detected	4.9	Not Detected
Chloroethane	1.3	Not Detected	3.3	Not Detected
Freon 11	1.3	Not Detected	7.1	Not Detected
Ethanol	5.0	Not Detected	9.5	Not Detected
Freon 113	1.3	Not Detected	9.6	Not Detected
1,1-Dichloroethene	1.3	Not Detected	5.0	Not Detected
Acetone	5.0	7.2	12	17
2-Propanol	5.0	Not Detected	12	Not Detected
Carbon Disulfide	1.3	Not Detected	3.9	Not Detected
3-Chloropropene	5.0	Not Detected	16	Not Detected
Methylene Chloride	1.3	Not Detected	4.4	Not Detected
Methyl tert-butyl ether	1.3	Not Detected	4.5	Not Detected
trans-1,2-Dichloroethene	1.3	Not Detected	5.0	Not Detected
Hexane	1.3	Not Detected	4.4	Not Detected
1,1-Dichloroethane	1.3	Not Detected	5.1	Not Detected
2-Butanone (Methyl Ethyl Ketone)	1.3	1.5	3.7	4.4
cis-1,2-Dichloroethene	1.3	Not Detected	5.0	Not Detected
Tetrahydrofuran	1.3	2.9	3.7	8.6
Chloroform	1.3	Not Detected	6.2	Not Detected
1,1,1-Trichloroethane	1.3	Not Detected	6.9	Not Detected
Cyclohexane	1.3	6.0	4.3	21
Carbon Tetrachloride	1.3	Not Detected	7.9	Not Detected
2,2,4-Trimethylpentane	1.3	Not Detected	5.9	Not Detected
Benzene	1.3	Not Detected	4.0	Not Detected
1,2-Dichloroethane	1.3	Not Detected	5.1	Not Detected
Heptane	1.3	Not Detected	5.2	Not Detected
Trichloroethene	1.3	Not Detected	6.8	Not Detected
1,2-Dichloropropane	1.3	Not Detected	5.8	Not Detected
1,4-Dioxane	5.0	Not Detected	18	Not Detected
Bromodichloromethane	1.3	Not Detected	8.4	Not Detected
cis-1,3-Dichloropropene	1.3	Not Detected	5.7	Not Detected
4-Methyl-2-pentanone	1.3	Not Detected	5.2	Not Detected
Toluene	1.3	Not Detected	4.7	Not Detected
trans-1,3-Dichloropropene	1.3	Not Detected	5.7	Not Detected
1,1,2-Trichloroethane	1.3	Not Detected	6.9	Not Detected
Tetrachloroethene	1.3	Not Detected	8.5	Not Detected

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: ANG RENO EFFLUENT

Lab ID#: 1009596-02A

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3100319**	**Date of Collection:**	**9/20/10 1:45:00 PM**
Dil. Factor:	**2.52**	**Date of Analysis:**	**10/3/10 08:11 PM**

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2-Hexanone	5.0	Not Detected	21	Not Detected
Dibromochloromethane	1.3	Not Detected	11	Not Detected
1,2-Dibromoethane (EDB)	1.3	Not Detected	9.7	Not Detected
Chlorobenzene	1.3	Not Detected	5.8	Not Detected
Ethyl Benzene	1.3	Not Detected	5.5	Not Detected
m,p-Xylene	1.3	1.6	5.5	7.0
o-Xylene	1.3	Not Detected	5.5	Not Detected
Styrene	1.3	Not Detected	5.4	Not Detected
Bromoform	1.3	Not Detected	13	Not Detected
Cumene	1.3	Not Detected	6.2	Not Detected
1,1,2,2-Tetrachloroethane	1.3	Not Detected	8.6	Not Detected
Propylbenzene	1.3	Not Detected	6.2	Not Detected
4-Ethyltoluene	1.3	Not Detected	6.2	Not Detected
1,3,5-Trimethylbenzene	1.3	Not Detected	6.2	Not Detected
1,2,4-Trimethylbenzene	1.3	Not Detected	6.2	Not Detected
1,3-Dichlorobenzene	1.3	Not Detected	7.6	Not Detected
1,4-Dichlorobenzene	1.3	Not Detected	7.6	Not Detected
alpha-Chlorotoluene	1.3	Not Detected	6.5	Not Detected
1,2-Dichlorobenzene	1.3	Not Detected	7.6	Not Detected
1,2,4-Trichlorobenzene	5.0	Not Detected	37	Not Detected
Hexachlorobutadiene	5.0	Not Detected	54	Not Detected
Naphthalene	5.0	Not Detected	26	Not Detected

Container Type: 1 Liter Summa Canister

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	109	70-130
4-Bromofluorobenzene	91	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: Lab Blank

Lab ID#: 1009596-03A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w100105a**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/1/10 06:45 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	5.0	Not Detected	25	Not Detected
Freon 114	5.0	Not Detected	35	Not Detected
Chloromethane	20	Not Detected	41	Not Detected
Vinyl Chloride	5.0	Not Detected	13	Not Detected
1,3-Butadiene	5.0	Not Detected	11	Not Detected
Bromomethane	5.0	Not Detected	19	Not Detected
Chloroethane	5.0	Not Detected	13	Not Detected
Freon 11	5.0	Not Detected	28	Not Detected
Ethanol	20	Not Detected	38	Not Detected
Freon 113	5.0	Not Detected	38	Not Detected
1,1-Dichloroethene	5.0	Not Detected	20	Not Detected
Acetone	20	Not Detected	48	Not Detected
2-Propanol	20	Not Detected	49	Not Detected
Carbon Disulfide	5.0	Not Detected	16	Not Detected
3-Chloropropene	20	Not Detected	63	Not Detected
Methylene Chloride	5.0	Not Detected	17	Not Detected
Methyl tert-butyl ether	5.0	Not Detected	18	Not Detected
trans-1,2-Dichloroethene	5.0	Not Detected	20	Not Detected
Hexane	5.0	Not Detected	18	Not Detected
1,1-Dichloroethane	5.0	Not Detected	20	Not Detected
2-Butanone (Methyl Ethyl Ketone)	5.0	Not Detected	15	Not Detected
cis-1,2-Dichloroethene	5.0	Not Detected	20	Not Detected
Tetrahydrofuran	5.0	Not Detected	15	Not Detected
Chloroform	5.0	Not Detected	24	Not Detected
1,1,1-Trichloroethane	5.0	Not Detected	27	Not Detected
Cyclohexane	5.0	Not Detected	17	Not Detected
Carbon Tetrachloride	5.0	Not Detected	31	Not Detected
2,2,4-Trimethylpentane	5.0	Not Detected	23	Not Detected
Benzene	5.0	Not Detected	16	Not Detected
1,2-Dichloroethane	5.0	Not Detected	20	Not Detected
Heptane	5.0	Not Detected	20	Not Detected
Trichloroethene	5.0	Not Detected	27	Not Detected
1,2-Dichloropropane	5.0	Not Detected	23	Not Detected
1,4-Dioxane	20	Not Detected	72	Not Detected
Bromodichloromethane	5.0	Not Detected	34	Not Detected
cis-1,3-Dichloropropene	5.0	Not Detected	23	Not Detected
4-Methyl-2-pentanone	5.0	Not Detected	20	Not Detected
Toluene	5.0	Not Detected	19	Not Detected
trans-1,3-Dichloropropene	5.0	Not Detected	23	Not Detected
1,1,2-Trichloroethane	5.0	Not Detected	27	Not Detected
Tetrachloroethene	5.0	Not Detected	34	Not Detected

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: Lab Blank

Lab ID#: 1009596-03A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w100105a**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/1/10 06:45 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2-Hexanone	20	Not Detected	82	Not Detected
Dibromochloromethane	5.0	Not Detected	42	Not Detected
1,2-Dibromoethane (EDB)	5.0	Not Detected	38	Not Detected
Chlorobenzene	5.0	Not Detected	23	Not Detected
Ethyl Benzene	5.0	Not Detected	22	Not Detected
m,p-Xylene	5.0	Not Detected	22	Not Detected
o-Xylene	5.0	Not Detected	22	Not Detected
Styrene	5.0	Not Detected	21	Not Detected
Bromoform	5.0	Not Detected	52	Not Detected
Cumene	5.0	Not Detected	24	Not Detected
1,1,2,2-Tetrachloroethane	5.0	Not Detected	34	Not Detected
Propylbenzene	5.0	Not Detected	24	Not Detected
4-Ethyltoluene	5.0	Not Detected	24	Not Detected
1,3,5-Trimethylbenzene	5.0	Not Detected	24	Not Detected
1,2,4-Trimethylbenzene	5.0	Not Detected	24	Not Detected
1,3-Dichlorobenzene	5.0	Not Detected	30	Not Detected
1,4-Dichlorobenzene	5.0	Not Detected	30	Not Detected
alpha-Chlorotoluene	5.0	Not Detected	26	Not Detected
1,2-Dichlorobenzene	5.0	Not Detected	30	Not Detected
1,2,4-Trichlorobenzene	20	Not Detected	150	Not Detected
Hexachlorobutadiene	20	Not Detected	210	Not Detected
Naphthalene	20	Not Detected	100	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	100	70-130
Toluene-d8	95	70-130
4-Bromofluorobenzene	100	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: Lab Blank

Lab ID#: 1009596-03B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3100308**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/3/10 01:34 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
Freon 12	0.50	Not Detected	2.5	Not Detected
Freon 114	0.50	Not Detected	3.5	Not Detected
Chloromethane	2.0	Not Detected	4.1	Not Detected
Vinyl Chloride	0.50	Not Detected	1.3	Not Detected
1,3-Butadiene	0.50	Not Detected	1.1	Not Detected
Bromomethane	0.50	Not Detected	1.9	Not Detected
Chloroethane	0.50	Not Detected	1.3	Not Detected
Freon 11	0.50	Not Detected	2.8	Not Detected
Ethanol	2.0	Not Detected	3.8	Not Detected
Freon 113	0.50	Not Detected	3.8	Not Detected
1,1-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Acetone	2.0	Not Detected	4.8	Not Detected
2-Propanol	2.0	Not Detected	4.9	Not Detected
Carbon Disulfide	0.50	Not Detected	1.6	Not Detected
3-Chloropropene	2.0	Not Detected	6.3	Not Detected
Methylene Chloride	0.50	Not Detected	1.7	Not Detected
Methyl tert-butyl ether	0.50	Not Detected	1.8	Not Detected
trans-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Hexane	0.50	Not Detected	1.8	Not Detected
1,1-Dichloroethane	0.50	Not Detected	2.0	Not Detected
2-Butanone (Methyl Ethyl Ketone)	0.50	Not Detected	1.5	Not Detected
cis-1,2-Dichloroethene	0.50	Not Detected	2.0	Not Detected
Tetrahydrofuran	0.50	Not Detected	1.5	Not Detected
Chloroform	0.50	Not Detected	2.4	Not Detected
1,1,1-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Cyclohexane	0.50	Not Detected	1.7	Not Detected
Carbon Tetrachloride	0.50	Not Detected	3.1	Not Detected
2,2,4-Trimethylpentane	0.50	Not Detected	2.3	Not Detected
Benzene	0.50	Not Detected	1.6	Not Detected
1,2-Dichloroethane	0.50	Not Detected	2.0	Not Detected
Heptane	0.50	Not Detected	2.0	Not Detected
Trichloroethene	0.50	Not Detected	2.7	Not Detected
1,2-Dichloropropane	0.50	Not Detected	2.3	Not Detected
1,4-Dioxane	2.0	Not Detected	7.2	Not Detected
Bromodichloromethane	0.50	Not Detected	3.4	Not Detected
cis-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
4-Methyl-2-pentanone	0.50	Not Detected	2.0	Not Detected
Toluene	0.50	Not Detected	1.9	Not Detected
trans-1,3-Dichloropropene	0.50	Not Detected	2.3	Not Detected
1,1,2-Trichloroethane	0.50	Not Detected	2.7	Not Detected
Tetrachloroethene	0.50	Not Detected	3.4	Not Detected

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: Lab Blank

Lab ID#: 1009596-03B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3100308**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/3/10 01:34 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)	Rpt. Limit (ug/m3)	Amount (ug/m3)
2-Hexanone	2.0	Not Detected	8.2	Not Detected
Dibromochloromethane	0.50	Not Detected	4.2	Not Detected
1,2-Dibromoethane (EDB)	0.50	Not Detected	3.8	Not Detected
Chlorobenzene	0.50	Not Detected	2.3	Not Detected
Ethyl Benzene	0.50	Not Detected	2.2	Not Detected
m,p-Xylene	0.50	Not Detected	2.2	Not Detected
o-Xylene	0.50	Not Detected	2.2	Not Detected
Styrene	0.50	Not Detected	2.1	Not Detected
Bromoform	0.50	Not Detected	5.2	Not Detected
Cumene	0.50	Not Detected	2.4	Not Detected
1,1,2,2-Tetrachloroethane	0.50	Not Detected	3.4	Not Detected
Propylbenzene	0.50	Not Detected	2.4	Not Detected
4-Ethyltoluene	0.50	Not Detected	2.4	Not Detected
1,3,5-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,2,4-Trimethylbenzene	0.50	Not Detected	2.4	Not Detected
1,3-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,4-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
alpha-Chlorotoluene	0.50	Not Detected	2.6	Not Detected
1,2-Dichlorobenzene	0.50	Not Detected	3.0	Not Detected
1,2,4-Trichlorobenzene	2.0	Not Detected	15	Not Detected
Hexachlorobutadiene	2.0	Not Detected	21	Not Detected
Naphthalene	2.0	Not Detected	10	Not Detected

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	99	70-130
1,2-Dichloroethane-d4	106	70-130
4-Bromofluorobenzene	92	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: CCV

Lab ID#: 1009596-04A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w100102**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/1/10 05:01 PM**	

Compound	%Recovery
Freon 12	103
Freon 114	101
Chloromethane	76
Vinyl Chloride	87
1,3-Butadiene	82
Bromomethane	90
Chloroethane	89
Freon 11	106
Ethanol	71
Freon 113	108
1,1-Dichloroethene	93
Acetone	88
2-Propanol	76
Carbon Disulfide	86
3-Chloropropene	88
Methylene Chloride	75
Methyl tert-butyl ether	108
trans-1,2-Dichloroethene	95
Hexane	87
1,1-Dichloroethane	91
2-Butanone (Methyl Ethyl Ketone)	91
cis-1,2-Dichloroethene	91
Tetrahydrofuran	71
Chloroform	101
1,1,1-Trichloroethane	108
Cyclohexane	91
Carbon Tetrachloride	105
2,2,4-Trimethylpentane	84
Benzene	87
1,2-Dichloroethane	98
Heptane	90
Trichloroethene	92
1,2-Dichloropropane	86
1,4-Dioxane	92
Bromodichloromethane	97
cis-1,3-Dichloropropene	91
4-Methyl-2-pentanone	99
Toluene	95
trans-1,3-Dichloropropene	98
1,1,2-Trichloroethane	96
Tetrachloroethene	107

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: CCV

Lab ID#: 1009596-04A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w100102**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/1/10 05:01 PM**	

Compound	**%Recovery**
2-Hexanone	88
Dibromochloromethane	103
1,2-Dibromoethane (EDB)	100
Chlorobenzene	99
Ethyl Benzene	98
m,p-Xylene	101
o-Xylene	103
Styrene	94
Bromoform	102
Cumene	106
1,1,2,2-Tetrachloroethane	88
Propylbenzene	94
4-Ethyltoluene	108
1,3,5-Trimethylbenzene	105
1,2,4-Trimethylbenzene	111
1,3-Dichlorobenzene	100
1,4-Dichlorobenzene	99
alpha-Chlorotoluene	98
1,2-Dichlorobenzene	98
1,2,4-Trichlorobenzene	99
Hexachlorobutadiene	113
Naphthalene	89

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	97	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	102	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: CCV

Lab ID#: 1009596-04B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3100303**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 10/3/10 10:27 AM**

Compound	%Recovery
Freon 12	130
Freon 114	112
Chloromethane	125
Vinyl Chloride	123
1,3-Butadiene	106
Bromomethane	122
Chloroethane	126
Freon 11	115
Ethanol	122
Freon 113	108
1,1-Dichloroethene	107
Acetone	104
2-Propanol	106
Carbon Disulfide	117
3-Chloropropene	107
Methylene Chloride	122
Methyl tert-butyl ether	94
trans-1,2-Dichloroethene	107
Hexane	98
1,1-Dichloroethane	107
2-Butanone (Methyl Ethyl Ketone)	100
cis-1,2-Dichloroethene	100
Tetrahydrofuran	100
Chloroform	110
1,1,1-Trichloroethane	101
Cyclohexane	92
Carbon Tetrachloride	98
2,2,4-Trimethylpentane	99
Benzene	115
1,2-Dichloroethane	120
Heptane	105
Trichloroethene	107
1,2-Dichloropropane	103
1,4-Dioxane	103
Bromodichloromethane	114
cis-1,3-Dichloropropene	104
4-Methyl-2-pentanone	95
Toluene	108
trans-1,3-Dichloropropene	111
1,1,2-Trichloroethane	111
Tetrachloroethene	108

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: CCV

Lab ID#: 1009596-04B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3100303**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/3/10 10:27 AM**	

Compound	%Recovery
2-Hexanone	102
Dibromochloromethane	109
1,2-Dibromoethane (EDB)	110
Chlorobenzene	106
Ethyl Benzene	103
m,p-Xylene	104
o-Xylene	103
Styrene	107
Bromoform	105
Cumene	108
1,1,2,2-Tetrachloroethane	109
Propylbenzene	108
4-Ethyltoluene	101
1,3,5-Trimethylbenzene	101
1,2,4-Trimethylbenzene	97
1,3-Dichlorobenzene	102
1,4-Dichlorobenzene	102
alpha-Chlorotoluene	94
1,2-Dichlorobenzene	100
1,2,4-Trichlorobenzene	97
Hexachlorobutadiene	99
Naphthalene	96

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	101	70-130
1,2-Dichloroethane-d4	110	70-130
4-Bromofluorobenzene	92	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCS

Lab ID#: 1009596-05A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w100103**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/1/10 05:39 PM**	

Compound	%Recovery
Freon 12	102
Freon 114	102
Chloromethane	75
Vinyl Chloride	93
1,3-Butadiene	83
Bromomethane	94
Chloroethane	89
Freon 11	106
Ethanol	66
Freon 113	96
1,1-Dichloroethene	84
Acetone	80
2-Propanol	72
Carbon Disulfide	85
3-Chloropropene	88
Methylene Chloride	70
Methyl tert-butyl ether	107
trans-1,2-Dichloroethene	93
Hexane	87
1,1-Dichloroethane	86
2-Butanone (Methyl Ethyl Ketone)	86
cis-1,2-Dichloroethene	90
Tetrahydrofuran	71
Chloroform	98
1,1,1-Trichloroethane	108
Cyclohexane	92
Carbon Tetrachloride	103
2,2,4-Trimethylpentane	89
Benzene	86
1,2-Dichloroethane	97
Heptane	91
Trichloroethene	90
1,2-Dichloropropane	84
1,4-Dioxane	91
Bromodichloromethane	96
cis-1,3-Dichloropropene	92
4-Methyl-2-pentanone	96
Toluene	91
trans-1,3-Dichloropropene	98
1,1,2-Trichloroethane	95
Tetrachloroethene	106

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCS

Lab ID#: 1009596-05A

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w100103**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/1/10 05:39 PM**	

Compound	%Recovery
2-Hexanone	85
Dibromochloromethane	102
1,2-Dibromoethane (EDB)	104
Chlorobenzene	101
Ethyl Benzene	99
m,p-Xylene	104
o-Xylene	100
Styrene	103
Bromoform	103
Cumene	104
1,1,2,2-Tetrachloroethane	91
Propylbenzene	93
4-Ethyltoluene	108
1,3,5-Trimethylbenzene	106
1,2,4-Trimethylbenzene	111
1,3-Dichlorobenzene	97
1,4-Dichlorobenzene	100
alpha-Chlorotoluene	97
1,2-Dichlorobenzene	100
1,2,4-Trichlorobenzene	100
Hexachlorobutadiene	119
Naphthalene	89

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
1,2-Dichloroethane-d4	96	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	102	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCSD

Lab ID#: 1009596-05AA

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w100104**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/1/10 06:08 PM**	

Compound	%Recovery
Freon 12	107
Freon 114	108
Chloromethane	76
Vinyl Chloride	95
1,3-Butadiene	86
Bromomethane	96
Chloroethane	90
Freon 11	110
Ethanol	74
Freon 113	100
1,1-Dichloroethene	85
Acetone	86
2-Propanol	77
Carbon Disulfide	89
3-Chloropropene	86
Methylene Chloride	74
Methyl tert-butyl ether	112
trans-1,2-Dichloroethene	99
Hexane	90
1,1-Dichloroethane	89
2-Butanone (Methyl Ethyl Ketone)	93
cis-1,2-Dichloroethene	94
Tetrahydrofuran	72
Chloroform	100
1,1,1-Trichloroethane	109
Cyclohexane	95
Carbon Tetrachloride	107
2,2,4-Trimethylpentane	92
Benzene	89
1,2-Dichloroethane	99
Heptane	92
Trichloroethene	94
1,2-Dichloropropane	93
1,4-Dioxane	94
Bromodichloromethane	99
cis-1,3-Dichloropropene	96
4-Methyl-2-pentanone	101
Toluene	94
trans-1,3-Dichloropropene	104
1,1,2-Trichloroethane	104
Tetrachloroethene	110

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCSD

Lab ID#: 1009596-05AA

MODIFIED EPA METHOD TO-15 GC/MS

File Name:	**w100104**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/1/10 06:08 PM**	

Compound	**%Recovery**
2-Hexanone	90
Dibromochloromethane	107
1,2-Dibromoethane (EDB)	108
Chlorobenzene	105
Ethyl Benzene	103
m,p-Xylene	105
o-Xylene	104
Styrene	108
Bromoform	108
Cumene	107
1,1,2,2-Tetrachloroethane	92
Propylbenzene	94
4-Ethyltoluene	107
1,3,5-Trimethylbenzene	108
1,2,4-Trimethylbenzene	109
1,3-Dichlorobenzene	99
1,4-Dichlorobenzene	100
alpha-Chlorotoluene	100
1,2-Dichlorobenzene	101
1,2,4-Trichlorobenzene	94
Hexachlorobutadiene	110
Naphthalene	82

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
1,2-Dichloroethane-d4	98	70-130
Toluene-d8	97	70-130
4-Bromofluorobenzene	102	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCS

Lab ID#: 1009596-05B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3100304**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 10/3/10 11:02 AM**

Compound	%Recovery
Freon 12	128
Freon 114	112
Chloromethane	115
Vinyl Chloride	122
1,3-Butadiene	107
Bromomethane	119
Chloroethane	131 Q
Freon 11	115
Ethanol	112
Freon 113	97
1,1-Dichloroethene	96
Acetone	100
2-Propanol	102
Carbon Disulfide	115
3-Chloropropene	105
Methylene Chloride	111
Methyl tert-butyl ether	93
trans-1,2-Dichloroethene	106
Hexane	97
1,1-Dichloroethane	101
2-Butanone (Methyl Ethyl Ketone)	99
cis-1,2-Dichloroethene	97
Tetrahydrofuran	101
Chloroform	105
1,1,1-Trichloroethane	99
Cyclohexane	91
Carbon Tetrachloride	97
2,2,4-Trimethylpentane	99
Benzene	112
1,2-Dichloroethane	118
Heptane	103
Trichloroethene	107
1,2-Dichloropropane	104
1,4-Dioxane	107
Bromodichloromethane	115
cis-1,3-Dichloropropene	106
4-Methyl-2-pentanone	96
Toluene	102
trans-1,3-Dichloropropene	112
1,1,2-Trichloroethane	113
Tetrachloroethene	107

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCS

Lab ID#: 1009596-05B

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3100304**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/3/10 11:02 AM**	

Compound	**%Recovery**
2-Hexanone	106
Dibromochloromethane	112
1,2-Dibromoethane (EDB)	114
Chlorobenzene	106
Ethyl Benzene	105
m,p-Xylene	106
o-Xylene	103
Styrene	109
Bromoform	109
Cumene	106
1,1,2,2-Tetrachloroethane	112
Propylbenzene	107
4-Ethyltoluene	101
1,3,5-Trimethylbenzene	101
1,2,4-Trimethylbenzene	97
1,3-Dichlorobenzene	100
1,4-Dichlorobenzene	103
alpha-Chlorotoluene	94
1,2-Dichlorobenzene	100
1,2,4-Trichlorobenzene	92
Hexachlorobutadiene	96
Naphthalene	83

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	**%Recovery**	**Method Limits**
Toluene-d8	100	70-130
1,2-Dichloroethane-d4	107	70-130
4-Bromofluorobenzene	93	70-130

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCSD

Lab ID#: 1009596-05BB

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3100306**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 10/3/10 11:52 AM**	

Compound	%Recovery
Freon 12	125
Freon 114	111
Chloromethane	120
Vinyl Chloride	120
1,3-Butadiene	106
Bromomethane	119
Chloroethane	131 Q
Freon 11	113
Ethanol	111
Freon 113	96
1,1-Dichloroethene	96
Acetone	99
2-Propanol	101
Carbon Disulfide	114
3-Chloropropene	104
Methylene Chloride	110
Methyl tert-butyl ether	91
trans-1,2-Dichloroethene	105
Hexane	97
1,1-Dichloroethane	100
2-Butanone (Methyl Ethyl Ketone)	98
cis-1,2-Dichloroethene	98
Tetrahydrofuran	101
Chloroform	105
1,1,1-Trichloroethane	98
Cyclohexane	91
Carbon Tetrachloride	96
2,2,4-Trimethylpentane	98
Benzene	112
1,2-Dichloroethane	115
Heptane	103
Trichloroethene	104
1,2-Dichloropropane	102
1,4-Dioxane	105
Bromodichloromethane	110
cis-1,3-Dichloropropene	104
4-Methyl-2-pentanone	94
Toluene	102
trans-1,3-Dichloropropene	109
1,1,2-Trichloroethane	110
Tetrachloroethene	108

Air Toxics LTD.
Laboratory Services Since 1989

Client Sample ID: LCSD

Lab ID#: 1009596-05BB

MODIFIED EPA METHOD TO-15 GC/MS FULL SCAN

File Name:	**3100306**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 10/3/10 11:52 AM**

Compound	%Recovery
2-Hexanone	105
Dibromochloromethane	109
1,2-Dibromoethane (EDB)	114
Chlorobenzene	106
Ethyl Benzene	104
m,p-Xylene	105
o-Xylene	102
Styrene	106
Bromoform	104
Cumene	106
1,1,2,2-Tetrachloroethane	110
Propylbenzene	106
4-Ethyltoluene	100
1,3,5-Trimethylbenzene	100
1,2,4-Trimethylbenzene	96
1,3-Dichlorobenzene	101
1,4-Dichlorobenzene	104
alpha-Chlorotoluene	91
1,2-Dichlorobenzene	102
1,2,4-Trichlorobenzene	96
Hexachlorobutadiene	99
Naphthalene	85

Q = Exceeds Quality Control limits.

Container Type: NA - Not Applicable

Surrogates	%Recovery	Method Limits
Toluene-d8	102	70-130
1,2-Dichloroethane-d4	107	70-130
4-Bromofluorobenzene	95	70-130

Environmental Resources Management

CHAIN OF CUSTODY RECORD

1009596

NO: 10192

2525 Natomas Park Drive, Suite 350 • Sacramento, CA • 95833 • (916) 924-9378 • FAX (916) 920-9378

PROJECT #	PROJECT NAME
0104707.4A	ANG Reno

SAMPLER: (PRINT NAME)	(SIGNATURE)
Virgil Blake Jr	Virgil Blake Jr

RECEIVING LABORATORY: Air Toxics

	SAMPLE I.D.	DATE	TIME	COMP	GRAB	SAMPLING METHOD	PRESERVATIVE	ICE (Y/N)	SAMPLING VOLUME	# OF CONTAINERS	MATRIX: SOIL	MATRIX: WATER	MATRIX: GAS	REQUESTED PARAMETERS: TO-15	Vacuum	Canister Number
01A	ANG RENO INFLUENT	9.20.10	13:34		X	Port	None	N	1L	1			✓	✓	-25 / -5.5	3730 / ~~3188~~
02A	ANG RENO EFFUENT	9.20.10	13:45		X	Port	None	N	1L	1			✓	✓	-25 / -1.5	2188

CUSTODY SEAL INTACT? Y N NONE TEMP AM

RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME
Virgil Blake Jr	9.24.10		Monica Gregsen	ATL 9/27/10	925
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME

FIELD REMARKS

REMARKS ON SAMPLE RECEIPT

☐ BOTTLE INTACT ☐ CUSTODY SEALS ☐ CHILLED
☐ PRESERVED ☐ SEALS INTACT ☐ SEE REMARKS

ERM REMARKS

SEND REPORT TO:

Bruce.Lewis@erm.com

WHITE – LABORATORY COPY CANARY – PROJECT FILE PINK – DATABASE

Appendix D
Quality Assurance/Quality Control Data Review

APPENDIX D - QUALITY ASSURANCE/QUALITY CONTROL DATA REVIEW AND VALIDATION

Analytical data are the basis for evaluating the environmental conditions at the Reno Air National Guard Base (Reno ANGB). It is essential that the data are accurate and reflect actual conditions.

To ensure data quality was acceptable for decision-making purposes, ERM-West, Inc. (ERM) reviewed laboratory analytical results for the Reno ANGB influent and effluent air samples collected July through September 2010. The objective of the data review was to identify limitations on the use of the data and results that should not be used for decision-making purposes. The quality of the data was assessed and any necessary qualifiers were applied following the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review,* October.

ERM reviewed Air Toxics Laboratories data packages 1007310, 1008534, and 1009596 for compliance with the following Level II quality assurance/quality control (QA/QC) project and method-prescribed criteria:

- **Holding Time and Sample Preservation:** The period of time between collection of the sample and preparation/analysis of the sample. Analyses performed for this project have method-prescribed holding times as well as temperature and chemical preservation requirements.
- **Blank Samples:** The preparation and analysis of blank canisters pressurized with humidified, ultra-pure zero air. Blank samples for this investigation included laboratory method blanks. Detections in these types of blank samples indicate laboratory contamination.
- **Spike Samples:** The preparation and analysis of an environmental sample spiked with target compounds at known concentrations. The results of the blank spike analysis measure laboratory accuracy, and results from the environmental sample spike measure potential interference from the matrix.
- **Surrogate Spikes:** The addition of compounds similar to target compounds of interest that are added to sample aliquots for organic analysis. Surrogate spikes measure possible interference from the sample matrix for the analysis of target compounds.

- **Continuing Calibration Verification:** The addition of a known concentration of calibration standards is added to sample aliquots for organic analysis. Continuing calibration verification measures instrument sensitivity and linearity of instrument response for the target compounds.
- **Duplicate Samples:** The preparation and analysis of an additional aliquot of the sample. The results from duplicate analysis measure potential heterogeneity of contaminants in the sample.

Potential USEPA data qualifiers used during the review process are as follows:

U (Nondetected): The analyte was reported as detected by the laboratory, but the reported concentrations should be considered nondetected at the concentration of the validated result.

J (Estimated): The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.

N (Tentative identification): The analysis indicated the presence of an analyte for which there was presumptive evidence to make only a tentative identification.

NJ (Estimated tentative identification): The analysis indicated the presence of an analyte that was tentatively identified and the associated numerical value represents its approximate concentration.

UJ (Estimated, nondetected): The analyte was not detected above the reported sample quantitation limit; however, the reported quantitation limit was approximate and may or may not have represented the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R (Rejected): The sample results were rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte could not be verified.

No sample results were rejected. All of the data are acceptable as qualified, and can be used for decision-making purposes. The following discussion addresses each of the QA/QC components listed above and the results for each of the components.

HOLDING TIME AND PRESERVATION

The USEPA has established a maximum sample holding time for each analysis. The USEPA has also established chemical and temperature preservation requirements for those analyses that may be subject to chemical degradation. Holding times and sample temperatures extending beyond the USEPA maximum or samples that are not properly preserved can negatively affect sample integrity (e.g., loss of volatile compounds, biodegradation) and are qualified depending on the severity of the exceedence and compounds of concern.

ERM has reviewed the analytical results for the Reno ANGB air samples for compliance with the method-prescribed preparation and analysis holding times as well as preservation requirements. All of the sample preparation and analysis holding times were met.

BLANK SAMPLES

A blank sample is a sample collected from a certified air source. The sample is prepared and analyzed in the same manner as the field samples. The purpose of a blank sample is to determine the presence and magnitude of possible contamination resulting from laboratory, shipping, or other sample-handling activities. If target compounds are detected in a blank sample, then all associated data must be carefully evaluated to determine whether those results have been similarly impacted, or the blank problem is an isolated occurrence not representative of other data.

The types of blank samples analyzed with the Reno ANGB air sampling event were laboratory method blanks. These blank samples are described below.

- Laboratory method blanks are unused, certified canisters that have not left the laboratory. The blank canisters were pressurized with humidified, ultra-pure zero air and carried through the same analytical procedures as the field samples. Laboratory method blanks were prepared and analyzed with each batch of environmental samples. Laboratory method blanks are evaluated for potential laboratory-related contamination of project samples.

The blank sample results were nondetected for each of the target analytes.

SPIKE SAMPLES

A spike sample is a QC sample that is prepared and analyzed by the laboratory to demonstrate proper analysis, detection, and quantification of target compounds. A spike sample result is assessed by its percent recovery, which is reported as the amount of the compound detected divided by the amount spiked into the sample. The percent recovery is then compared to an established limit range. The type of spike samples analyzed with the project samples were blank spikes.

Blank spike samples, which are commonly referred to as laboratory control samples (LCS), consist of a certified air sample spiked with known concentrations of target compounds. A laboratory control sample duplicate (LCSD) is a second spiked sample prepared and analyzed with the LCS sample. The LCS sample monitors laboratory accuracy without the bias of a sample matrix. LCS recoveries outside of acceptable limits may indicate poor laboratory accuracy.

The LCS results were within control limits with limited exceptions; however, no sample data were qualified as a result of the LCS outliers because the recoveries were biased high and the samples were nondetected for the associated compounds. The LCS outliers are presented in Table D-1.

SURROGATE SPIKES

A surrogate spike is used to assess interference from the sample matrix during the analysis. Surrogate spike results are assessed by %R, based on the concentration of surrogate in the sample divided by the known amount of surrogate added to the sample aliquot.

The surrogate recoveries were within the laboratory-generated limits of acceptance. No qualification to the data was made based on the surrogate evaluation. The surrogate recoveries indicate minimal matrix interference in the samples.

CONTINUING CALIBRATION VERIFICATION

Continuing calibration verifications are used to determine the instrument sensitivity and linearity of response for the target compounds. Continuing calibration verification results are assessed by %R, based on the

concentration of calibration standard detected in the sample divided by the known amount of standard added to the sample.

The CCV recoveries were within the laboratory-generated limits of acceptance with limited exceptions. One nondetected sample result was qualified as estimated (UJ) due to a low bias in the CCV. An additional CCV outlier did not require qualification of sample data because the recovery was biased high and the sample was nondetected for the corresponding compound. The CCV outliers are presented in Table D-2

FIELD DUPLICATE SAMPLES

A field duplicate sample is a second aliquot of a sample that is collected, prepared, and analyzed in the same manner as the primary sample. Field duplicate sample analysis is performed to measure the precision of the method and to assess possible matrix heterogeneity. A relative percent difference (RPD) is calculated for detected field duplicate results.

Although field duplicates are useful for evaluating sample homogeneity, the USEPA has not established control criteria for field duplicate samples; therefore sample data are not qualified in the basis of field duplicate imprecision. In addition, RPDs calculated using concentrations less than five times the reporting limit do not accurately represent precision due to inherent variability in low level detections.

For the Reno ANGB air sampling event, no field duplicates were collected.

OVERALL ASSESSMENT

No data were determined to be unusable. All of the data, including qualified data, can be used for decision-making purposes; however, the limitations indicated by the applied qualifiers should be considered when using the data. The quality of the data generated during this investigation is acceptable for the preparation of technically defensible documents.

TABLE D-1

Blank Spike Recoveries Outside of Acceptable Limits
Influent and Effluent Air Samples Collected July - September 2010
Reno Air National Guard
Reno, Nevada

Lab Package	Spike Sample ID	Associated Sample	Compound	Recovery (%)	Limit (%)	RPD	RPD Limit	Sample Result	ERM Qualifier
1007310	LCS 1007310-04A	NA	Vinyl chloride	134	70-130	--	--	--	--
1008534	LCS 1008534-05B	NA	alpha-Chlorotoluene	135	70-130	--	--	--	--
1009596	LCS/LCSD 1009596-05B	NA	Chloroethane	131/131	70-130	0	20	--	--

Data packages reviewed: 1007310, 1008534, 1009596

Key:
LCS/LCSD = Laboratory control sample (blank spike)/laboratory control sample duplicate
RPD = Relative percent difference
NA = Not applicable; associated samples not qualified

TABLE D-2

Continuing Calibration Verification Recoveries Outside of Acceptable Limits
Influent and Effluent Air Samples Collected July - September 2010
Reno Air National Guard
Reno, Nevada

Lab Package	CCV Sample ID	Associated Sample	Compound	Recovery (%)	Limit (%)	Sample Result	ERM Qualifier
1007310	1007310-03A	NA	Vinyl chloride	138	70-130	--	--
1007310	1007310-03A	See below	Hexachlorobutadiene	66	70-130	--	--
1007310	1007310-03A	RENO-ANG-IN	Hexachlorobutadiene	--	--	< 1100 µg/m^3	UJ
1008534	1008534-04B	NA	alpha-Chlorotoluene	135	70-130	--	--

Data packages reviewed: 1007310, 1008534, 1009596

Key:
CCV = Continuing calibration verification
µg/m^3 = Micrograms per cubic meter
UJ = Nondetected sample result qualified as estimated

Appendix E
Operating Permit Issued by Washoe County

WASHOE COUNTY
HEALTH DISTRICT

PERMIT TO OPERATE

An Air Pollution Emission Source **No.** A10-0013

Issued By Air Quality Management Division, Washoe County Health District

P.O. Box 11130, Reno, Nevada 89520-0027 • Phone (775) 784-7200

ISSUED TO: NEVADA AIR NATIONAL GUARD Gen Air - Miscellaneous

ADDRESS: C/O ERM 2525 NATOMAS PARK DR #350, SACRAMENTO CA, 95833

LOCATION: 1776 NATIONAL GUARD WAY, RENO, NV 89502

EQUIPMENT COVERED UNDER THIS PERMIT CONTAMINATED SOIL/GROUNDWATER REMEDIATION SYSTEM INCLUDING 7 VAPOR RECOVERY WELLS WITH GRANULATED ACTIVATED CARBON CONTROL

THE CONDITIONS OF OPERATION LISTED ON THIS PERMIT SUPERCEDE ALL PREVIOUS PERMIT CONDITIONS

CONDITIONS OF OPERATION LISTED ON THIS PERMIT:

A. ALTERATIONS: This permit becomes void upon any change of ownership or address or any alteration of permitted equipment.

B. POSTING: This permit shall be posted on or near the equipment listed above. This permit shall be made readily available at all times while the equipment is operating.

C. MODIFICATION OF EQUIPMENT: Any modification of the equipment other than normal repair and maintenance will require a new permit.

D. RECORDS: Any records of operation which effect the potential of the source to emit air pollutants, such as fuel or products consumed, products produced, hours of operation, chemicals or supplies used in source operation, must be maintained for a period of at least 5 years and made available to the Control Officer upon request.

E. EQUIPMENT FAILURE: All upset or breakdown conditions resulting in increased emmissions or air pollutants shall be reported in compliance with District regulations, Section 020.075 and 020.076.

F. ACCESS: The Control Officer will be provided access to the facility to inspect operations and equipment covered under this permit whenever necessary to determine compliance with this permit and any other air pollution limitatons specified in District regulations.

ADDITIONAL CONDITIONS:

1: The annual throughput/consumption figures must be submitted in writing to the A.Q.M.D. no later than the 20th of the month, approximately 6 weeks prior to the expiration date of the permit.

2: The operator will maintain the carbon adsorption system in good working condition at all times. The treatment system will not be operated once breakthrough has occurred until the carbon is replaced. The operator will contain and ship saturated carbons off site for treatment. The Air Quality Management Division must be notified prior to any changes in equipment.

3: The operator will test the carbon system, influent and effluent for TPH with a PID or equivalent field hydrocarbon monitoring device. Capture efficiency tests will be conducted on a weekly basis for the first month and quarterly thereafter. A capture efficiency of 90% or greater across the adsorber must be demonstrated and maintained during normal operation before breakthrough. A description of the test equipment must be submitted to the Air Quality Management Division for approval. Sampling results must be submitted within 30 days of completion.

Mary A. Anderson	09/30/2011	$87.00	A10-0013
CONTROL OFFICER	EXPIRATION DATE	ANNUAL RENEWAL FEE	PERMIT NO.

FAILURE TO COMPLY WITH THE CONDITIONS OF THIS PERMIT MAY RESULT IN CITATIONS OR PERMIT REVOCATION

Appendix F
Field Notes for Well Abandonment Activities

ERM
Daily Field Report

Environmental
Resources
Management
2525 Natomas Park Dr.
Suite 350
Sacramento, CA 95833
(916) 924-9378

Personnel: Virgil Blake Jr

Date: 9-20-10

Project: Reno ANG 0104707.4A

Arrived: 7:00

Weather: Warm / Clear

Departed: 17:00

Time	Description of Activities
7:00	On site, system is running. Checking well locations and getting ready for the drillers.
8:00	RSI's bobcat is on site
8:15	RSI crew is on site. Allied is also here to take down the temp. fence.
8:30	Held the safety meeting and walked around to show RSI the wells to be abandoned.
9:00	RSI needs water so we got permission from the crew at the fire house to get water from the hydrant next to there building
9:10	RSI is brakeing out well box at T-22
9:40	The dumpster that was ordered was dropped at the wrong location. Tom with RSI called Rubbish Runners to come back and move the dumpster at our location.
10:00	RSI braking out well box at T-21
10:~~00~~ 30 VB	Called the motel to see if the Air Toxics package come in and it hasn't.
11:00	RSI finished with with T-21 ~~and T-18~~ VB

Signed: Virgil Blake Jr

ERM
Daily Field Report

Environmental
Resources
Management
2525 Natomas Park Dr.
Suite 350
Sacramento, CA 95833
(916) 924-9378

Personnel: V. Blake Jr

Date: 9-20-10

Project: Reno ANG 0104707.4A

Arrived:

Weather:

Departed:

Time	Description of Activities
12:00	After T-~~18~~ 21 we checked out other wells to brake out and found 4 wells are 6" not 2" at indicated on the well sheet.
	Rubbish Runner is here to move the dumpster.
12:15	RSI is going to lunch and I went to the motel the get the sumd canisters.
13:00	RSI back on site, they're starting to brake out T-18 and I'm taking 2 air samples.
13:30	RSI finished with T-18
13:45	I finished with air samples and turned the system off. I boked out the system panel. RSI is working on VM-7 and VM-2
14:30	They finished VM-2 and VM-7. RSI is going to grout the 5 wells thats ready. I'm cutting PVC pipe and moving it to the back of the treatment building
14:47	Start to grout VM-7 and they put 25 psi on the well and Tom said 3 gallons of grout.
15:06	Pulling the casen on VM-7 with the bobcat

Signed: Virgil Blake

ERM
Daily Field Report

Environmental
Resources
Management
2525 Natomas Park Dr.
Suite 350
Sacramento, CA 95833
(916) 924-9378

Personnel: Virgil Blake Jr

Date: 9-20-10

Project: Reno ANG 0104707.4A

Arrived:

Weather:

Departed:

Time	Description of Activities
15:12	Going to grout T-18 and its 14.5' deep, 25 psi on the well
15:30	They're pulling the cason on T-18
15:35	Working on VM-2 its 8' deep and they're putting 25 psi on the well.
15:40	Pressure is on VM-2 at 20 psi
16:24	RSI is mixing another batch of grout. 5 bags of cement and 20 gallons of water, bags are 47 lbs. T-22 is 14.5' deep and T-21 is 14.5' as well.
16:42	RSI pull pulled the casons on all 5 wells
17:00	The 5 wells are grouted to about 4" from the ~~fro~~ top and RSI will top off with concrete in the morning. We have drums and barricades around the wells.
	Leaving job site

Signed:

ERM
Daily Field Report

Environmental
Resources
Management
2525 Natomas Park Dr.
Suite 350
Sacramento, CA 95833
(916) 924-9378

Personnel: Virgil Blake Jr

Date: 9-21-10

Project: Reno ANG 0104707.4A

Arrived: 7:00

Weather: Warm Clear

Departed: 15:30

Time	Description of Activities
7:00	Onsite safety meeting and going over the days plan
7:10	Tom (RSI) had to go to Home Depot and pick up some poly to line the dumpster. Arturo (RSI) is staying and is mixing concrete to top off the wells from yesterday
7:40	Tom is back and ~~to~~ vs they are lining the dumpster
8:45	Arturo topped off T-22, T-21, T-18, VM-2, and VM-7 with concrete cap. RSI is filling their tank with water and then start on MW-25.
9:15	Tom hit Bentinite at 2' when braking out well box on MW-25 Now they're braking out well box SV-4. Tom glued a fitting on MW-25 so they can put pressure on the well.
9:30	RSI starting to Air knife SV-4
9:40	Moving to AS-7 to brake out box and air knife
9:55	moving to MW-7 " " "
10:30	moving to AS-6 " " "
11:15	RSI is taking lunch break

Signed: Virgil Blake

ERM
Daily Field Report

Environmental
Resources
Management
2525 Natomas Park Dr.
Suite 350
Sacramento, CA 95833
(916) 924-9378

Personnel: Virgil Blake Jr

Date: 9-21-10

Project: Reno ANG 0104707.4A

Arrived:

Weather:

Departed:

Time	Description of Activities
11:50	RSI is braking out well box SV-2 then air knife
12:30	They got a jack hammer bit stuck and had to get another bit to get the other out.
12:45	Braking out well box AS-5 and then air knife.
13:15	RSI is going to start mixing grout.
13:45	I called Bruce earlier to check the cement type. RSI ran out of Type I-II and the other pallet is type II-V. Bruce said it ~~wat~~ was alright to use Type II-V. The type II-V is 94 lb bags instead of 47 lb. They'll mix 4-94 lb bags to 20 gallons of water.
13:49	10' down to bottom of SV-2 and VM-5 is 8' deep.
13:53	Putting pressure on SV-2. AS-5 is 24' deep and putting down the well. SV-4 is 9.5' deep, MV-25 is 13' deep, AS-6 is 24.6' deep.
14:05	Putting pressure on SV-4. The depth on well MW-7 is 10' deep, AS-7 is 24' deep. All of the 2" wells RSI is filling from the bottom up using 1" pvc pipe

Signed: Virgil Blake

ERM
Daily Field Report

Environmental
Resources
Management
2525 Natomas Park Dr.
Suite 350
Sacramento, CA 95833
(916) 924-9378

Personnel: V. Blake Jr

Date: 9-21-10

Project: Reno ANG 0104707.4A

Arrived:

Weather:

Departed:

Time	Description of Activities
14:20	Putting pressure on AS-6
14:26	Finished pressuring MW-7, AS-7 and AS-5. AS-5, the
	cason was in concrete. RSI jack hammer down about
	3' and then unscrewed the cason
14:35	RSI is pulling the casons from MW-7, AS-6, SV-4, SV-2,
	AS-5, AS-7, YM-5 and MW-25.
15:22	RSI has all the casons out and into the dumpster
	and they're putting Caution Tape around the 8 wells
	that was grouted to day. Tomorrow they'll put
	concrete over the 8 wells. RSI has to pickup
	some parts for tomorrow
15:30	RSI is leaving job site. I'm going to another job.

Signed: Virgil Blake Jr.

ERM
Daily Field Report

Environmental
Resources
Management
2525 Natomas Park Dr.
Suite 350
Sacramento, CA 95833
(916) 924-9378

Personnel: Virgil Blake Jr

Date: 9-22-10

Project: Reno ANG 0104707.4A

Arrived: 7:00

Weather: Warm Clear

Departed: 15:35

Time	Description of Activities
7:00	On site having safety meeting and going over the days plan.
8:00	RSI finished topping off the 8 wells with concrete. They're starting to break out well boxes on SV-3 & AS-4
9:15	Bentinite is 2.5' down on SV-3 and 5' on AS-5
10:00	Well box AS-2, VM-6 are broke out and air-knife, now they're working on VM-3
11:00	VM-3, VM-4 and T-23 are done
11:15	RSI is taking lunch
11:45	RSI is back and they're working on AS-1 then VM-1
12:30	Finished breaking out well boxes on VM-1 and AS-1
12:40	RSI is getting more water
12:50	They're back with water and they're mixing grout and filling wells. They mix 4-94 lb bags of cement to 20 gallons of water.
13:10	Well depths ~~are~~ on VM-1 = 8', AS-1 = 25', AS-4 = 22', SV-3 = 8' VM-6 = 8', SV-1 = 9', AS-2 = 25', VM-3 = 8', AS-3 = 25', T-23 = 14' VM-4 = 8'

Signed: Virgil Blake

ERM
Daily Field Report

Environmental
Resources
Management
2525 Natomas Park Dr.
Suite 350
Sacramento, CA 95833
(916) 924-9378

Personnel: V. Blake Jr

Date: 9-22-10

Project: Reno ANG 0104707.4A

Arrived:

Weather:

Departed:

Time	Description of Activities
13:15	slurry is ready and Arturo is putting grout down the wells and Tom is putting pressure on the wells
14:00	All 11 wells are grouted and now RSI is pulling the casons out
14:30	They have all the casons out and now they're topping the wells off with cement to within 4" from the top.
14:40	RSI is mixing another batch of grout. 4-94lb bags of cement to 20 gallons of water.
15:00	Mixing a smaller batch of cement 3-94lbs bags to 15 gal.
15:35	RSI is getting ready to leave because they have to pick up more parts for tomorrow. Caution Tape is around the wells that got grouted today and I'm leaving job site

Signed: Virgil Blake

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Suite 350
Sacramento, CA 95833
(916) 924-9378

Personnel: Virgil Blake Jr

Date: 9-23-10

Project: Reno ANG 0104707.4A

Arrived: 7:00

Weather: Warm Clear

Departed: 17:30

Time	Description of Activities
7:00	On site, holding safety meeting and going over the days plan. RSI is going to top off yesterdays wells with concrete. Each well has about 4" to be filled. I'm going to move the drums from inside the build to the dumpster.
9:00	I moved 5 drums outside. RSI is done topping off wells with concrete. Now they're making adaptors for the 6" wells to recover water that may rise out. I talked with Bruce and I'm dumping the 5 gallon buckets of soil samples into the dumpster. Well depths on T-5 = 27', T-15 = 10', DW-2 = 8' and T-16 = 6'. T-16 doesn't have any water in it. These last 4 wells have 6" casons.
9:30	RSI got water for cement and they're mixing grout 4-97lb bag to 20 gallons of water and they're starting at T-5
9:45	Starting to grout T-5, using 2" pip
10:00	T-5 took about 42 gallons of grout and it's not full

Signed: Virgil Blake

ERM
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(916) 924-9378

Personnel: V. Blake Jr

Date: 9-23-10

Project: Reno ANG 0104707.4A

Arrived:

Weather:

Departed:

Time	Description of Activities
10:35	T-5 is full and it took about 70 gallons. RSI is working on DW-2
10:45	RSI is making a batch of grout for DW-2
11:00	They're going to try and pull the cason on T-5 and DW-2
11:50	RSI wasn't able to pull the casons out so they'll have to air knife them. They're going to Home Depot to get more cement, these 6" wells is taking a lot of cement
13:00	RSI is back on site and they're starting to mix a batch of grout. 4-94lb bag to 20 gallons water.
13:20	Put the whole batch into T-15 and it didn't get close to filling the well. Moving to T-16 while T-15 hardens
13:40	RSI got more water and they're mixing an other bach of cement. 4-94lb bag to 20 gallons water. and putting it down T-16
13:46	Started to put grout down T-16 but the grout went thru the rock at the bottom of the well. Talked with Bruce and said it was ok to put some dry stuff at the bottom of the well.

Signed: Vingel Blake

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(916) 924-9378

Personnel: V. Blake Jr

Date: 9-23-10

Project: Reno ANG 0104707.4A

Arrived:

Weather:

Departed:

Time	Description of Activities
14:10	T-15 the grout is going thru the rock at the bottom of well.
	RSI is putting some dry mix in the bottom and let it set up.
	Now they're going to brake out well box on T-16
15:00	The well boxes are out on T-5, DW-2, T-16 and T-15. The
	wells are filled to within 4" from the top. and will be
	topped off with concrete. Now they're cleaning up around
	the work zone. Then they'll start empting drum into dumpster
15:20	Called LT. Col. Nicklaus but got no answer but I left a
	message for him to come by and check out the work.
16:15	Finished emptying drums and painted the drums EMTY or MT
16:30	RSI is mixing concrete to top of the wells. On average
	it took about a 1/2 bag of concrete to cap the wells. Each
	bag is 2/3 c.f.
17:30	Wells are capped and I put some blocks next to the wells
	so knobody runs over them. We picked every thing up and
	getting ready to leave. LT. Col. Nicklaus came by earlier and
	said every thing looked good. Dumpster is staying untill we come back
17:40	Leaving job site

Signed: Virgil Blake