

DRAFT 2006
**OPERATIONS, MAINTENANCE &
MONITORING ANNUAL REPORT**

McCOLL SUPERFUND SITE
FULLERTON, CALIFORNIA

PREPARED FOR:

UNITED STATES ENVIRONMENTAL
PROTECTION AGENCY

PREPARED ON BEHALF OF:

THE McCOLL SITE GROUP

PREPARED BY:



FEBRUARY 2007

DRAFT
TABLE OF CONTENTS
2006 OM&M REPORT
McCOLL SUPERFUND SITE
FULLERTON, CALIFORNIA

1.0 INTRODUCTION

2.0 SITE HISTORY

3.0 OM&M MODIFICATIONS AND REPORTING REQUIREMENTS

4.0 INSPECTIONS

5.0 MONUMENT SURVEY EVENT

6.0 CAP GAS COLLECTION AND TREATMENT SYSTEM OPERATION

6.1 OBJECTIVES

6.2 BI-MONTHLY AND SEMI-PASSIVE CAP GAS MONITORING

6.3 CARBON BED CHANGE-OUT

6.4 GAS COLLECTION PRESSURE PROBES

6.5 GCTS MECHANICAL PROCESS MONITORING

7.0 GROUNDWATER MONITORING

7.1 OBJECTIVES

7.2 2006 GROUNDWATER MONITORING EVENTS

7.3 LOW FLOW GROUNDWATER SAMPLING TECHNIQUE

7.4 EXPLANATION OF SIGNIFICANT DIFFERENCES

8.0 ROUTINE MAINTENANCE

8.1 OBJECTIVES

8.2 COVER SYSTEM

8.3 CAP GAS COLLECTION AND TREATMENT SYSTEM

8.4 SURFACE AND SUBSURFACE DRAINAGE SYSTEMS

8.4.1 SEDIMENT SAMPLING

8.5 ACCESS ROAD

8.6 SECURITY FENCE

9.0 REPAIRS

9.1 OBJECTIVES

9.2 REQUIRED REPAIRS

9.2.1 GPP/GSP PROBE REPAIRS

10.0 CONCLUSIONS AND RECOMMENDATIONS

11.0 REFERENCES

DRAFT
TABLE OF CONTENTS
2006 OM&M REPORT
McCOLL SUPERFUND SITE
FULLERTON, CALIFORNIA

TABLES/FIGURES

ACRONYMS AND ABBREVIATIONS

APPENDICES

- A. INSPECTION FORMS
- B. GCTS BI-MONTHLY AND SEMI-PASSIVE OPERATIONS
MONITORING FORMS
- C. 2006 GCTS USAGE REPORT
- D. ANNUAL CONFIRMATION LABORATORY RESULTS –
CALSCIENCE ENVIRONMENTAL LABORATORIES, INC.
- E. 2006 GROUNDWATER MONITORING LOGS AND LABORATORY
REPORTS – BBC ENVIRONMENTAL, INC. & DEL MAR
ANALYTICAL
- F. MAINTENANCE FORMS

**DRAFT
TABLES AND FIGURES
2006 OM&M REPORT
McCOLL SUPERFUND SITE
FULLERTON, CALIFORNIA**

<u>TABLE NO.</u>	<u>TABLES</u>
TABLE 1.0	COVER SYSTEM INSPECTION SUMMARY
TABLE 2.0	REINFORCED EARTHEN SLOPE INSPECTION SUMMARY
TABLE 3.0	GAS VENT INSPECTION SUMMARY
TABLE 4.0	SURFACE WATER DRAINAGE INSPECTION SUMMARIES
TABLE 5.0	SUBSURFACE DRAINAGE INSPECTION SUMMARIES
TABLE 6.0	SECURITY FENCE INSPECTION SUMMARIES
TABLE 7.0	ACCESS ROAD INSPECTION SUMMARY
TABLE 8.0	GCTS PASSIVE OPS MONITORING RESULTS
TABLE 9.0	GCTS MONITORING RESULTS
TABLE 10.0	LOCATION OF GAS PRESSURE PROBES AND GAS SAMPLING PROBES
TABLE 11.0	GAS PROBE MONITORING DATABASE
TABLE 12.0	QUARTERLY GPP AND GSP MONITORING RESULTS
TABLE 13.0	GROUNDWATER MONITORING WELL SAMPLING SCOPE AND FREQUENCY
TABLE 14.0	2006 GROUNDWATER MONITORING RESULTS-VOCS
TABLE 15.0	2006 GROUNDWATER MONITORING RESULTS-METALS
TABLE 16.0	2006 GROUNDWATER ELEVATION RESULTS
TABLE 17.0	2007 OM&M SCHEDULE OF ACTIVITIES

**DRAFT
TABLES AND FIGURES
2006 OM&M REPORT
McCOLL SUPERFUND SITE
FULLERTON, CALIFORNIA**

<u>FIGURE NO.</u>	<u>FIGURES</u>
FIGURE 1.0	SITE LOCATION MAP
FIGURE 2.0	SUMP LOCATION MAP
FIGURE 3.0	GEOLOGICAL CROSS SECTION C-C'
FIGURE 4.0	2006 CARBON BED CHANGEOUT PROTOCOL
FIGURE 5.0	GCTS CARBON CHANGEOUT
FIGURE 6.0	GROUNDWATER ELEVATION MAP
FIGURE 7.0	BTEX LABORATORY RESULTS – WELLS P-2I, P-10XD, P-10D, P-10L
FIGURE 8.0	THT LABORATORY RESULTS – WELLS P-2I, P-10XD, P-10D, P-10L
FIGURE 9.0	METALS LABORATORY RESULTS – WELLS P-2I, P-10XD, P-10D, P-10L
FIGURE 10.0	RETENTION POND LINER & SETTLEMENT – WELLS P-2I, P-10XD, P10-D, P-10L

ACRONYMS AND ABBREVIATIONS

bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, and total xylenes
CMPs	corrugated metal pipes
COCs	Constituents of Concern
ESD	Explanation of Significant Differences
GCTS	Gas Collection and Treatment System
GPP	Gas Pressure Probes
GSP	Gas Sampling Probes
H ₂ S	hydrogen sulfide
Kw	kilowatts
KwHr	kilowatts-hour usage
LCCC	Los Coyotes Country Club
LEL	lower explosive limit
µg/L	micrograms per liter
MCL	maximum contaminant level
MSG	McColl Site Group
ND	Not Detected
O ₂	oxygen
OICs	offsite institutional controls
O&M Plan	Operation and Maintenance Plan
OM&M	Operations, Maintenance & Monitoring
PID	photo ionization detector
PLC	programmable logic controller
ppm	parts per million
ppmv	parts per million by volume
psi	pounds per square inch
RESs	Reinforced Earthen Slopes
RI	Remedial Investigation
ROD	Record of Decision
SO ₂	sulfur dioxide
THTs	Tetrahydrothiophenes
TM	Technical Memorandum
UAO	Unilateral Administrative Order
USACOE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
VOCs	volatile organic compounds

1.0 INTRODUCTION

This Operations, Maintenance and Monitoring (OM&M) Annual Report (Report) has been prepared on behalf of the McColl Site Group (MSG), by C2 REM, to summarize the OM&M activities conducted at the McColl Superfund Site (Site), pursuant to requirements outlined in the *Unilateral Administrative Order (UAO) 96-10 for Remedial Design and Remedial Actions, McColl Superfund Site, Fullerton, California, United States Environmental Protection Agency (USEPA), July 1996 (USEPA, 1996a); Record of Decision (ROD) for the Source Operable Unit, Docket No. R09-93/095, McColl Superfund Site, Fullerton, California, USEPA, June 1993 (USEPA, 1993); Record of Decision for the Groundwater Operable Unit, Docket No. R09-96/154, McColl Superfund Site, Fullerton, California, USEPA, May 9, 1996 (USEPA, 1996b); and the O&M Plan McColl Superfund Site, Fullerton, California, Parsons Engineering Science, October 15, 1997 (O&M Plan).*

This Report provides information and analysis of the Site OM&M activities conducted during the ninth year of operation (January 2006 through December 2006). This Report includes discussions on: 1) modifications to existing OM&M activities; 2) inspections (pursuant to both semi-annual and annual requirements, and post-rain events) of the reinforced earthen slopes (RES), the cover system, settlement, the Gas Collection and Treatment System (GCTS), surface and subsurface drainage, and general physical Site characteristics (i.e., vegetative cover and composition); 3) assessments of the operation of the GCTS; 4) activities conducted during scheduled groundwater-monitoring events; and 5) summaries of maintenance and repairs.

The remainder of this Report is outlined in the following sections:

- 2.0 Site History
- 3.0 OM&M Modifications and Reporting Requirements
- 4.0 Inspections
- 5.0 Monument Survey Event
- 6.0 Cap Gas Collection and Treatment System Operation
- 7.0 Groundwater Monitoring
- 8.0 Routine Maintenance
- 9.0 Repairs
- 10.0 Conclusions and Recommendations
- 11.0 References

2.0 SITE HISTORY

The Site is located approximately 25 miles southeast of Los Angeles in Fullerton, California (Figure 1.0). The Site is approximately 22 acres in size and is comprised of the 7-acre Ramparts parcel to the east and the 3.5-acre Los Coyotes parcel to the west. Housing developments border the Site to the east and south. Developed areas of the Los Coyotes Country Club (LCCC) golf course and Ralph B. Clark Regional Park border the Site to the south and west, respectively, with the LCCC also enveloping a portion of the

Site. An oil field located north of Rosecrans Avenue is being developed for residential use and constitutes the northern boundary of the Site. The Site is located in an earthquake zone 4, denoting the highest level of earthquake activity.

The Site was created as a disposal area for acid sludge wastes (from the production of high-octane aviation fuel during World War II) and for oil-based drilling muds commencing approximately ten years later. In 1942, a total of 12 pits (known as “sumps”) were constructed, consisting of six sumps on each parcel (the Ramparts area: sumps R-1 through R-6; and the LCCC area: sumps L-1 through L-6) (Figure 2.0). The sumps were unlined pits extending to depths ranging from 23 to 40 feet below ground surface (bgs). Between 1942 and 1946 these sumps were filled with approximately 72,600 cubic yards of sludge. From 1951 to 1962, drilling muds from oil production activities were deposited on-site, mainly in the lower Rampart sumps (R-1, R-2 and R-4). The majority of the waste has been characterized as a hard, black char with low pH. The constituents of concern (COCs) include volatile organic compounds (VOCs), including benzene, toluene, ethylbenzene, and xylenes (BTEX), as well as inorganics, including metals and sulfur containing compounds, including tetrahydrothiophenes (THTs) (USEPA, 1993).

In 1957, the LCCC was constructed over the western six sumps. In the 1960s, developers began building homes in this area of Orange County. In the mid-1970s, homes were built adjacent to the eastern and southern borders of the Ramparts parcel. In 1978, Orange County received the first complaint of odors from area residents, and tar-like materials were reportedly observed seeping to the surface prior to Site remediation efforts. Three holes of the then 18-hole golf course were eventually closed.

After several years of investigation and remedial option analysis, the USEPA issued a ROD for the Site source area in 1993 (USEPA, 1993) and a second ROD for groundwater in 1996 (USEPA, 1996b).

The designed and constructed remedy for the Site source area began with the sumps being covered with 1 to 5 feet of overburden soil. Next, an engineered soil and geosynthetic cover (with an active vapor extraction conveyance and treatment system) and vertical slurry walls were installed over and around each sump area (i.e., Ramparts and Los Coyotes). LCCC recreated a portion of terrain overlying the sump areas into three golf holes on their course; these holes were opened for play in July 1998. The remainder of the Site has surface vegetation. There is aboveground piping for irrigation on some portions of the Site, and there are graded areas, drainage ditches and other features to control surface water run-on/run-off.

Four shallow groundwater zones/units have been identified in the upper sediments underlying the Site. Zones A, B and C are located within the Upper Pleistocene La Habra Formation; the D zone is located within the Lower Pleistocene Coyote Hills Formation (Figure 3.0). The zones are separated by clay layers (aquitards/aquicludes), which act as barriers to the vertical flow, and appear to be continuous across the Site. Water in the A and B zones underlying the Site exists as perched groundwater. Water in Zone C is

perched beneath much of the Site, but is not isolated from the underlying groundwater zones beneath the southern portion of the Site. The D zone is situated at depths ranging from approximately 150 to 250 feet bgs at the Site. Water in this zone exists in a confined condition, *Final Remedial Investigation Report Groundwater Operable Unit, McColl Site, Fullerton, California, Environ Corporation, December 1995* (Environ, 1995).

Two municipal production wells were identified within 7,000 feet of the Site during the Remedial Investigation (RI). These are the City of Fullerton's new well Coyote 12A, and the City of Buena Park's Smith-Murphy well (Environ, 1995). The Coyote 12A well is located approximately 3,000 feet cross gradient (southeast) of the Site. The Coyote 12A well obtains approximately 69% of its flow from the San Pedro "main" aquifer, 30% from the upper San Pedro Formation, and approximately 1% from the Coyote Hills Formation. The Zone D flow unit may have some equivalency to the shallowest screened interval of the Coyote 12A well. The Smith-Murphy well is located approximately 7,000 feet southwest of the Site, and obtains its flow from geothermal waters upwelling from fault systems totally unrelated to the groundwater at the Site (Environ, 1995).

A series of Site and vicinity groundwater monitoring wells were installed and screened within the A, B, and C zones, and are reported to produce small quantities of extractable water. The D zone water-bearing unit underlying the Site is a potentially productive unit although there is limited recharge available to this zone. The limited recharge is due to the fact that the groundwater zones underlying the Site are located along the boundary of the regional groundwater basin (Environ, 1995). Thus far, the Site remedial action activities have been completed and long-term OM&M activities commenced in 1998.

3.0 OM&M MODIFICATIONS AND REPORTING REQUIREMENTS

C2 REM continued with the Semi-Passive Operations Monitoring Program into 2006. The findings were presented in the *Gas Collection and Treatment System Semi-Passive Operation-Months Seven through Nine Technical Memorandum* and the *Gas Collection and Treatment System Semi-Passive Operation-Months Ten through Twelve Technical Memorandum*. Specifically, during these testing periods, the GCTS operated for one nine-hour period per month with observations made at the Gas Pressure Probes (GPP)/Gas Sampling Probes (GSP) and the GCTS sampling locations.

Based on the results collected during the Semi-Passive Operations Monitoring Program, it was concluded that the system can be more efficient while operating less frequently. Therefore, the system's operating frequency has been modified from its daily monitoring protocol of 9 hours per day, 5 days per week to one 9-hour period per month. This modification was envisioned in the original design. Specifically, the O&M Plan states, "It is anticipated that the active mode will be reduced to an active/passive or on/off mode of operation following the initial determination of operating criteria."

In addition, annual confirmation samplings will be conducted to verify the accuracy of the field monitoring equipment. The GCTS will remain in the "open" position during

non-operation periods to allow for passive diffusion of gas through the conveyance system and, subsequently, treatment through the carbon system. The monitoring of GPP/GSP will continue on a semi-annual schedule in accordance with the O&M Plan.

On March 8, 2005, C2 REM submitted a *Technical Memorandum (TM), Proposed Modifications to the Operation and Monitoring of the Gas Collection and Treatment System, McColl Superfund Site, Fullerton, California, C2 REM, March 8, 2005* (C2 REM, 2005) to USEPA presenting a series of proposed modifications to the OM&M activities currently being conducted at the Site. C2 REM identified and recommended the following modifications to OM&M requirements and/or procedures:

- **MODIFICATION ONE** – Implement an active/passive operational protocol for the GCTS.

Modification One was approved by the USEPA on April 15, 2005 and conducted from June 2005 to June 2006. The monitoring schedule for the twelve pairs of GPP and GSP was increased from a semi-annual basis to a bi-monthly basis with monitoring conducted over three days. The purpose of this increased monitoring was to quickly identify any potential pressure buildup beneath the cover system during the assessment of the modified operation.

In June 2006, C2 REM concluded that there was no potential buildup beneath the cover system and monitoring was then modified to one 9-hour period per month. C2 REM is currently testing and evaluating the modified operational schedule and anticipates developing long-term recommendations for GCTS operational periods. These recommendations will be presented in a modification to the OM&M implementation plan following USEPA approval of the modifications.

4.0 INSPECTIONS

Inspections were conducted in accordance with the O&M Plan (Section 4.0) which outlines required semi-annual and annual inspection procedures for: 1) the cover system; 2) RES; 3) the GCTS; 4) surface and subsurface drainage systems; 5) perimeter fencing and irrigation; and 6) access roads.

C2 REM conducted inspection events on January 2, July 10, July 11, and September 28, 2006 to evaluate Site system status and identify potential repairs as discussed below. The results of each C2 REM inspection were recorded on the appropriate inspection forms and are presented in Appendix A.

During the cover system inspection events, no unusual surface conditions such as cracking, significant settling, evidence of sump material seepage, faulty irrigation system, erosion, or slope instability were observed. The results of C2 REM cover system inspection events are presented in Table 1.0. Additionally, the inspection of the cover system's RES did not reveal any unusual slope instability, sloughing, or erosion of facia (Table 2.0).

Inspections of the GCTS included observation of aboveground components including: 1) the inlet vacuum relief valves; 2) exterior of valve vaults; 3) process piping; and 4) carbon adsorption vessels, including peripheral equipment. The results of the GCTS inspection events are presented in Table 3.0. Routine inspections of Site conditions indicate that the GCTS is functioning as intended and the enclosure is in satisfactory condition.

Surface water drainage is controlled and managed through the use of a retention pond, contoured grades, catch basin, concrete lined V-ditches, and subsurface drainage pipes. C2 REM inspected these items to identify the presence of cracks, erosion of contoured grade, sediment build-up, plugging, structural failure, and/or accumulation of vegetative debris (Tables 4.0-5.0). Subsequent to the repair of the structurally damaged V-ditches on October 24, 26, 27 and December 14, 2005, the surface water drainage system operated as designed and was not found to require additional repair. In 2006, our site inspections found the V-ditches to be operating as designed and that no repairs were necessary to these ditches.

C2 REM will conduct annual sediment gauging and inspection at the northwest detention pond to assure that the hydrologic controls on the Site are well maintained. The next annual inspection is scheduled for November 2007.

Inspections of the perimeter fence and gates were performed to identify breaks or failures in the perimeter fencing system. The access road was assessed to determine any deterioration or structural failure. C2 REM did not observe any damage to the perimeter fencing, gates or the access road (Tables 6.0-7.0).

Finally, minor repairs to the irrigation system were noted in 2005. Landscape managers were notified and subsequent visual inspection did not reveal any outstanding issues in 2006.

5.0 MONUMENT SURVEY EVENT

A baseline survey record of the Site was previously established to monitor and track ground movement and settlement. A monument survey event was conducted yearly for the first five years of operation (1998 through 2002) in accordance with the O&M Plan at the McColl Superfund Site. Pursuant to the O&M Plan, monument survey events will be conducted once every 5 years following the first five years, since primary compression of the cover system is complete. Since 2006 was the ninth year, no monument survey event was needed. The next monument survey event is scheduled for 2007.

6.0 CAP GAS COLLECTION AND TREATMENT SYSTEM OPERATION

6.1 OBJECTIVES

The GCTS monitoring activities have been conducted to: 1) assess the treatment efficiency of the GCTS in the collection of fugitive soil vapor emissions from the sand layer of the cap and 2) maintain balanced flow conditions through the system. Monitoring activities were conducted in accordance with the O&M Plan (Section 7.0).

6.2 BI-MONTHLY AND SEMI-PASSIVE CAP GAS MONITORING

During semi-passive operation, which was conducted from January 11 to May 12, 2006, monitoring was conducted from four sample locations (i.e., system influent #1, outlet/effluent of the lead carbon vessel #2, outlet/effluent of the lag carbon vessel #3, and system effluent #4) three consecutive days every other week (bi-monthly). The first day of monitoring was conducted before blower startup (passive operation). The second day of monitoring was conducted during a nine-hour extraction phase (active operation). Finally, the third day was monitored after the system had been off for 12 hours (passive operation). A photo ionization detector (PID) (calibrated to benzene) was used to detect the VOC concentration at each of the four sample locations. As indicated in Table 8.0, during semi-passive ops monitoring from January to May 2006, influent samples ranged from 8.4 to 11.1 ppm, while influent samples taken from June to December 2005 ranged from 11.1 to 22.6 ppm. While the semi-annual influent average in 2005 was 15.5 ppm, a decrease was observed for the semi-annual influent average in 2006, which was 9.6 ppm.

In an effort to assess the performance and treatment efficiency of the GCTS, monitoring frequency was changed to monthly from June 20 to December 14, 2006. Samples were taken from the four original sample locations (i.e., system influent #1, outlet/effluent of the lead carbon vessel #2, outlet/effluent of the lag carbon vessel #3, and system effluent #4). A PID (calibrated to benzene) was used to detect the VOC concentration at each of the four sample locations. As indicated in Table 9.0, from June to December 2006, influent concentrations ranged from 11.5 ppm to 38.1 ppm, while final effluent samples ranged from 2.2 ppm to 5.8 ppm. The yearly average influent concentration during monthly monitoring was 23.6 ppm, which is a decrease when compared to the 2005 bi-monthly influent concentration average of 25.8 ppm.

The effluent requirement for the GCTS is a maximum of 6 ppm benzene during an 8-hour operational period. This effluent limit was not exceeded at any point in 2006. The low concentrations detected at the system's effluent demonstrate the carbon vessels' efficiency in reducing VOC emissions. The system efficiency during monthly operation was approximately 81%, calculated as the average from June to December 2006 monthly monitoring events (Appendix B).

The lower concentrations detected at the system's influent during active/passive operation are potentially due to the decrease in negative pressure gradient applied during the GCTS operation (i.e., from two days per month to one day per month active operation). The active/passive operational schedule has proven successful in keeping with the scope of the GCTS. The system efficiency during active/passive operation was approximately 78%, calculated as the average from all 2006 active/passive monitoring events (Appendix B).

6.3 CARBON BED CHANGE-OUT

The USEPA-approved carbon bed change-out protocol for the GCTS is based on system efficiency and effluent limitations. C2 REM developed a graphical representation of this protocol that determines carbon bed change-out frequency (Figure 4.0). Based on the results of bi-monthly monitoring activities, a carbon bed change-out was conducted on March 8, 2005 (Figure 5.0).

Monthly GCTS monitoring results from sampling events conducted from June 20 to December 14, 2006 indicated lead vessel efficiencies ranging from 57% to 85% with an average of 73%. System efficiencies ranged from 68% to 89% with an average of 81%.

Due to decreased operation of the GCTS as well as low influent concentrations, a carbon change-out was not needed in 2006.

6.4 GAS COLLECTION PRESSURE PROBES

As part of the monitoring activities for the GCTS, twelve pairs of GPP and GSP were initially monitored on a semi-annual basis. The probes were placed at various depths depending on the sump depth at each location (Table 10.0). The function of the GPP is to obtain subsurface pressure readings within the containment system while the function of the GSP is to obtain subsurface pressure readings immediately outside the containment system. When semi-passive operation monitoring began, pressure readings were collected on a bi-monthly basis beginning on June 8, 2005 and concluded on May 12, 2006. In addition, field instruments were used to monitor VOCs, SO₂, O₂, H₂S, and LEL at each probe (Table 11.0). At the conclusion of the semi-passive operation, GPP and GSP were monitored quarterly on August 31, 2006 and November 21, 2006 (Table 12.0). The maximum yearly differential pressure reading for 2006 between the GPP and GSP pairs was 1.1 psi. The low to negligible pressure buildup, along with the low concentrations of VOCs and SO₂ demonstrate that the containment system and GCTS are functioning as designed.

6.5 GCTS MECHANICAL PROCESS MONITORING

In an effort to assess that the GCTS is operating properly, a programmable logic controller (PLC) with an interface software program (RSView 32) was installed. This system provides electrical and operational data (i.e., start time, average kilowatts [Kw], and kilowatt-hour usage [KwHr]) and is capable of automatically “calling out” if the GCTS is functioning outside its normal parameters. The 2006 GCTS Usage Report is presented in Appendix C.

7.0 GROUNDWATER MONITORING

7.1 OBJECTIVES

Groundwater monitoring activities have been conducted to assess and characterize the concentrations of COCs in the A, B, C, and D zone aquifers, and demonstrate that the infiltration controls are effectively preventing the migration of site contaminants to the regional aquifer.

7.2 2006 GROUNDWATER MONITORING EVENTS

C2 REM conducted two groundwater monitoring events at the Site. The nineteenth event was conducted on May 8, 2006, and the twentieth event was conducted on November 9, 2006. These events were conducted in accordance with the recent USEPA-approved modification to the groundwater monitoring program.

The revised groundwater monitoring frequency scope is provided in Table 13.0. In accordance with the sampling schedule, wells P-2I, P-10D, P-10L, and P-10XD were sampled and analyzed during the nineteenth groundwater monitoring event and all wells were sampled and analyzed during the twentieth groundwater monitoring event. The samples collected during the nineteenth groundwater monitoring events were analyzed using USEPA Method 8260 (including THTs), USEPA Method 6010, USEPA Method 7470, and USEPA Method 300. The results from the 2006 groundwater monitoring event are presented in Tables 14.0 and 15.0, and in Appendix E. Additionally, all 20 monitoring wells were gauged for depth-to-groundwater during the twentieth event (Table 16.0). Subsequent to the two monitoring events, the following observations were made:

- Site wide groundwater elevations from the 2006 groundwater-monitoring events were similar with those observed during the 2005 groundwater monitoring event (Figure 6.0).
- The concentrations of VOCs, specifically BTEX, remained at a steady state concentration range (Figure 7.0). During the nineteenth groundwater-monitoring event, the benzene concentration at well P-2I was 100 ug/L (as compared to 78 ug/L during the 2005 monitoring event). Consistent with the measurements obtained during the 2004 and 2005 events, the benzene concentrations at wells P-10D, P-10L, and P-10XD were non detect (ND).
- The concentrations of THTs (THT, 2-THT, and 3-THT) were all ND except for a 12 ug/L hit of 3-THT at well P-10L, which supports the declining or steady state concentration ranges observed to date (Figure 8.0). In 2005, a concentration of 3-THT of 840 ug/L was observed in well P-10L.
- The concentrations of metals have declined in all areas (Figure 9.0). During the 2006 groundwater monitoring events, C2 REM noted only magnesium and iron detected in well P-2I.

- Metal concentrations in wells P-10D, P-10L, and P-10XD have shown high fluctuation at a higher frequency than other wells; however, the concentrations have been stable since 2003 and 2006 data shows a decline in concentration for all these wells. The pH of the water in those wells is +/- 7.0. C2 REM will continue to monitor these concentrations to assess significant variation.

7.3 LOW-FLOW GROUNDWATER SAMPLING TECHNIQUE

C2 REM, with approval from the USEPA, monitored groundwater wells during the nineteenth groundwater monitoring event using a low-flow/minimal drawdown sampling technique rather than the traditional high-flow/fixed volume technique. This was done in an effort to assess its feasibility for use during future groundwater monitoring events. Based on observed sampling results, the low-flow groundwater technique will continue to be utilized during future sampling activities.

7.4 EXPLANATION OF SIGNIFICANT DIFFERENCES

EPA's first Five Year Review for the Site in September 2002 determined that the use of the chemical class of compounds, THTs (to predict the movement of groundwater), was no longer optimal. The ESD, amends the Groundwater Operable Unit ROD dated May 9, 1996, and establishes benzene as the new chemical constituent to be used as a predictor of groundwater movement for the following reasons:

- Benzene is a more appropriate trigger because it is more directly tied to the potential health impacts from groundwater contamination,
- There is a well-established ARAR for benzene (the MCL), and
- Data collected during implementation of the remedial action has determined that benzene predicts the behavior, as a class, of the most toxic site-related contaminants in groundwater more accurately than THTs.

The EPA approved and signed the Groundwater ESD on September 1, 2005.

8.0 ROUTINE MAINTENANCE

8.1 OBJECTIVES

C2 REM conducted routine system wide maintenance to: 1) reduce the probability of malfunction; 2) provide for a mechanism of early detection; 3) repair identified system failures; and 4) ensure the efficient management of OM&M activities (see Appendix F for Field Daily Reports regarding maintenance activities).

8.2 COVER SYSTEM

Routine maintenance of the cover system included control of undesirable weeds and vegetation, eradication of burrowing animals, replanting and reseeded of ground cover, and inspection of the irrigation system. LCCC employees with daily access to the Site conducted maintenance as part of the normal property maintenance.

8.3 CAP GAS COLLECTION AND TREATMENT SYSTEM

C2 REM conducted bi-monthly visual observations of GCTS aboveground components and the enclosure to identify any potential maintenance requirements and/or repairs. Due to electrical difficulties, routine maintenance until mid-January included the replacement of fuses in the motor control panel of the GCTS. Routine inspection of aboveground components of the GCTS included inspection of the high-density plastic footings installed in September 2004 for the conveyance piping braces to ensure a stable base. The modem, which gives our office remote access to the PLC for start-up and shut-down capabilities, was tested and replaced in 2006.

8.4 SURFACE AND SUBSURFACE DRAINAGE SYSTEMS

As part of the scheduled landscape care and maintenance of the cover system, the surface and subsurface drainage systems were regularly cleaned and any vegetative debris was removed and disposed. The V-ditches on the upper and lower ramparts were repaired (i.e. caulking) on October 24, 26, 27, and December 14, 2005 to maintain their structural integrity. The structural integrity of the repairs made to the V-ditches in 2005 has proven effective during inspections executed in 2006.

8.4.1 Sediment Sampling

C2 REM conducted a 20-foot grid-based gauging program on November 6, 2006 to assess sediment accumulation in the northwest Site detention pond, to observe the condition of the hydraulic control system, and to provide a limited assessment of the sediments at the outfall of the two 54" corrugated metal pipes (CMPs) north of the Site and along the perimeter of the pond.

The grate assembly, weir and conveyance piping on the south end of the pond appear well-maintained and no visible debris or obstructions were observed. Concrete around the outfall of the 2-54" CMPs appears structurally sound.

C2 REM used a 10' gauge stick to assess the depth of water and sediment. The field assessment revealed that sediment along the pond bottom ranged from 0.25 to 1.25 feet. The areas that contained the deepest portions of sediment were observed on the northern half of the pond where surface water run-off enters from the two 54" CMPs. The average accumulation of sediment in the northern half of the pond is approximately 0.41 feet and average sediment along the southern half is approximately 0.43 feet with a combined average of approximately 0.42 feet (Figure 10.0). Based on the as-built plan for the pond bottom (an area of approximately 32,000 square feet), the accumulation of sediment in the pond is estimated at 500 cubic yards. The 500 cubic yards of sediment at the bottom

of the pond is approximately 4% of the total surface volume of the pond. The volume of sediment is considerably less than last year. This amount of sediment should not interfere with the hydrologic design.

C2 REM observed considerable changes in the appearance of the sediment pond this year as compared to 2005's sediment gauging event. In that time span, nearly 160 tons of vegetation (and perhaps sediment along with the vegetation) was removed from the northeast corner of the pond. Along with the removal of the vegetation, the pond was also drained and filled multiple times. Additionally, C2 REM noticed that the water level for the pond was about 2.5 feet below the weir structures, indicating a drop in water level of 2.5 feet. These activities may have affected the volume of sediment found during the 2006 sediment gauging event.

Based on this assessment along with the tasks conducted as part of the Site Hydrology Technical Memorandum (TM) dated November 1st, 2005, C2 REM recommends the following: 1) no removal of sediment in the detention pond in the immediate future and 2) continued annual gauging of sediment in the detention pond with continued inspections of Site surface water and sediment control features as required by the OM&M Plan to determine that the system is functioning as designed.

8.5 ACCESS ROAD

The access road was regularly examined for surface cracks and settlement. No additional maintenance or repair of the access road was required.

8.6 SECURITY FENCE

The security fence was regularly examined for damage or needed repair as part of the normal property maintenance by LCCC employees with daily access to the Site.

9.0 REPAIRS

9.1 OBJECTIVES

In an effort to ensure the integrity of the implemented remedy, C2 REM regularly identified and repaired failed or nonfunctional components of the remedy pursuant of the O&M Plan (Section 9.0).

9.2 REQUIRED REPAIRS

Other than the GCTS PLC unit's modem, the remaining Site components of the remedy subject to inspection and assessment do not require significant repair. The remaining issues and proposed/implemented remedy are discussed below.

9.2.1 GPP/GSP PROBE REPAIRS

The only major repairs done at the Site this year were the repairs made to probes 6 GPP and 12 GSP Shallow after field staff discovered the probes had more than likely been damaged by landscaping equipment. Lastly, during groundwater elevation monitoring, field staff noted that several wells had security screws missing on the lids. Those screws have since been replaced to ensure no tampering occurs with the groundwater wells. The GCTS operation schedule is still being effectively controlled from the office.

10.0 CONCLUSIONS AND RECOMMENDATIONS

Following the ninth year of operation, the implemented remedy is functioning as designed. Regularly scheduled inspections, monitoring, and maintenance activities have assisted in early identification of possible repair issues. Issues that were identified (i.e., PLC modem, damaged probes, etc.) have been rectified and, to date, the cover system and other associated systems are operating and functioning as designed. Future inspection and monitoring activities shall be conducted in accordance with the schedule provided on Table 17.0. The next monument survey event is scheduled for 2007.

No detectable loss in operating efficiency and remedy efficacy was observed during our monthly GCTS monitoring from June to December 2006. C2 REM will continue to utilize the protocol for carbon bed change-out at the Site.

The 2006 groundwater monitoring results continue to support the modifications approved by the USEPA, and shall continue to be performed in accordance with the frequency and scope outlined in Table 13.0.

11.0 REFERENCES

C2 REM, *Phased Technical Memorandum, Proposed OM&M Modifications*, December 17, 2002 (C2 REM, 2002).

C2 REM, *Technical Memorandum, Operation, Maintenance, and Monitoring (OM&M) Modification #2, Proposed Carbon Bed Change-Out Protocol*, October 14, 2003 (C2 REM, 2003a).

C2 REM, *Technical Memorandum, Proposed Modifications to the Operation and Monitoring of the Gas Collection and Treatment System*, March 8, 2005 (C2 REM, 2005a).

C2 REM, *2002 Operation, Maintenance, and Monitoring Annual Report*, May 1, 2003 (C2 REM, 2003b).

C2 REM, *2004 Operation, Maintenance, and Monitoring Annual Report*, February 9, 2005 (C2 REM, 2005b).

Environ Corporation, *Final Remedial Investigation Report Groundwater Operable Unit, McColl Site*, December 1995 (Environ, 1995).

Parsons Engineering Science, *Operations and Maintenance Plan McColl Superfund Site*, October 15, 1997 (O&M Plan).

U.S. Environmental Protection Agency, *Record of Decisions R09-93/095-Soil Debris*, June 30, 1993 (USEPA, 1993).

U.S. Environmental Protection Agency, *Record of Decisions R09-96/154-Groundwater*, May 15, 1996 (USEPA, 1996b).

U.S. Environmental Protection Agency, *Administrative Order 96-10 for Remedial Design and Remedial Actions, McColl Superfund Site, Fullerton, California*, July 1996 (USEPA, 1996a).

**TABLE 1.0
COVER SYSTEM INSPECTION SUMMARY
McCOLL SUPERFUND SITE
FULLERTON, CALIFORNIA**

Cover System Inspection Form	
McColl Superfund Site	9/28/06 Conditions/ Remarks
Inspection Type	Annual Site Inspection
Inspection Items	
<i>Erosion</i>	4
<i>Stressed Vegetation (Plant Die-Back)</i>	4
<i>Sediment Build-Up</i>	4
<i>Local Subsidence or Loss of Grade</i>	4
<i>Water Ponding</i>	4
<i>Turf Height</i>	3
<i>Burrowing Animals</i>	4
<i>Weeds or Undesirable Vegetation</i>	4
<i>Evidence of Fires or Vandalism</i>	4
<i>Soil Quality Check</i>	4
<i>Unauthorized Traffic</i>	4
<i>Slope Instability or Sloughing</i>	4
<i>Irrigation System</i>	3
<i>Survey Monuments</i>	4
<i>Vertical Cracking</i>	4
<i>Intrusions</i>	4
<i>Evidence of Sump Materials</i>	4

Conditions/Remarks Key:

4 = Satisfactory

3 = Slight (Continue Observing)

2 = Moderate (Needs Scheduled Repair)

1 = Poor (Needs Immediate Repair)

TABLE 2.0
REINFORCED EARTHEN SLOPE INSPECTION SUMMARY
McCOLL SUPERFUND SITE
FULLERTON, CALIFORNIA

Reinforced Earthen Slope Inspection Form	
McColl Superfund Site	9/28/06 Conditions/ Remarks
Inspection Type	Annual Site Inspection
Inspection Items	
<i>Erosion of Facia</i>	4
<i>Stressed Vegetation (Plant Die-Back)</i>	4
<i>Weeds or Undesirable Vegetation</i>	3
<i>Slope Instability or Sloughing</i>	4

Conditions/Remarks Key:

4 = Satisfactory

3 = Slight (Continue Observing)

2 = Moderate (Needs Scheduled Repair)

1 = Poor (Needs Immediate Repair)

**TABLE 3.0
GAS VENT INSPECTION SUMMARY
McCOLL SUPERFUND SITE
FULLERTON, CALIFORNIA**

Gas Vent System Inspection Summary	
McColl Superfund Site	9/28/06 Conditions/ Remarks
Inspection Type	Annual Site Inspection
Inspection Items	
<i>Excess Sediment Build-Up and Vegetation Growth Over Inlet Vacuum Relief Valves</i>	4
<i>Erosion or Washout Around Relief Valves</i>	4
<i>Damaged Inlet Vent Pipe</i>	4
<i>Excess Sediment Build-Up and Vegetation Growth Over Valve Vaults</i>	4
<i>Erosion or Washout Around Valve Vaults</i>	4
<i>Damaged Process Pipe(s) or Vessels on GCTS</i>	4

Conditions/Remarks Key:

4 = Satisfactory

3 = Slight (Continue Observing)

2 = Moderate (Needs Scheduled Repair)

1 = Poor (Needs Immediate Repair)

TABLE 4.0
SURFACE WATER DRAINAGE INSPECTION SUMMARY
McCOLL SUPERFUND SITE
FULLERTON, CALIFORNIA

Surface Water Drainage Inspection Form	
McColl Superfund Site	9/28/06 Conditions/ Remarks
Inspection Type	Annual Site Inspection
Inspection Items	
<i>Dislodged Riprap</i>	4
<i>Washouts or Erosion of Contoured Grade</i>	4
<i>Ponding on Contoured Grade</i>	4
<i>Sediment Build-Up on Riprap</i>	4
<i>Gullies and Ruts on Contoured Grade</i>	4
<i>Plugging of Drainage Culverts</i>	4
<i>Holes and Cracks in V-Ditches or Catch Basin</i>	4
<i>Sediment Build-Up in V-Ditches or Catch Basin</i>	4
<i>Foreign Objects in Detention Pond</i>	4
<i>Washout at Southern Back of Detention Pond</i>	4
<i>Surface Cracking of V-Ditches or Catch Basins</i>	4
<i>Spalling of V-Ditches or Catch Basins</i>	4
<i>Structural Failure of V-Ditches or Catch Basins</i>	4

Conditions/Remarks Key:

4 = Satisfactory

3 = Slight (Continue Observing)

2 = Moderate (Needs Scheduled Repair)

1 = Poor (Needs Immediate Repair)

**TABLE 5.0
 SUBSURFACE DRAINAGE INSPECTION SUMMARY
 McCOLL SUPERFUND SITE
 FULLERTON, CALIFORNIA**

Subsurface Drainage Inspection Form	
McColl Superfund Site	9/28/06 Conditions/ Remarks
Inspection Type	Annual Site Inspection
Inspection Items	
<i>Holes and Cracks in V-Ditches, PE Manhole or Catch Basin</i>	4
<i>Plugging of Drainage Inlets</i>	4
<i>Sediment Build-Up or Debris in PE Manhole or Catch Basin</i>	4
<i>Structural Failure of PE Manhole or Catch Basin</i>	4

Conditions/Remarks Key:

4 = Satisfactory

3 = Slight (Continue Observing)

2 = Moderate (Needs Scheduled Repair)

1 = Poor (Needs Required Repair)

TABLE 6.0
SECURITY FENCE INSPECTION SUMMARY
McCOLL SUPERFUND SITE
FULLERTON, CALIFORNIA

Security Fence Inspection Form	
McColl Superfund Site	9/28/06 Conditions/ Remarks
Inspection Type	Annual Site Inspection
Inspection Items	
<i>Perimeter Fence</i>	
<i>Breaks and Holes</i>	4
<i>Settlement Damage</i>	4
<i>Loose Posts/Tension</i>	4
<i>Rust/Corrosion</i>	4
<i>Ruts and Burrows Beneath Fence</i>	4
<i>Vegetation Overgrowth</i>	4
<i>General Signs of Deterioration</i>	4
<i>Vandalism/Animal/Wind Damage</i>	4
<i>Gates</i>	
<i>Adequate Movement of Hinges and Gates</i>	4
<i>Proper Function of Lock(s)</i>	4
<i>Irrigation</i>	
<i>Leaks</i>	4
<i>Other Malfunctions</i>	4

Conditions/Remarks Key:

4 = Satisfactory

3 = Slight (Continue Observing)

2 = Moderate (Needs Scheduled Repair)

1 = Poor (Needs Immediate Repair)

**TABLE 7.0
ACCESS ROAD INSPECTION SUMMARY
McCOLL SUPERFUND SITE
FULLERTON, CALIFORNIA**

Access Road Inspection Form	
McColl Superfund Site	9/28/06 Conditions/ Remarks
Inspection Type	Annual Site Inspection
Inspection Items	
<i>Holes and Cracks</i>	4
<i>Vegetation Overgrowth</i>	4
<i>Settlement</i>	4
<i>Structural Failure</i>	4
<i>General Signs of Deterioration</i>	4

Conditions/Remarks Key:

4 = Satisfactory

3 = Slight (Continue Observing)

2 = Moderate (Needs Scheduled Repair)

1 = Poor (Needs Immediate Repair)

TABLE 8.0
GCTS PASSIVE OPS MONITORING RESULTS
McCOLL SUPERFUND SITE
FULLERTON, CALIFORNIA

GCTS Semi-Passive Ops Monitoring Results											**Mark With an "x"			
Date	VOCs (ppm)				Temp (°F)		Air Flow (scfm)		Vessel A Efficiency (%)	System Efficiency (%)	Zone 1	Zone 2	Zone 3	Negative or Undefined Efficiency
	System Inlet	Outlet Vessel A	Outlet Vessel B	System Outlet	System Inlet	System Outlet	System Inlet	System Outlet						
1/11/06	0.4	3.0	1.2	0.7	N/A	N/A	N/A	N/A	-650.00	-75.00				x
1/12/06	11.1	2.8	2.0	1.5	60	105	214	1575	74.77	86.49	x			
1/13/06	0.1	3.2	1.2	0.8	N/A	N/A	N/A	N/A	-3100.00	-700.00				x
2/8/06	1.5	3.3	0.5	0.5	N/A	N/A	N/A	N/A	-120.00	66.67	x			
2/9/06	10.2	3.1	1.9	1.8	64	105	257	1650	69.61	82.35	x			
2/10/06	0.2	2.1	0.3	0.2	N/A	N/A	N/A	N/A	-950.00	0.00				x
3/8/06	0.2	1.6	0.7	0.6	N/A	N/A	N/A	N/A	-700.00	-200.00				x
3/9/06	9.8	2.2	1.4	1.5	62	105	185	1570	77.55	84.69	x			
3/10/06**	0.2	2.2	1.3	1.0	N/A	N/A	N/A	N/A	-1000.00	-400.00				x
3/13/06	0.6	1.4	0.2	0.4	N/A	N/A	N/A	N/A	-133.33	33.33				x
4/12/06	0.5	2	0.5	0.4	N/A	N/A	N/A	N/A	-300.00	20.00				x
4/13/06	8.4	3	1.8	1.6	70	110	300	1700	64.29	80.95	x			
4/14/06	0.3	0.3	0.4	0.3	N/A	N/A	N/A	N/A	0.00	0.00				x
5/10/06	4	2.4	5.2	3	N/A	N/A	N/A	N/A	40.00	25.00	x			
5/11/06	8.6	5.5	2.8	3.8	70	115	311	1670	36.05	55.81		x		
5/12/06	1	3.5	1.8	1.7	N/A	N/A	N/A	N/A	-250.00	-70.00				x

Average Influent*: 9.6

Average System Efficiency*: 78.06

All VOC results taken from PID (2) unless otherwise indicated

* Average during System Operations only

** Monitoring performed on a rainy day (did not perform GPP/GSP sampling on this day)

N/A = Not Applicable

**TABLE 9.0
GCTS MONITORING RESULTS
McCOLL SUPERFUND SITE
FULLERTON, CALIFORNIA**

GCTS Passive Ops Monitoring Results											**Mark With an "x"			
Date	VOCs (ppm)				Temp (°F)		Air Flow (scfm)		Vessel A Efficiency (%)	System Efficiency (%)	Zone 1	Zone 2	Zone 3	Negative or Undefined Efficiency
	System Inlet	Outlet Vessel A	Outlet Vessel B	System Outlet	System Inlet	System Outlet	System Inlet	System Outlet						
6/20/06	18.1	7.7	4.1	5.8	82	128	265	1675	57.46	67.96			x	
7/21/06	11.5	N/A *	N/A *	3.3	86	135	305	1610	N/A *	71.30	x			
8/22/06	27.9	8.2	4.3	5.1	87	134	371	1605	70.61	81.72			x	
9/21/06	38.1	5.6	7.8	4.1	81	133	286	1670	85.30	89.24		x		
10/20/06	12.4	3.3	3.6	2.2	72	110	272	1690	73.39	82.26		x		
11/16/06	24.4	4	3.2	3.5	70	120	416	1665	83.61	85.66		x		
12/14/06	32.8	9.9	6.4	4.1	66	110	328	1680	69.82	87.50				

Average Influent 23.6

Average Lead Vessel Efficiency: 73.36

Average System Efficiency: 80.80

All VOC results taken from PID (2) unless otherwise indicated

* Pump lung unable to overcome vacuum

TABLE 10.0
LOCATION OF GAS PRESSURE PROBES
AND GAS SAMPLING PROBES
McCOLL SUPERFUND SITE
FULLERTON, CALIFORNIA

General Location		Identification Number	Approximate Depth Below Top of Cap To Top of Screen ¹			
			Gas Pressure Probes (ft)	Gas Sampling Probes Shallow (ft)	Gas Sampling Probes Deep (ft)	
RAMPARTS CAP	Lower Ramparts	Ramparts Sump R-1	GPP-9, GSP-9	39	14	35
		Ramparts Sump R-2	GPP-3, GSP-3	38.0	6.5	20.0
		Ramparts Sump R-4	GPP-1, GSP-1	43.0	16.0	39.0
			GPP-2, GSP-2	35.0	10.5	28.0
	Upper Ramparts	Ramparts Sump R-5	GPP-10, GSP-10	29.0	9.5	26.0
		Ramparts Sump R-6	GPP-11, GSP-11	38.0	13.0	33.0
			GPP-12, GSP-12	36.0	12.5	32.0
LOS COYOTES CAP	Los Coyotes Sump L-1	GPP-4, GSP-4	26.0	6.5	20.0	
	Los Coyotes Sump L-2	GPP-5, GSP-5	25.0	6.0	19.0	
	Los Coyotes Sump L-3	GPP-6, GSP-6	32.0	10.5	28.0	
	Los Coyotes Sump L-4	GPP-7, GSP-7	23.0	3.5	0.0	
	Los Coyotes Sump L-6	GPP-8, GSP-8	49.0	10.5	28.0	

¹ Source of information: design drawings (Parsons, 1997). See record drawings for actual depths.

Note: Each screen is 5 feet in length.

**TABLE 11.0
GAS PROBE MONITORING DATABASE
McCOLL SUPERFUND SITE
FULLERTON, CALIFORNIA**

Probe Location	Date	Pressure (in. of H2O)			Differential P		PSI			Differential P		VOCs (ppm)			SO2 (ppm)			LEL (%)			H2S (ppm)			Oxygen (%)					
		GPP	GSP Shallow	GSP Deep	Shallow (in. of H2O)	Deep (in. of H2O)	GPP	GSP Shallow	GSP Deep	Shallow (psi)	Deep (psi)	GPP	GSP Shallow	GSP Deep	GPP	GSP Shallow	GSP Deep	GPP	GSP Shallow	GSP Deep	GPP	GSP Shallow	GSP Deep	GPP	GSP Shallow	GSP Deep			
1	1/11/2006	0.000	0.080	0.620	-0.080	-0.620	0.000	0.003	0.022	-0.003	-0.022	0.00	0.90	3.10	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	?	?	?	
	1/13/2006	0.000	0.420	0.220	-0.420	-0.220	0.000	0.015	0.008	-0.015	-0.008	0.00	0.90	3.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.3	18.6	18.0	
	2/8/2006	0.180	0.780	0.500	-0.600	-0.320	0.007	0.028	0.018	-0.022	-0.012	0.10	1.20	2.40	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.4	18.5	17.5	
	2/10/2006	-0.340	-1.250	-0.870	0.910	0.530	-0.012	-0.045	-0.031	0.033	0.019	0.00	0.40	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.9	19.7	20.5		
	3/8/2006	0.160	0.040	0.330	0.120	-0.170	0.006	0.001	0.012	0.004	-0.006	0.00	1.00	2.50	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.2	18.9	18.3		
	3/13/2006	-0.350	-0.160	-0.860	-0.190	0.510	-0.013	-0.006	-0.031	-0.007	0.018	0.00	0.90	0.70	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.9	19.2	20.3	
	4/12/2006	-0.300	-0.900	-0.750	0.600	0.450	-0.011	-0.033	-0.027	0.022	0.016	0.00	0.70	1.40	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.9	19.5	20.2		
	4/14/2006	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**
	5/10/2006	0.030	0.000	0.080	0.030	-0.050	0.001	0.000	0.003	0.001	-0.002	0.10	1.40	2.70	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.8	19.6	17.6		
	5/12/2006	-0.080	-0.220	-0.170	0.140	0.090	-0.003	-0.008	-0.006	0.005	0.003	0.00	1.10	3.10	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.9	19.5	19.3		
2	1/11/2006	0.220	0.080	0.000	0.140	0.220	0.008	0.003	0.000	0.005	0.008	2.20	0.10	0.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	?	?	?	
	1/13/2006	0.120	0.040	0.040	0.080	0.080	0.004	0.001	0.001	0.003	0.003	2.10	0.00	0.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.2	17.3	18.0		
	2/8/2006	0.300	0.140	0.200	0.160	0.100	0.011	0.005	0.007	0.006	0.004	2.20	0.20	0.60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.1	4.3	17.8		
	2/10/2006	-0.160	-0.110	0.000	-0.050	-0.160	-0.006	-0.004	0.000	-0.002	-0.006	1.90	0.00	0.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.6	20.6	18.4		
	3/8/2006	0.180	0.150	0.150	0.030	0.030	0.007	0.005	0.005	0.001	0.001	2.20	0.00	0.40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.7	14.5	18.2		
	3/13/2006	0.000	-0.100	0.040	0.100	-0.040	0.000	-0.004	0.001	0.004	-0.001	2.10	0.10	0.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.9	20.5	18.4		
	4/12/2006	-0.450	-0.250	-0.150	-0.200	-0.300	-0.016	-0.009	-0.005	-0.007	-0.011	1.50	0.60	0.40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.0	20.5	14.4		
	4/14/2006	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**
	5/10/2006	0.180	0.100	0.200	0.080	-0.020	0.007	0.004	0.007	0.003	-0.001	2.20	0.10	0.60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.5	20.1	14.8		
	5/12/2006	-0.070	0.000	-0.120	-0.070	0.050	-0.003	0.000	-0.004	-0.003	0.002	2.10	0.00	0.50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.9	20.0	13.8		
3	1/11/2006	0.460	0.280	0.220	0.180	0.240	0.017	0.010	0.008	0.007	0.009	2.60	0.90	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	?	?	?		
	1/13/2006	0.220	0.120	0.100	0.100	0.120	0.008	0.004	0.004	0.004	0.004	2.50	1.10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.4	18.0	19.4		
	2/8/2006	0.520	0.300	0.220	0.220	0.300	0.019	0.011	0.008	0.008	0.011	2.90	1.20	0.20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.0	17.4	18.6		
	2/10/2006	-0.540	-0.380	-0.320	-0.160	-0.220	-0.020	-0.014	-0.012	-0.006	-0.008	0.00	0.40	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.6	19.6	20.2		
	3/8/2006	0.430	0.220	0.200	0.210	0.230	0.016	0.008	0.007	0.008	0.008	2.50	1.10	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.5	18.3	19.0		
	3/13/2006	-0.260	-0.280	-0.250	0.020	-0.010	-0.009	-0.010	-0.009	0.001	0.000	1.40	0.80	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.0	18.9	20.5		
	4/12/2006	-0.650	-0.450	-0.400	-0.200	-0.250	-0.023	-0.016	-0.014	-0.007	-0.009	0.00	0.60	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	11.1	19.3	20.0		
	4/14/2006	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**
	5/10/2006	0.250	0.080	0.090	0.170	0.160	0.009	0.003	0.003	0.006	0.006	2.50	1.10	0.30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	17.9	19.0		
	5/12/2006	-0.120	-0.080	-0.060	-0.040	-0.060	-0.004	-0.003	-0.002	-0.001	-0.002	2.00	0.90	0.10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.1	19.6	20.0		
	1/11/2006	0.000	0.000	0.190	0.000	-0.190	0.000	0.000	0.007	0.000	-0.007	2.70	0.50	11.30	0.00	0.00	0.20	0.0	2.0	0.0	0.0	0.0	0.0	0.0	?	?	?		

**TABLE 11.0
GAS PROBE MONITORING DATABASE
McCOLL SUPERFUND SITE
FULLERTON, CALIFORNIA**

Probe Location	Date	Pressure (in. of H2O)			Differential P		PSI			Differential P		VOCs (ppm)			SO2 (ppm)			LEL (%)			H2S (ppm)			Oxygen (%)		
		GPP	GSP Shallow	GSP Deep	Shallow (in. of H2O)	Deep (in. of H2O)	GPP	GSP Shallow	GSP Deep	Shallow (psi)	Deep (psi)	GPP	GSP Shallow	GSP Deep	GPP	GSP Shallow	GSP Deep	GPP	GSP Shallow	GSP Deep	GPP	GSP Shallow	GSP Deep	GPP	GSP Shallow	GSP Deep
4	1/13/2006	0.000	0.000	0.190	0.000	-0.190	0.000	0.000	0.007	0.000	-0.007	2.30	0.50	10.70	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	10.6	14.4	3.6
	2/8/2006	0.000	0.370	0.040	-0.370	-0.040	0.000	0.013	0.001	-0.013	-0.001	2.80	0.60	9.50	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	7.0	14.0	3.2
	2/10/2006	0.000	0.000	-0.260	0.000	0.260	0.000	0.000	-0.009	0.000	0.009	1.90	0.30	9.40	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	10.8	13.8	5.6
	3/8/2006	0.000	0.000	0.230	0.000	-0.230	0.000	0.000	0.008	0.000	-0.008	2.30	0.30	0.60	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	8.3	14.0	2.6
	3/13/2006	0.020	0.000	0.180	0.020	-0.160	0.001	0.000	0.007	0.001	-0.006	2.30	0.50	10.20	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	9.4	14.2	3.0
	4/12/2006	0.000	-0.020	-0.350	0.020	0.350	0.000	-0.001	-0.013	0.001	0.013	2.50	0.30	8.60	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	9.4	13.8	4.6
	4/14/2006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.90	0.50	9.40	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	11.5	13.6	3.2
	5/10/2006	-0.010	0.020	0.260	-0.030	-0.270	0.000	0.001	0.009	-0.001	-0.010	2.40	0.60	9.50	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	10.9	13.8	2.6
	5/12/2006	0.000	0.000	-0.080	0.000	0.080	0.000	0.000	-0.003	0.000	0.003	1.80	0.50	9.30	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	13.9	13.9	2.7
5	1/11/2006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.10	0.00	1.40	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	?	?	?	
	1/13/2006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.10	0.30	1.40	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	14.8	14.0	11.8	
	2/8/2006	0.140	0.000	0.060	0.140	0.080	0.005	0.000	0.002	0.005	0.003	1.20	0.40	1.30	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	14.3	13.4	11.7
	2/10/2006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.80	0.00	1.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	14.3	13.2	11.3	
	3/8/2006	0.120	0.000	0.040	0.120	0.080	0.004	0.000	0.001	0.004	0.003	0.00	0.00	1.10	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	12.4	13.4	11.7
	3/13/2006	0.090	0.000	0.150	0.090	-0.060	0.003	0.000	0.005	0.003	-0.002	0.00	0.30	1.30	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	19.8	13.1	11.9
	4/12/2006	0.000	0.000	-0.040	0.000	0.040	0.000	0.000	-0.001	0.000	0.001	0.00	0.20	1.10	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	13.5	12.4	11.5
	4/14/2006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.00	0.30	1.30	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	15.3	12.5	12.2
	5/10/2006	0.100	0.020	0.020	0.080	0.080	0.004	0.001	0.001	0.003	0.003	0.80	0.40	1.10	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	13.5	10.4	10.8
	5/12/2006	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.60	0.30	1.30	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	14.4	10.8	10.9
6	1/11/2006	0.040	0.040	0.100	0.000	-0.060	0.001	0.001	0.004	0.000	-0.002	0.00	0.60	2.20	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	?	?	?
	1/13/2006	0.050	0.120	0.120	-0.070	-0.070	0.002	0.004	0.004	-0.003	-0.003	0.40	0.60	2.20	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	20.9	7.7	4.3
	2/8/2006	0.120	0.480	0.490	-0.360	-0.370	0.004	0.017	0.018	-0.013	-0.013	0.40	0.70	2.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	6.3	7.6	3.9
	2/10/2006	0.000	-0.080	0.080	0.080	-0.080	0.000	-0.003	0.003	0.003	-0.003	0.00	0.20	1.70	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	20.4	10.8	3.8
	3/8/2006	0.040	0.430	0.440	-0.390	-0.400	0.001	0.016	0.016	-0.014	-0.014	0.00	0.50	1.70	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	18.9	5.7	3.4
	3/13/2006	0.040	0.340	0.300	-0.300	-0.260	0.001	0.012	0.011	-0.011	-0.009	0.10	0.50	2.00	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	20.9	9.1	3.8
	4/12/06	NA*	0.37	0.32	NA*	NA*	NA*	0.01	0.01	NA*	NA*	NA*	0.40	1.50	NA*	0.00	0.00	NA*	0.00	0.00	NA*	0.00	0.00	NA*	14.50	18.00
	4/14/06	NA*	0.00	0.00	NA*	NA*	NA*	0.00	0.00	NA*	NA*	NA*	0.90	1.70	NA*	0.00	0.00	NA*	0.00	0.00	NA*	0.00	0.00	NA*	4.00	8.00
	5/10/06	0.05	0.37	0.38	-0.32	-0.33	0.00	0.01	0.01	-0.01	-0.01	0.50	0.60	1.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.30	7.20	5.20
	5/12/06	-0.06	-0.01	-0.06	-0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.70	0.30	1.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.00	11.70	5.70
	1/11/2006	0.300	0.240	0.200	0.060	0.100	0.011	0.009	0.007	0.002	0.004	0.60	0.00	0.00	0.00	0.00	0.0	4.0	14.0	0.0	0.0	0.0	?	?	?	
	1/13/2006	0.240	0.240	0.260	0.000	-0.020	0.009	0.009	0.009	0.000	-0.001	0.80	0.00	0.00	0.00	0.00	0.0	2.0	13.0	0.0	0.0	0.0	20.9	0.7	1.1	

**TABLE 11.0
GAS PROBE MONITORING DATABASE
McCOLL SUPERFUND SITE
FULLERTON, CALIFORNIA**

Probe Location	Date	Pressure (in. of H2O)			Differential P		PSI			Differential P		VOCs (ppm)			SO2 (ppm)			LEL (%)			H2S (ppm)			Oxygen (%)		
		GPP	GSP Shallow	GSP Deep	Shallow (in. of H2O)	Deep (in. of H2O)	GPP	GSP Shallow	GSP Deep	Shallow (psi)	Deep (psi)	GPP	GSP Shallow	GSP Deep	GPP	GSP Shallow	GSP Deep	GPP	GSP Shallow	GSP Deep	GPP	GSP Shallow	GSP Deep	GPP	GSP Shallow	GSP Deep
7	2/8/2006	0.450	0.480	0.670	-0.030	-0.220	0.016	0.017	0.024	-0.001	-0.008	0.20	1.30	1.00	0.00	0.00	0.00	0.0	3.0	13.0	0.0	0.0	0.0	2.4	1.3	0.2
	2/10/2006	-0.220	-0.180	-0.220	-0.040	0.000	-0.008	-0.007	-0.008	-0.001	0.000	0.00	0.80	0.30	0.00	0.00	0.00	0.0	4.0	19.0	0.0	0.0	0.0	20.9	1.0	2.4
	3/8/2006	0.670	0.250	0.470	0.420	0.200	0.024	0.009	0.017	0.015	0.007	0.30	0.60	0.40	0.00	0.00	0.00	0.0	5.0	10.0	0.0	0.0	0.0	5.7	1.1	0.1
	3/13/2006	0.100	0.050	0.040	0.050	0.060	0.004	0.002	0.001	0.002	0.002	0.00	0.90	0.60	0.00	0.00	0.00	0.0	8.0	25.0	0.0	0.0	0.0	20.9	0.8	1.5
	4/12/2006	-0.650	-0.460	-0.500	-0.190	-0.150	-0.023	-0.017	-0.018	-0.007	-0.005	0.00	0.60	0.30	0.00	0.00	0.00	0.0	7.0	12.0	0.0	0.0	0.0	17.8	0.7	10.4
	4/14/2006	-0.180	0.120	0.100	-0.300	-0.280	-0.007	0.004	0.004	-0.011	-0.010	0.50	0.80	0.70	0.00	0.00	0.00	0.0	10.0	10.0	0.0	0.0	0.0	12.5	4.7	1.3
	5/10/2006	0.500	0.120	0.300	0.380	0.200	0.018	0.004	0.011	0.014	0.007	0.50	0.80	0.30	0.00	0.00	0.00	0.0	12.0	24.0	0.0	0.0	0.0	16.8	1.4	1.7
	5/12/2006	-0.120	-0.080	-0.110	-0.040	-0.010	-0.004	-0.003	-0.004	-0.001	0.000	0.00	0.60	0.60	0.00	0.00	0.00	0.0	8.0	22.0	0.0	0.0	0.0	20.9	4.9	5.5
8	1/11/2006	0.260	0.740	-0.080	-0.480	0.340	0.009	0.027	-0.003	-0.017	0.012	0.10	0.30	0.40	0.00	0.00	0.00	0.0	100.0	2.0	0.0	0.0	0.0	?	?	?
	1/13/2006	0.200	0.040	0.000	0.160	0.200	0.007	0.001	0.000	0.006	0.007	0.00	1.00	0.60	0.00	0.00	0.00	1.0	59.0	0.0	0.0	0.0	0.0	18.8	12.0	17.5
	2/8/2006	0.570	0.500	0.400	0.070	0.170	0.021	0.018	0.014	0.003	0.006	0.10	2.90	0.60	0.00	0.00	0.00	0.0	100.0	0.0	0.0	0.0	0.0	11.0	10.0	17.6
	2/10/2006	-0.270	-1.000	0.000	0.730	-0.270	-0.010	-0.036	0.000	0.026	-0.010	0.00	1.50	0.30	0.00	0.00	0.00	0.0	100.0	0.0	0.0	0.0	0.0	18.8	16.5	17.0
	3/8/2006	0.270	0.250	0.000	0.020	0.270	0.010	0.009	0.000	0.001	0.010	0.10	1.50	0.50	0.00	0.00	0.00	0.0	100.0	1.0	0.0	0.0	0.0	11.8	10.9	16.9
	3/13/2006	0.100	-1.000	0.170	1.100	-0.070	0.004	-0.036	0.006	0.040	-0.003	0.20	1.90	0.60	0.00	0.00	0.00	0.0	100.0	0.0	0.0	0.0	0.0	15.0	13.7	17.5
	4/12/2006	-0.320	-0.650	0.040	0.330	-0.360	-0.012	-0.023	0.001	0.012	-0.013	0.00	2.20	0.80	0.00	0.00	0.00	0.0	100.0	0.0	0.0	0.0	0.0	19.3	14.4	16.1
	4/14/2006	0.000	0.000	-0.060	0.000	0.060	0.000	0.000	-0.002	0.000	0.002	0.50	2.10	0.80	0.00	0.00	0.00	0.0	100.0	0.0	0.0	0.0	0.0	13.2	12.4	16.0
	5/10/2006	0.320	-0.230	0.100	0.550	0.220	0.012	-0.008	0.004	0.020	0.008	0.70	2.60	1.20	0.00	0.00	0.00	0.0	100.0	0.0	0.0	0.0	0.0	12.1	11.6	15.4
	5/12/2006	-0.130	-0.880	-0.020	0.750	-0.110	-0.005	-0.032	-0.001	0.027	-0.004	0.30	2.30	0.80	0.00	0.00	0.00	0.0	100.0	0.0	0.0	0.0	0.0	20.4	15.4	16.1
9	1/11/2006	0.740	0.640	0.780	0.100	-0.040	0.027	0.023	0.028	0.004	-0.001	1.70	0.00	0.50	0.00	0.00	0.00	32.0	100.0	11.0	0.0	0.0	0.0	?	?	?
	1/13/2006	0.280	0.380	0.300	-0.100	-0.020	0.010	0.014	0.011	-0.004	-0.001	2.00	0.00	0.30	0.00	0.00	0.00	31.0	17.0	4.0	0.0	0.0	0.0	8.2	20.0	19.8
	2/8/2006	0.700	0.560	0.720	0.140	-0.020	0.025	0.020	0.026	0.005	-0.001	2.50	0.30	1.10	0.00	0.00	0.00	33.0	51.0	7.0	0.0	0.0	0.0	7.7	17.8	18.9
	2/10/2006	-1.000	-0.680	-1.000	-0.320	0.000	-0.036	-0.025	-0.036	-0.012	0.000	0.00	0.00	0.00	0.00	0.00	0.00	20.0	0.0	0.0	0.0	0.0	0.0	10.6	20.6	20.9
	3/8/2006	0.440	0.430	0.530	0.010	-0.090	0.016	0.016	0.019	0.000	-0.003	2.00	0.00	0.70	0.00	0.00	0.00	35.0	55.0	5.0	0.0	0.0	0.0	7.0	16.4	19.1
	3/13/2006	-0.730	0.000	-0.720	-0.730	-0.010	-0.026	0.000	-0.026	-0.026	0.000	0.90	0.30	0.00	0.00	0.00	0.00	15.0	0.0	0.0	0.0	0.0	0.0	16.2	20.5	20.9
	4/12/2006	-1.000	-0.700	-0.980	-0.300	-0.020	-0.036	-0.025	-0.035	-0.011	-0.001	1.60	0.00	0.10	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	19.6	20.3	20.5
	4/14/2006	0.000	0.000	0.300	0.000	-0.300	0.000	0.000	0.011	0.000	-0.011	1.80	1.90	0.20	0.00	0.00	0.00	8.0	39.0	100.0	0.0	0.0	0.0	20.8	14.2	9.7
	5/10/2006	0.130	0.290	0.180	-0.160	-0.050	0.005	0.010	0.007	-0.006	-0.002	3.00	0.20	1.10	0.00	0.00	0.00	42.0	46.0	12.0	0.0	0.0	0.0	14.5	18.4	17.5
	5/12/2006	-0.180	-0.220	-0.210	0.040	0.030	-0.007	-0.008	-0.008	0.001	0.001	2.40	0.10	0.50	0.00	0.00	0.00	45.0	11.0	0.0	0.0	0.0	0.0	4.4	20.5	20.5
	1/11/2006	0.200	0.020	0.540	0.180	-0.340	0.007	0.001	0.020	0.007	-0.012	0.80	2.10	0.00	0.00	0.00	0.00	100.0	35.0	100.0	0.0	0.0	0.0	?	?	?
	1/13/2006	0.280	0.120	0.380	0.160	-0.100	0.010	0.004	0.014	0.006	-0.004	2.60	1.80	0.00	0.00	0.00	0.0	25.0	41.0	0.0	0.0	0.0	20.8	14.0	6.8	
	2/8/2006	0.560	0.280	0.900	0.280	-0.340	0.020	0.010	0.033	0.010	-0.012	1.90	3.00	0.60	0.00	0.00	0.00	100.0	42.0	100.0	0.0	0.0	0.0	11.0	11.2	8.9

**TABLE 11.0
GAS PROBE MONITORING DATABASE
McCOLL SUPERFUND SITE
FULLERTON, CALIFORNIA**

Probe Location	Date	Pressure (in. of H2O)			Differential P		PSI			Differential P		VOCs (ppm)			SO2 (ppm)			LEL (%)			H2S (ppm)			Oxygen (%)		
		GPP	GSP Shallow	GSP Deep	Shallow (in. of H2O)	Deep (in. of H2O)	GPP	GSP Shallow	GSP Deep	Shallow (psi)	Deep (psi)	GPP	GSP Shallow	GSP Deep	GPP	GSP Shallow	GSP Deep	GPP	GSP Shallow	GSP Deep	GPP	GSP Shallow	GSP Deep	GPP	GSP Shallow	GSP Deep
10	2/10/2006	-0.180	-0.050	-0.650	-0.130	0.470	-0.007	-0.002	-0.023	-0.005	0.017	0.70	1.50	0.00	0.00	0.00	0.0	22.0	82.0	0.0	0.0	0.0	20.4	15.8	18.1	
	3/8/2006	0.340	0.160	0.560	0.180	-0.220	0.012	0.006	0.020	0.007	-0.008	1.00	2.10	0.00	0.00	0.00	100.0	39.0	100.0	0.0	0.0	0.0	11.2	10.8	10.0	
	3/13/2006	0.080	0.090	-0.250	-0.010	0.330	0.003	0.003	-0.009	0.000	0.012	1.30	1.90	0.10	0.00	0.00	0.00	13.0	43.0	100.0	0.0	0.0	0.0	20.3	14.3	13.4
	4/12/2006	-0.240	-0.130	-0.650	-0.110	0.410	-0.009	-0.005	-0.023	-0.004	0.015	1.40	2.00	0.20	0.00	0.00	0.00	100.0	36.0	100.0	0.0	0.0	0.0	15.0	12.8	15.3
	4/14/2006	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**	NA**
	5/10/2006	0.330	0.190	0.400	0.140	-0.070	0.012	0.007	0.014	0.005	-0.003	1.20	1.40	0.30	0.00	0.00	0.00	100.0	60.0	100.0	0.0	0.0	0.0	11.2	11.5	10.5
	5/12/2006	-0.060	-0.030	-0.130	-0.030	0.070	-0.002	-0.001	-0.005	-0.001	0.003	1.60	1.20	0.10	0.00	0.00	0.00	0.0	47.0	100.0	0.0	0.0	0.0	20.9	14.5	12.3
11	1/11/2006	0.280	0.120	0.140	0.160	0.140	0.010	0.004	0.005	0.006	0.005	0.00	0.00	4.10	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	?	?	?	
	1/13/2006	0.240	0.120	0.140	0.120	0.100	0.009	0.004	0.005	0.004	0.004	0.00	0.00	3.60	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	20.9	18.7	19.1	
	2/8/2006	0.630	0.370	0.380	0.260	0.250	0.023	0.013	0.014	0.009	0.009	0.10	0.10	3.80	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	18.9	17.6	18.3	
	2/10/2006	-0.300	-0.120	-0.120	-0.180	-0.180	-0.011	-0.004	-0.004	-0.007	-0.007	0.00	0.00	2.70	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	20.6	20.7	18.8	
	3/8/2006	0.370	0.040	0.230	0.330	0.140	0.013	0.001	0.008	0.012	0.005	0.00	0.20	0.37	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	11.1	17.0	17.6	
	3/13/2006	0.000	0.070	0.080	-0.070	-0.080	0.000	0.003	0.003	-0.003	-0.003	0.00	0.00	3.50	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	20.4	20.9	18.3	
	4/12/2006	-0.400	-0.050	-0.200	-0.350	-0.200	-0.014	-0.002	-0.007	-0.013	-0.007	0.10	0.00	3.90	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	13.4	20.5	17.1	
	4/14/2006	0.080	0.000	0.000	0.080	0.080	0.003	0.000	0.000	0.003	0.003	0.10	0.20	4.20	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	20.9	18.1	17.7	
	5/10/2006	0.320	0.220	0.240	0.100	0.080	0.012	0.008	0.009	0.004	0.003	0.30	0.10	4.20	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	16.3	20.4	16.6	
	5/12/2006	-0.100	-0.040	0.000	-0.060	-0.100	-0.004	-0.001	0.000	-0.002	-0.004	0.00	0.00	3.80	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	20.9	20.9	17.5	
12	1/11/2006	0.000	0.320	-0.020	-0.320	0.020	0.000	0.012	-0.001	-0.012	0.001	0.30	0.60	1.20	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	?	?	?	
	1/13/2006	0.040	0.000	0.020	0.040	0.020	0.001	0.000	0.001	0.001	0.001	0.40	0.70	1.20	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	19.6	20.5	19.6	
	2/8/2006	0.210	NR	0.240	NR	-0.030	0.008	NR	0.009	NR	-0.001	0.50	NR	1.40	0.00	NR	0.00	0.0	NR	0.0	0.0	NR	0.0	19.6	NR	19.3
	2/10/2006	0.120	NR	0.160	NR	-0.040	0.004	NR	0.006	NR	-0.001	0.30	NR	1.00	0.00	NR	0.00	0.0	NR	0.0	0.0	NR	0.0	19.4	NR	19.4
	3/8/2006	0.000	NR	0.050	NR	-0.050	0.000	NR	0.002	NR	-0.002	0.40	NR	1.10	0.00	NR	0.00	0.0	NR	0.0	0.0	NR	0.0	19.5	NR	19.2
	3/13/2006	1.500	NR	0.000	NR	1.500	0.054	NR	0.000	NR	0.054	0.60	NR	1.10	0.00	NR	0.00	0.0	NR	0.0	0.0	NR	0.0	19.5	NR	19.4
	4/12/2006	-0.060	NR	0.100	NR	-0.160	-0.002	NR	0.004	NR	-0.006	0.50	NR	1.20	0.00	NR	0.00	0.0	NR	0.0	0.0	NR	0.0	18.3	NR	19.2
	4/14/2006	-0.020	NR	0.000	NR	-0.020	-0.001	NR	0.000	NR	-0.001	0.70	NR	0.40	0.00	NR	0.00	0.0	NR	0.0	0.0	NR	0.0	18.1	NR	19.6
	5/10/2006	0.020	-0.020	0.000	0.040	0.020	0.001	-0.001	0.000	0.001	0.001	0.70	0.30	1.40	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	16.8	20.9	19.3	
	5/12/2006	0.000	0.000	0.020	0.000	-0.020	0.000	0.000	0.001	0.000	-0.001	0.70	0.20	1.30	0.00	0.00	0.00	0.0	0.0	0.0	0.0	0.0	17.8	20.9	20.0	

(1) There was no identifying markings for GSP-3 and GSP-8 as to which probes were shallow or deep. C2 REM does not have access to probe installation logs but has placed the data for the southern most probe in the shallow column and the data for the northern most probe in the deep column.

(2) VOC, SO2, H2s, O2, and LEL readings suspect due to difficulties with monitoring equipment.

NR - GSP 12 shallow was cleaved at the well head by either a gardener or golfer riding a golf cart just prior to the 2/8/2006 monitoring event and therefore could

NA* - GPP 6 was cleaved at the hose by a Site gardener prior to 4/12/2006. In addition, GSP 6 shallow and deep were buried and could not be found.

NA** - Heavy rainfall came down halfway through the monitoring event on 4/14/2006. Rainfall halted progress for that event, and so some monitoring wells

**TABLE 12.0
 QUARTERLY GPP AND GSP MONITORING RESULTS
 McCOLL SUPERFUND SITE
 FULLERTON, CALIFORNIA**

Probe Location	Date	Pressure (in. of H2O)			Differential P		PSI			Differential P		VOCs (ppm)			Q-RAE Data	SO2 (ppm)			LEL (%)			H2S (ppm)			Oxygen (%)		
		GPP	GSP Shallow	GSP Deep	Shallow (in. of H2O)	Deep (in. of H2O)	GPP	GSP Shallow	GSP Deep	Shallow (psi)	Deep (psi)	GPP	GSP Shallow	GSP Deep		GPP	GSP Shallow	GSP Deep	GPP	GSP Shallow	GSP Deep	GPP	GSP Shallow	GSP Deep	GPP	GSP Shallow	GSP Deep
1	8/31/2006	-0.12	0.33	-0.2	-0.45	0.08	-0.00434	0.011923	-0.00723	-0.01626	0.00289	0	8.7	3.9	0	0	0	0	0	0	0	0	0	0	20.6	17.2	16.9
	11/21/2006	0	-0.25	0.4	0.25	-0.4	0	-0.00903	0.014452	0.009033	-0.01445	0	0.1	2.1	0	0	0	0	0	0	0	0	0	0	20.9	19.3	18
2	8/31/2006	-1	0	0.08	-1	-1.08	-0.03613	0	0.00289	-0.03613	-0.03902	1.4	0	0	0	0	0	0	0	0	0	0	0	0	15.6	20.1	13.5
	11/21/2006	-0.6	0	0	-0.6	-0.6	-0.02168	0	0	-0.02168	-0.02168	0	0.2	0.1	0	0	0	0	0	0	0	0	0	0	16.5	20.9	19.5
3	8/31/2006	-1	NA	NA	NA	NA	-0.03613	NA	NA	NA	NA	0.6	NA	NA	0	NA	NA**	0	NA	NA	0	NA	NA	0	18.5	NA	NA
	11/21/2006	-1.05	-0.2	-0.1	-0.85	-0.95	-0.03794	-0.00723	-0.00361	-0.03071	-0.03432	0.8	1.5	0.2	0	0	0	0	0	0	0	0	0	0	19.3	18.7	19.9
4	8/31/2006	-0.13	0	-0.04	-0.13	-0.09	-0.0047	0	-0.00145	-0.0047	-0.00325	0.7	0.2	5.6	0	0	0	0	0	0	0	0	0	0	13.1	14.6	3.7
	11/21/2006	-0.1	-0.05	0.05	-0.05	-0.15	-0.00361	-0.00181	0.001807	-0.00181	-0.00542	0.7	0.9	10.6	0	0	0	0	0	0	0	0	0	0	17.3	15.4	2.2
5	8/31/2006	-0.06	0	-0.04	-0.06	-0.02	-0.00217	0	-0.00145	-0.00217	-0.00072	0	0	0.9	0	0	0	0	0	0	0	0	0	0	19.8	10.7	10.8
	11/21/2006	-0.05	-0.05	0	0	-0.05	-0.00181	-0.00181	0	0	-0.00181	0.2	0.3	1.3	0	0	0	0	0	0	0	0	0	0	15.1	12	9.1
6	8/31/2006	0.02	0	-0.04	0.02	0.06	0.000723	0	-0.00145	0.000723	0.002168	0	0.8	2.2	0	0	0	0	0	0	0	0	0	0	20.5	5.8	6.3
	11/21/2006	0	0	0	0	0	0	0	0	0	0	0.4	0.7	2	0	0	0	0	0	0	0	0	0	0	20.9	7	5.1
7	8/31/2006	0	-0.04	-0.14	0.04	0.14	0	-0.00145	-0.00506	0.001445	0.005058	0	0	0	0	0	0	0	0	0	0	0	0	0	6.3	15.8	0.2
	11/21/2006	0	-0.05	-0.15	0.05	0.15	0	-0.00181	-0.00542	0.001807	0.00542	0	0.1	0.4	0	0	0	0	0	0	0	0	0	0	20.9	3.7	1.1
8	8/31/2006	-0.34	-0.16	0.2	-0.18	-0.54	-0.01228	-0.00578	0.007226	-0.0065	-0.01951	0	1.1	0	0	0	0	0	0	0	0	0	0	0	19.6	9.4	15.2
	11/21/2006				0	0	0	0	0	0	0																
9	8/31/2006	-0.71	-0.28	-0.74	-0.43	0.03	-0.02565	-0.01012	-0.02674	-0.01554	0.001084	3	0	0	0	0	0	0	0	0	0	0	0	0	6.2	18.9	20.3
	11/21/2006				0	0	0	0	0	0	0																
10	8/31/2006	-1	-1	-0.92	0	-0.08	-0.03613	-0.03613	-0.03324	0	-0.00289	0.2	0.1	0.3	0	0	0	100	32	100	0	0	0	0	15.7	17.9	13.4
	11/21/2006	-2	-1.15	-0.8	-0.85	-1.2	-0.07226	-0.04155	-0.0289	-0.03071	-0.04336	0	0.8	0.4	0	0	0	0	39	100	0	0	0	0	20.9	17.9	11.2
11	8/31/2006	-1	-0.72	-0.84	-0.28	-0.16	-0.03613	-0.02601	-0.03035	-0.01012	-0.00578	0	0	1.9	0	0	0	0	0	0	0	0	0	0	20.5	20.5	17
	11/21/2006	-2	-0.65	-0.75	-1.35	-1.25	-0.07226	-0.02348	-0.0271	-0.04878	-0.04516	0	0.1	4.8	0	0	0	0	0	0	0	0	0	0	20.9	20.9	20.9
12	8/31/2006	0.1	0	0.04	0.1	0.06	0.003613	0	0.001445	0.003613	0.002168	0.5	0.3	0.8	0	0	0	0	0	0	0	0	0	0	17	20.3	18.8
	11/21/2006	0.05	0	0.05	0.05	0	0.001807	0	0.001807	0.001807	0	0.1	0.3	0.4	0	0	0	0	0	0	0	0	0	0	19.5	20.9	19

TABLE 13.0
GROUNDWATER MONITORING WELL
SAMPLING SCOPE AND FREQUENCY
McCOLL SUPERFUND SITE
FULLERTON, CALIFORNIA

Well Identification Number	Intercepted Water-Bearing Zone	Sampling Status		
		Water Level Measurement (Semi -Annually)	Sampling for COCs ⁽¹⁾ (Annually)	Sampling for COCs ⁽¹⁾ (Bi-Annually)
P-2S	A	●		
P-3S	A	●		
P-2I	B	●	●	
P-4I	B	●		
P-5I	B	●		●
P-5S	B	●		
P-10D	B	●	●	
P-2DR	C	●		
P-3D	C	●		
P-4D	C	●		
P-5L	C	●		●
P-9D	C	●		●
P-10L	C	●	●	
W-6A	C	●		
P-5D	D	●		●
W-8B	D	●		
P-10XD	D	●	●	
W-9B	D	●		●
W-9C	D	●		●
W-10B	D	●		●

⁽¹⁾ Samples shall be submitted for chemical analysis for VOCs using USEPA Methods 8260 (including Tetrahydrothiophenes), for metals using USEPA Method 6010, for mercury using USEPA Method 7470, and for general physical and chemical properties using USEPA Method 300.

Notes: Groundwater Monitoring wells (P-5I, P-5L, P-9D, P-5D, W-9B, W-9C, and W-10B) will be monitored bi-annually on odd years, next monitoring is scheduled for 2007.

TABLE 14.0
2006 GROUNDWATER MONITORING RESULTS-VOCS
McCOLL SUPERFUND SITE
FULLERTON, CALIFORNIA

Well Number (Zone)	Date	EPA Method 8260B				EPA Method 300.0		
		Benzene (ug/l)	Carbon Disulfide (ug/l)	THT (ug/l)	3-THT (ug/l)	Chloride (ug/l)	Nitrate (ug/l)	Sulfate (ug/l)
MW P-2I (B Zone)	5/8/2006	100	ND	ND	ND	390000	NA	7600000
MW P-10D (B Zone)	5/8/2006	ND	ND	ND	ND	470000	4100	200000
MW P-10L (C Zone)	5/8/2006	ND	ND	ND	12	130000	ND	140000
MW P-10XD (D Zone)	5/8/2006	ND	ND	ND	ND	540000	11000	120000

ND=Analyte Not Detected at or above the reporting limit.

NA=Not Analyzed

Note: Additional VOCs excluded from the table were not detected in any of the wells.

TABLE 15.0
2006 GROUNDWATER MONITORING RESULTS-METALS
McCOLL SUPERFUND SITE
FULLERTON, CALIFORNIA

Well Number (Zone)	Date	EPA Method 6010B															
		Al (Aluminum) (ug/l)	Sb (Antimony) (ug/l)	As (Arsenic) (ug/l)	Ba (Barium) (ug/l)	Be (Beryllium) (ug/l)	Ca (Calcium) (ug/l)	Cr (Chromium) (ug/l)	Co (Cobalt) (ug/l)	Fe (Iron) (ug/l)	Mg (Magnesium) (ug/l)	Mn (Manganese) (ug/l)	Ni (Nickel) (ug/l)	K (Potassium) (ug/l)	Na (Sodium) (ug/l)	V (Vanadium) (ug/l)	Zn (Zinc) (ug/l)
MW P-2I (B Zone)	5/8/2006	310000	ND	230	ND	91	410000	44	240	880000	780000	48000	760	11000	550000	610	720
	5/8/2006 (Dissolved)	94000	61	120	ND	72	430000	ND	250	890000	810000	49000	780	12000	570000	120	730
MW P-10D (B Zone)	5/8/2006	ND	ND	ND	67	ND	220000	ND	ND	ND	67000	2100	84	4800	180000	ND	ND
	5/8/2006 (Dissolved)	ND	ND	5	68	ND	220000	ND	ND	ND	67000	2100	87	4800	180000	ND	ND
MW P-10L (C Zone)	5/8/2006	ND	ND	ND	43	ND	65000	ND	ND	130	26000	340	ND	4500	140000	ND	ND
	5/8/2006 (Dissolved)	ND	ND	ND	42	ND	65000	ND	ND	66	25000	330	ND	4500	140000	ND	ND
MW P-10XD (D Zone)	5/8/2006	230	ND	8.1	150	ND	180000	69	ND	880	76000	87	870	5600	220000	ND	ND
	5/8/2006 (Dissolved)	ND	ND	ND	150	ND	180000	ND	ND	ND	77000	72	870	5600	220000	ND	ND

ND=Analyte Not Detected at or above the reporting limit.

Note: Additional metals excluded from the table were not detected in any of the wells.

TABLE 16.0
2006 GROUNDWATER ELEVATION RESULTS
McCOLL SUPERFUND SITE
FULLERTON, CALIFORNIA

Well ID #	Top of Casing Elevation (ft msl)	May 8, 2006		November 9, 2006	
		DTW (ft)	Groundwater Elevation (ft msl)	DTW (ft)	Groundwater Elevation (ft msl)
P-2S	266.46	26.81	239.65	25.07	241.39
P-3S	281.42	59.58	221.84	58.42	223
P-2I	266.39	86.64	179.75	86.58	179.81
P-4I	283.34	85.09	198.25	86.74	196.6
P-5I	259.77	56.91	202.86	58.03	201.74
P-5S	259.26	63.18	196.08	64.09	195.17
P-10D	248.42	78.77	169.65	78.45	169.97
P-2DR	266.15	176.34	89.81	171.05	95.1
P-3D	282.4	193.06	89.34	187.71	94.69
P-4D	282.53	193.2	89.33	187.65	94.88
P-5L	258.13	172.17	85.96	166.47	91.66
P-9D	263.26	176.91	86.35	172.65	90.61
P-10L	248.63	160.5	88.13	158.19	90.44
W-6A	293.35	47.8	245.55	48.32	245.03
P-5D	259.4	140.08	119.32	144.78	114.62
W-8B	266.44	154.05	112.39	151.46	114.98
P-10XD	247.12	158.56	88.56	158.85	88.27
W-9B	316.71	185.91	130.8	184.51	132.2
W-9C	316.09	190.11	125.98	188.92	127.17
W-10B	314.55	187.09	127.46	N/A	N/A

**TABLE 17.0
2007 OM&M SCHEDULE OF ACTIVITIES
McCOLL SUPERFUND SITE
FULLERTON, CALIFORNIA**

ID	Task Name	Duration	Start	Finish	Predecessors	Resource Names	December		May		October		March	
							8/13	10/22	12/31	3/11	5/20	7/29	10/7	12/16
1	McColl Superfund OM&M Schedule	301 days	Tue 1/2/07	Tue 2/26/08										
2														
3	I. Project Management of OM&M Activities	261 days	Tue 1/2/07	Tue 1/1/08										
4	Begin Project Management of OM&M Activities	261 days	Tue 1/2/07	Tue 1/1/08										
5														
6														
7	II. GCTS Semi-Passive Operation Monitoring Schedule	295 days	Wed 1/10/07	Tue 2/26/08										
8	Month Eight Through Twelve (Conducted Once Monthly)	295 days	Wed 1/10/07	Tue 2/26/08										
9	Month Eight	3 days	Wed 1/10/07	Fri 1/12/07										
10	Pre-system Start-up Monitoring (Monitor GCTS and GPPs/GSPs)	1 day	Wed 1/10/07	Wed 1/10/07										
11	System Operation (Monitor GCTS)	1 day	Thu 1/11/07	Thu 1/11/07	10									
12	Post-System (Monitor GCTS and GPPs/GSPs)	1 day	Fri 1/12/07	Fri 1/12/07	11									
13														
14	Month Nine	275 days	Wed 2/7/07	Tue 2/26/08										
15	Pre-system Start-up Monitoring (Monitor GCTS and GPPs/GSPs)	1 day	Wed 2/7/07	Wed 2/7/07										
16	System Operation (Monitor GCTS)	1 day	Thu 2/8/07	Thu 2/8/07	15									
17	Post-System (Monitor GCTS and GPPs/GSPs)	1 day	Fri 2/9/07	Fri 2/9/07	16									
18														
19	Report Submittal	12 days	Mon 2/11/08	Tue 2/26/08										
20	Submit Brief Memorandum of Findngs to MSG, USEPA, and USACOE	12 days	Mon 2/11/08	Tue 2/26/08	17									
21														
22	Month Ten	3 days	Wed 3/7/07	Fri 3/9/07										
23	Pre-system Start-up Monitoring (Monitor GCTS and GPPs/GSPs)	1 day	Wed 3/7/07	Wed 3/7/07										
24	System Operation (Monitor GCTS)	1 day	Thu 3/8/07	Thu 3/8/07	23									
25	Post-System (Monitor GCTS and GPPs/GSPs)	1 day	Fri 3/9/07	Fri 3/9/07	24									
26														
27	Month Eleven	3 days	Wed 4/11/07	Fri 4/13/07										
28	Pre-system Start-up Monitoring (Monitor GCTS and GPPs/GSPs)	1 day	Wed 4/11/07	Wed 4/11/07										
29	System Operation (Monitor GCTS)	1 day	Thu 4/12/07	Thu 4/12/07	28									
30	Post-System (Monitor GCTS and GPPs/GSPs)	1 day	Fri 4/13/07	Fri 4/13/07	29									
31														
32	Month Twelve	3 days	Wed 5/9/07	Fri 5/11/07										
33	Pre-system Start-up Monitoring (Monitor GCTS and GPPs/GSPs)	1 day	Wed 5/9/07	Wed 5/9/07										
34	System Operation (Monitor GCTS)	1 day	Thu 5/10/07	Thu 5/10/07	33									
35	Post-System (Monitor GCTS and GPPs/GSPs)	1 day	Fri 5/11/07	Fri 5/11/07	34									
36														
37	Final Report Submittal	16 days	Mon 5/14/07	Mon 6/4/07										
38	Submit Final Report of Findings	16 days	Mon 5/14/07	Mon 6/4/07										
39														

Project: 02-110 McColl OM&M Sch. 20
Date: Tue 2/27/07

Task		Milestone		Rolled Up Task		Rolled Up Progress		External Tasks		Group By Summary	
Progress		Summary		Rolled Up Milestone		Split		Project Summary			

**TABLE 17.0
2007 OM&M SCHEDULE OF ACTIVITIES
McCOLL SUPERFUND SITE
FULLERTON, CALIFORNIA**

ID	Task Name	Duration	Start	Finish	Predecessors	Resource Names	December				May		October		March	
							8/13	10/22	12/31	3/11	5/20	7/29	10/7	12/16	2/24	5/4
40	III. Monitoring Gas Collection & Treatment System (GCTS)	131 days	Wed 6/20/07	Wed 12/19/07												
41	Monthly Monitoring of GCTS	131 days	Wed 6/20/07	Wed 12/19/07												
42	Monthly GCTS Monitoring 1	1 day	Wed 6/20/07	Wed 6/20/07												
43	Monthly GCTS Monitoring 2	1 day	Fri 7/20/07	Fri 7/20/07												
44	Monthly GCTS Monitoring 3	1 day	Wed 8/22/07	Wed 8/22/07												
45	Monthly GCTS Monitoring 4	1 day	Wed 9/19/07	Wed 9/19/07												
46	Monthly GCTS Monitoring 5	1 day	Wed 10/17/07	Wed 10/17/07												
47	Monthly GCTS Monitoring 6	1 day	Wed 11/21/07	Wed 11/21/07												
48	Monthly GCTS Monitoring 7	1 day	Wed 12/19/07	Wed 12/19/07												
49																
50	IV. Bimonthly Site Inspection	141 days	Wed 6/6/07	Wed 12/19/07												
51	Bimonthly Site Inspection 1	1 day	Wed 6/6/07	Wed 6/6/07												
52	Bimonthly Site Inspection 2	1 day	Wed 6/20/07	Wed 6/20/07												
53	Bimonthly Site Inspection 3	1 day	Wed 7/4/07	Wed 7/4/07												
54	Bimonthly Site Inspection 4	1 day	Fri 7/20/07	Fri 7/20/07												
55	Bimonthly Site Inspection 5	1 day	Wed 8/8/07	Wed 8/8/07												
56	Bimonthly Site Inspection 6	1 day	Wed 8/22/07	Wed 8/22/07												
57	Bimonthly Site Inspection 7	1 day	Wed 9/5/07	Wed 9/5/07												
58	Bimonthly Site Inspection 8	1 day	Wed 9/19/07	Wed 9/19/07												
59	Bimonthly Site Inspection 9	1 day	Wed 10/3/07	Wed 10/3/07												
60	Bimonthly Site Inspection 10	1 day	Wed 10/17/07	Wed 10/17/07												
61	Bimonthly Site Inspection 11	1 day	Wed 11/7/07	Wed 11/7/07												
62	Bimonthly Site Inspection 12	1 day	Wed 11/21/07	Wed 11/21/07												
63	Bimonthly Site Inspection 13	1 day	Wed 12/5/07	Wed 12/5/07												
64	Bimonthly Site Inspection 14	1 day	Wed 12/19/07	Wed 12/19/07												
65																
66																
67	V. GPP/GSP Monitoring Event	59 days	Fri 8/31/07	Wed 11/21/07												
68	Quarterly GPP/GSP Monitoring Event	59 days	Fri 8/31/07	Wed 11/21/07												
69	3rd Quarterly GPP/GSP Monitoring Event	1 day	Fri 8/31/07	Fri 8/31/07												
70	3rd Quarterly GPP/GSP Monitoring Event	1 day	Wed 11/21/07	Wed 11/21/07												
71																
72	VI. Annual Inspection	1 day	Wed 9/19/07	Wed 9/19/07												
73																
74	Conduct Annual Cover System Inspection	1 day	Wed 9/19/07	Wed 9/19/07												
75	Conduct Annual Cover System Inspection	1 day	Wed 9/19/07	Wed 9/19/07												
76																
77	Conduct Annual Surface/Subsurface Drainage System Inspections	1 day	Wed 9/19/07	Wed 9/19/07												
78	Conduct Annual Surface/Subsurface Drainage System Inspections	1 day	Wed 9/19/07	Wed 9/19/07												

Project: 02-110 McColl OM&M Sch. 20
Date: Tue 2/27/07

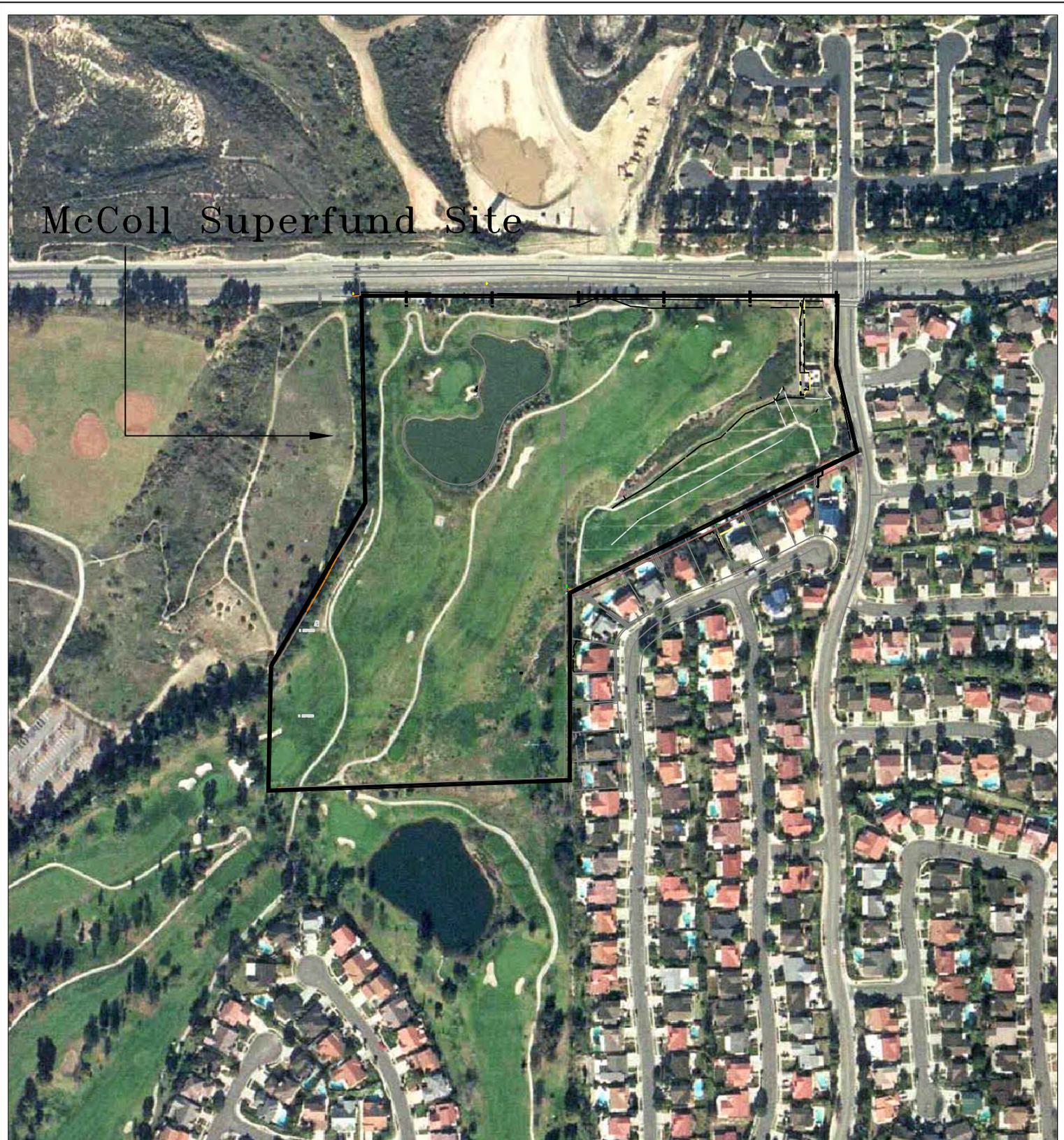
Task		Milestone		Rolled Up Task		Rolled Up Progress		External Tasks		Group By Summary	
Progress		Summary		Rolled Up Milestone		Split		Project Summary			

**TABLE 17.0
2007 OM&M SCHEDULE OF ACTIVITIES
McCOLL SUPERFUND SITE
FULLERTON, CALIFORNIA**

ID	Task Name	Duration	Start	Finish	Predecessors	Resource Names	December			May		October		March	
							8/13	10/22	12/31	3/11	5/20	7/29	10/7	12/16	2/24
79															
80	Conduct Annual GCTS Inspection	1 day	Wed 9/19/07	Wed 9/19/07											
81	Conduct Annual GCTS Inspection	1 day	Wed 9/19/07	Wed 9/19/07											
82															
83	Conduct Annual Perimeter Fence/Access Road Inspection	1 day	Wed 9/19/07	Wed 9/19/07											
84	Conduct Annual Perimeter Fence/Access Road Inspection	1 day	Wed 9/19/07	Wed 9/19/07											
85															
86	VII. Non-Routine Site Inspections-AS NEEDED	260 days	Wed 1/3/07	Tue 1/1/08											
87	Conduct Non-Routine Site Inspections (seismic, post rain)	260 days	Wed 1/3/07	Tue 1/1/08											
88															
89															
90	VIII. Routine Maintenance -AS NEEDED	260 days	Wed 1/3/07	Tue 1/1/08											
91	Conduct Routine Maintenance	260 days	Wed 1/3/07	Tue 1/1/08											
92															
93	IX. Conduct Semi-Annual Groundwater Monitoring Activities	134 days	Tue 5/8/07	Fri 11/9/07											
94															
95	First Semi-Annual Groundwater Monitoring Activities	2 days	Tue 5/8/07	Wed 5/9/07											
96	Inspect Groundwater Wells/Submersible Pumps	1 day	Tue 5/8/07	Tue 5/8/07											
97	Conduct Groundwater Sampling (Gauge all wells, Sample wells P-21, P-10D, P-10L, P-10XD)	1 day	Wed 5/9/07	Wed 5/9/07	96										
98															
99	Second Semi-Annual Groundwater Monitoring Activities (gaged, but not sampled this year)	2 days	Thu 11/8/07	Fri 11/9/07											
100	Inspect Groundwater Wells/Submersible Pumps	1 day	Thu 11/8/07	Thu 11/8/07											
101	Conduct Groundwater Sampling (Gauge all wells)	1 day	Fri 11/9/07	Fri 11/9/07	100										
102															
103															
104	X. Conduct Annual Confirmation Sampling Event	1 day	Fri 11/16/07	Fri 11/16/07											
105	Conduct Annual Confirmation Sampling Event	1 day	Fri 11/16/07	Fri 11/16/07											
106															
107	XI. Conduct Annual Retention Pond Sediment Gauging Event	1 day	Wed 10/17/07	Wed 10/17/07											
108	Conduct Annual Retention Pond Sediment Gauging Event	1 day	Wed 10/17/07	Wed 10/17/07											
109															
110	XII. Preparation of Draft McColl Annual Site Report	49 days	Wed 1/2/08	Mon 3/10/08											
111	Begin Preparation of McColl Annual Site Report	49 days	Wed 1/2/08	Mon 3/10/08											
112	Prepare Draft of McColl Annual Site Report	16 days	Wed 1/2/08	Wed 1/23/08											
113	Review and Receive Comments from the McColl Site Group	7 days	Wed 1/23/08	Thu 1/31/08											
114	Incorporate Comments Into McColl Annual Site Report	4 days	Thu 1/31/08	Tue 2/5/08											
115	Submit Draft McColl Annual Site Report To USEPA	1 day	Tue 2/5/08	Tue 2/5/08											
116	Incorporate Agency Comments Into Draft McColl Annual Site Report	5 days	Tue 2/26/08	Mon 3/3/08											
117	Submit McColl Annual Site Report As Final To Pertinent Groups	6 days	Mon 3/3/08	Mon 3/10/08											

Project: 02-110 McColl OM&M Sch. 20
Date: Tue 2/27/07

Task		Milestone		Rolled Up Task		Rolled Up Progress		External Tasks		Group By Summary	
Progress		Summary		Rolled Up Milestone		Split		Project Summary			



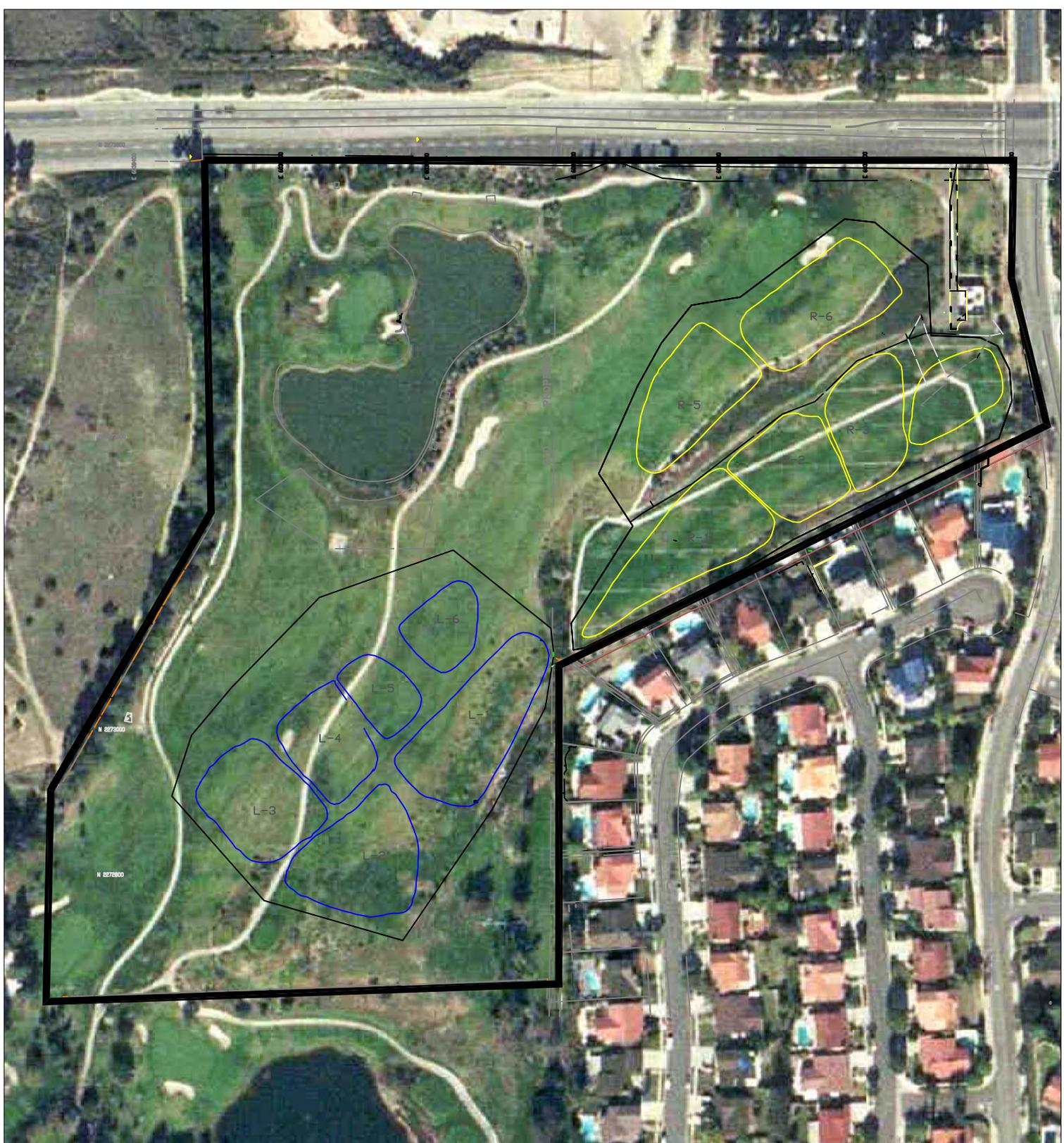
SOURCE: LENSKA Aerial Image - photo date 1-2002



FIGURE 1.0
SITE LOCATION MAP



MCCOLL SUPERFUND SITE
AN ENVIRONMENTAL MANAGEMENT
& DEVELOPMENT COMPANY
NEWPORT BEACH, CALIFORNIA 949.261.8098



SOURCE: LENSKA Aerial Image - photo date 1-2002

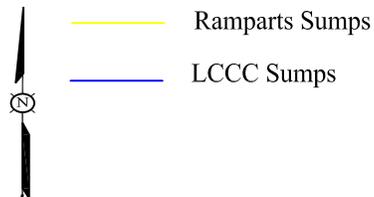
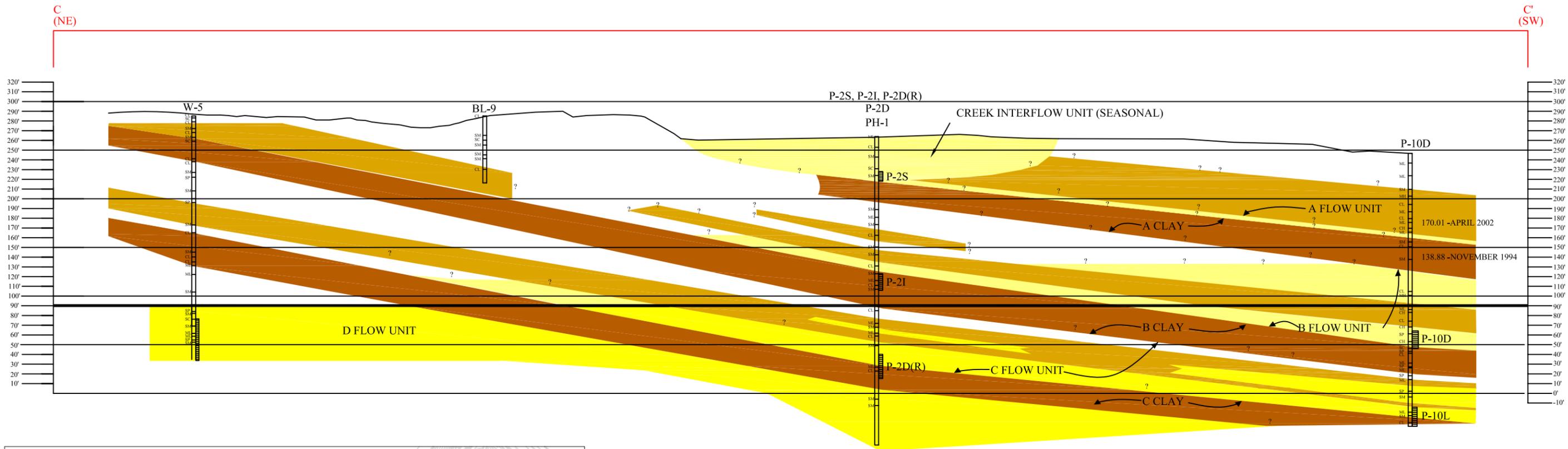


FIGURE 2.0

SUMP LOCATION MAP

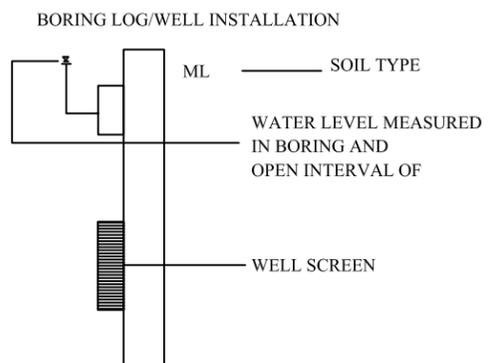


MCCOLL SUPERFUND SITE
 AN ENVIRONMENTAL MANAGEMENT
 & DEVELOPMENT COMPANY
 NEWPORT BEACH, CALIFORNIA 949.261.8098



REFERENCE: FINAL REMEDIAL INVESTIGATION REPORT GROUNDWATER OPERABLE UNIT, ENVIRON, DECEMBER 1995

- EXPLANATION**
- VARIABLY SATURATED SILTY SANDS TO SANDS
 - FULLY SATURATED SILTY SANDS TO SANDY GRAVELS
 - INTERBEDDED SILTS AND CLAYS WITHIN A FLOW UNIT
 - BASAL CLAY TO AN OVERLYING FLOW UNIT
 - SCHEMATIC OF UPPER BOUNDARY OF FULLY SATURATED ZONE



- NOTES:**
1. SEE CROSS SECTION LOCATION MAP FOR ORIENTATION OF CROSS SECTIONS.
 2. DATA FROM MULTIPLE BORINGS SHOWN TOGETHER FOR CLARITY.
 3. SOILS ARE CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM (USCS).
 4. ELEVATIONS SHOWN HERE ARE BASED ON SURVEYS AVAILABLE AT THE TIME THE CROSS SECTIONS WERE DEVELOPED AND MAY DEVIATE SLIGHTLY.

FIGURE 3.0

Geological Cross Section C-C'

MCCOLL SUPERFUND SITE

AN ENVIRONMENTAL MANAGEMENT & DEVELOPMENT COMPANY

NEWPORT BEACH, CALIFORNIA 949.261.8098

**FIGURE 4.0
2006 CARBON BED CHANGEOUT PROTOCOL
MCCOLL SUPERFUND SITE**

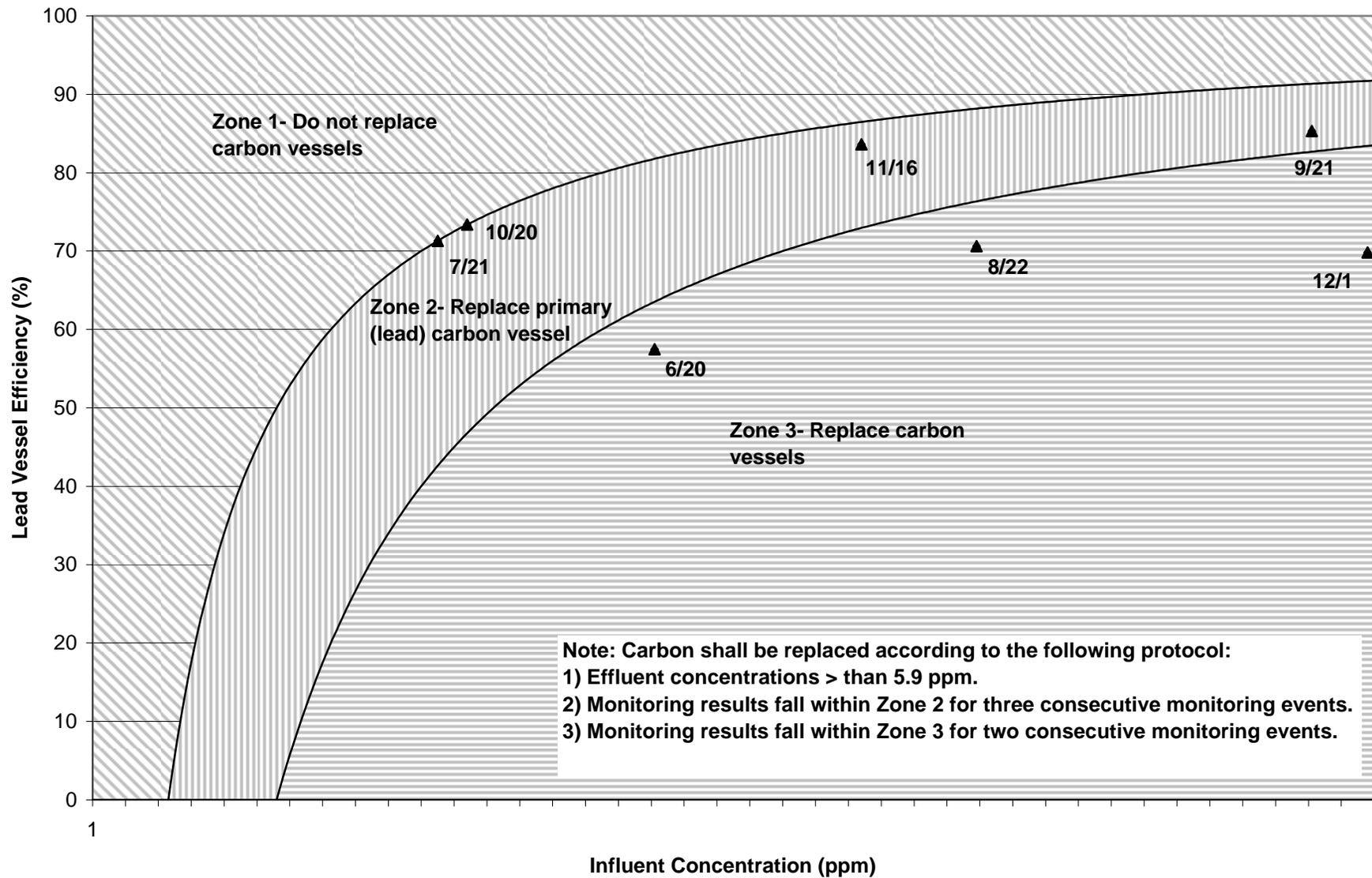


FIGURE 5.0
GCTS CARBON CHANGEOUT
McCOLL SUPERFUND SITE
FULLERTON, CALIFORNIA



A) Opening vessel prior to carbon removal.



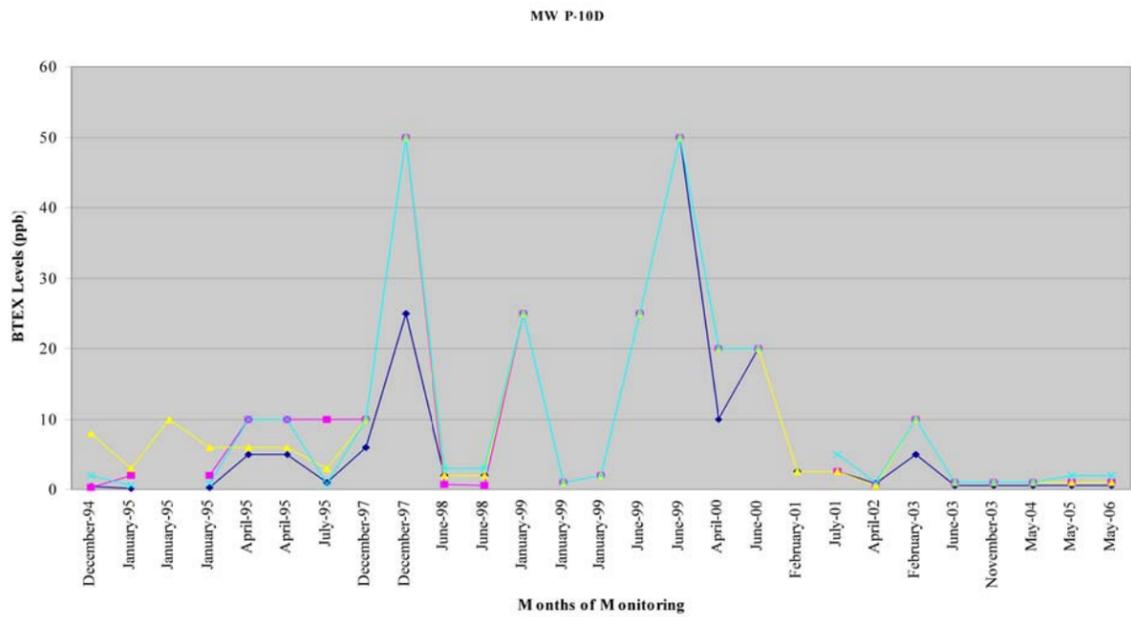
B) Carbon removal from vessel.



C) Loading carbon for placement in carbon vessel.

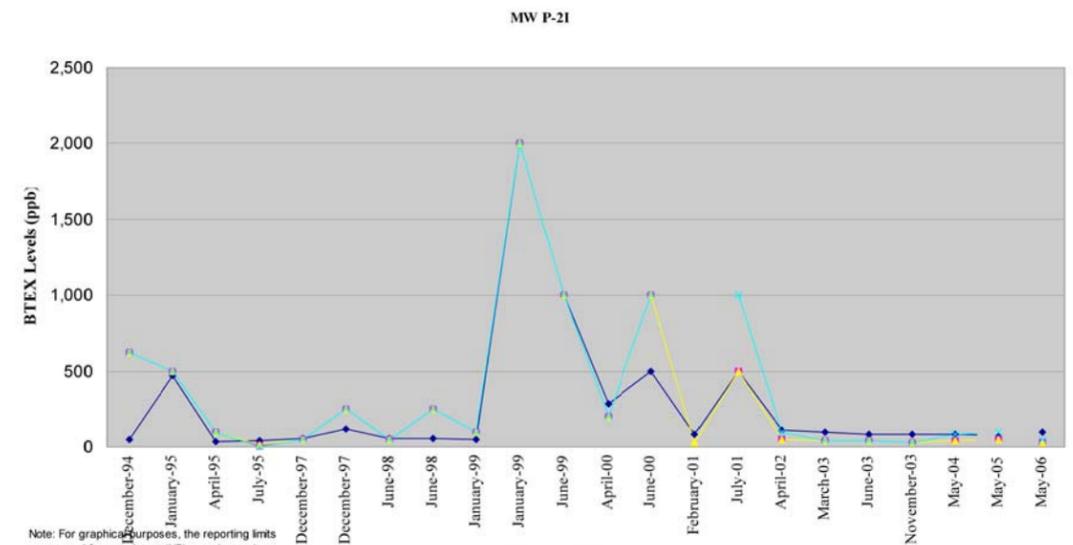
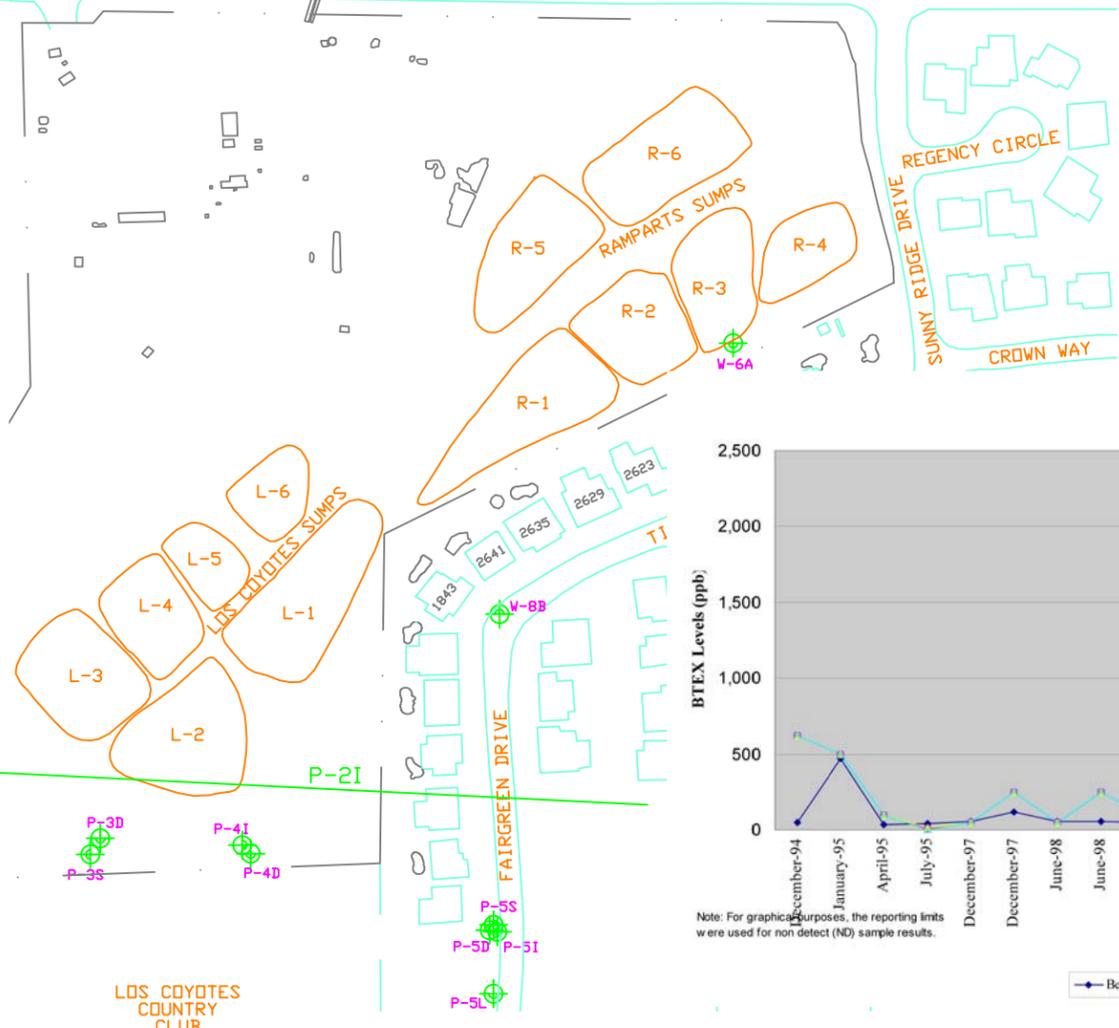


D) Placement of carbon in vessel.



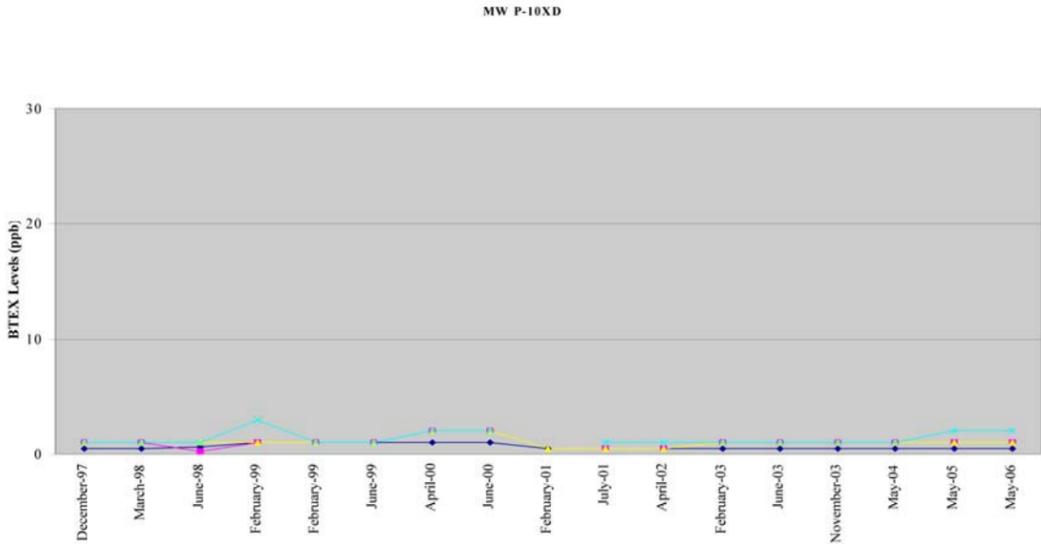
Note: For graphical purposes, the reporting limits were used for non detect (ND) sample results.

Months of Monitoring
 Benzene Ethylbenzene Toluene Xylene



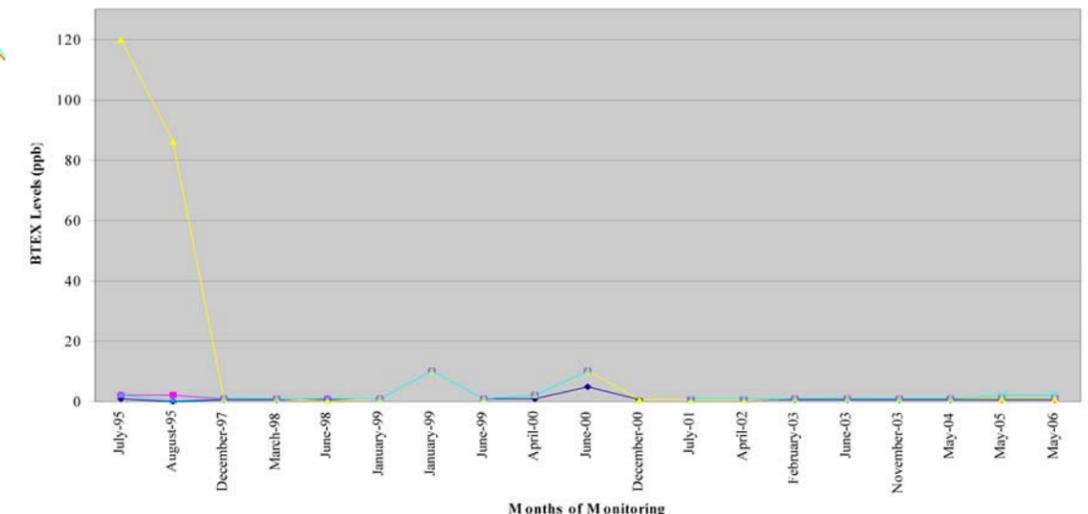
Note: For graphical purposes, the reporting limits were used for non detect (ND) sample results.

Months of Monitoring
 Benzene Ethylbenzene Toluene Xylene



Note: For graphical purposes, the reporting limits were used for non detect (ND) sample results.

Months of Monitoring
 Benzene Ethylbenzene Toluene Xylene



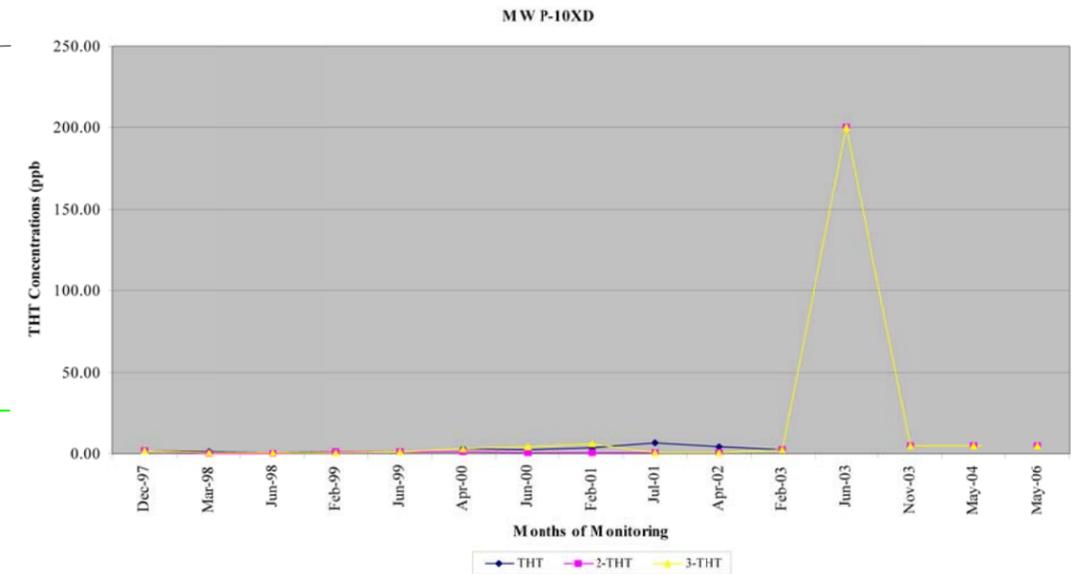
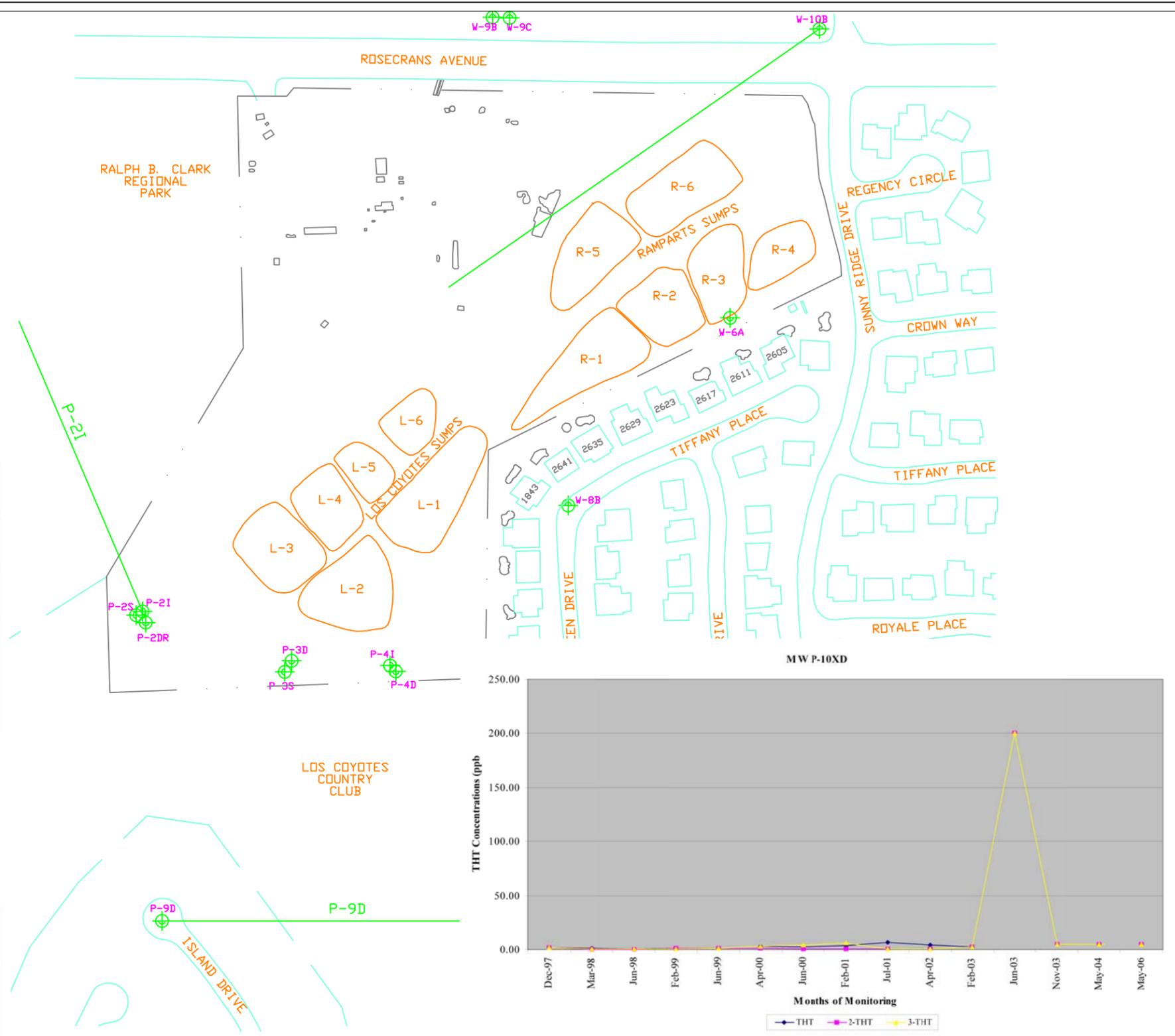
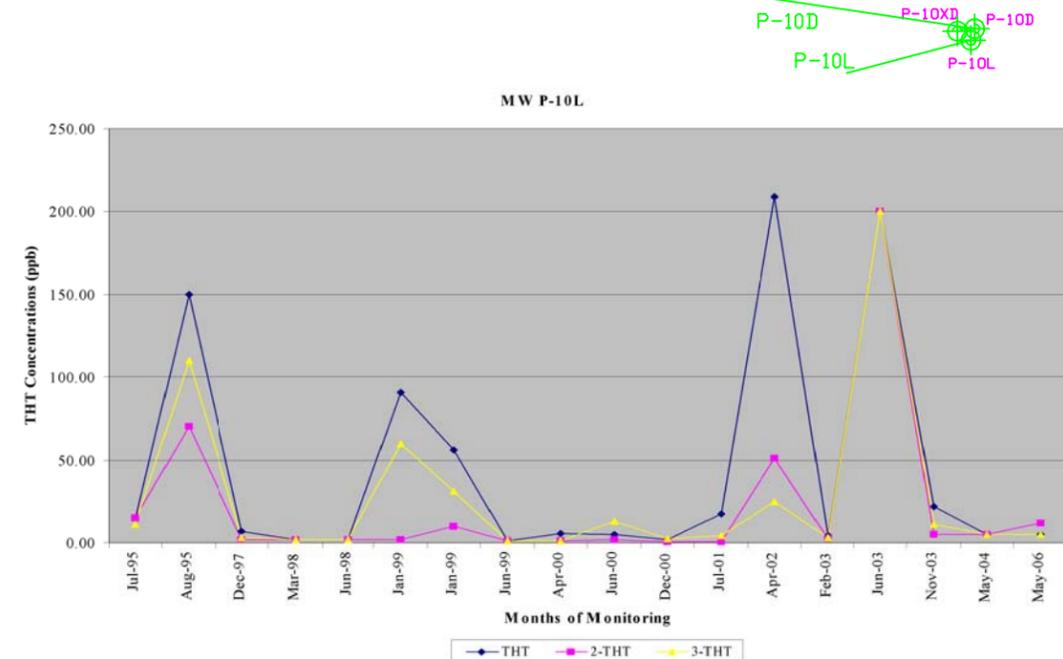
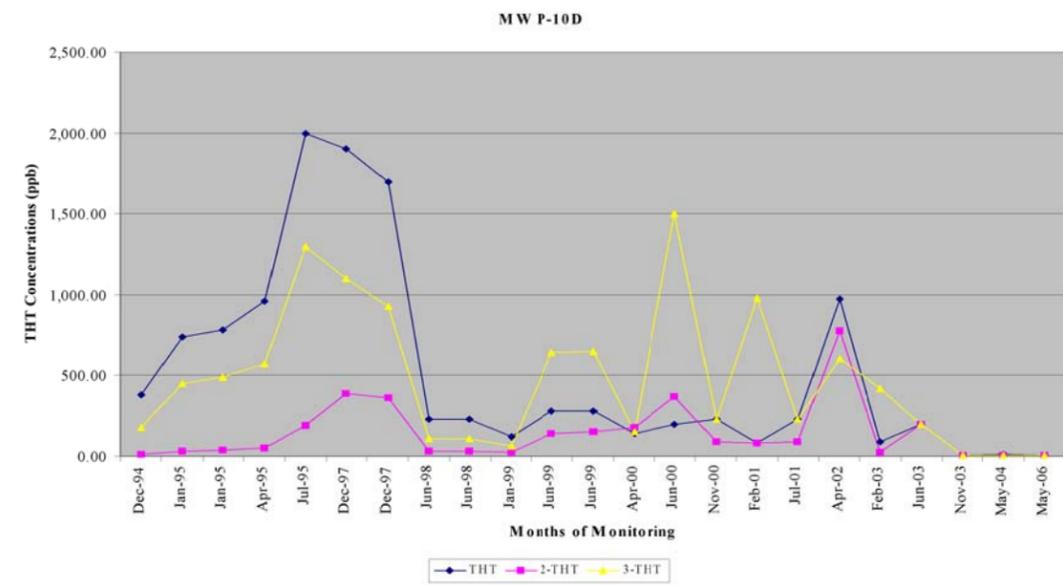
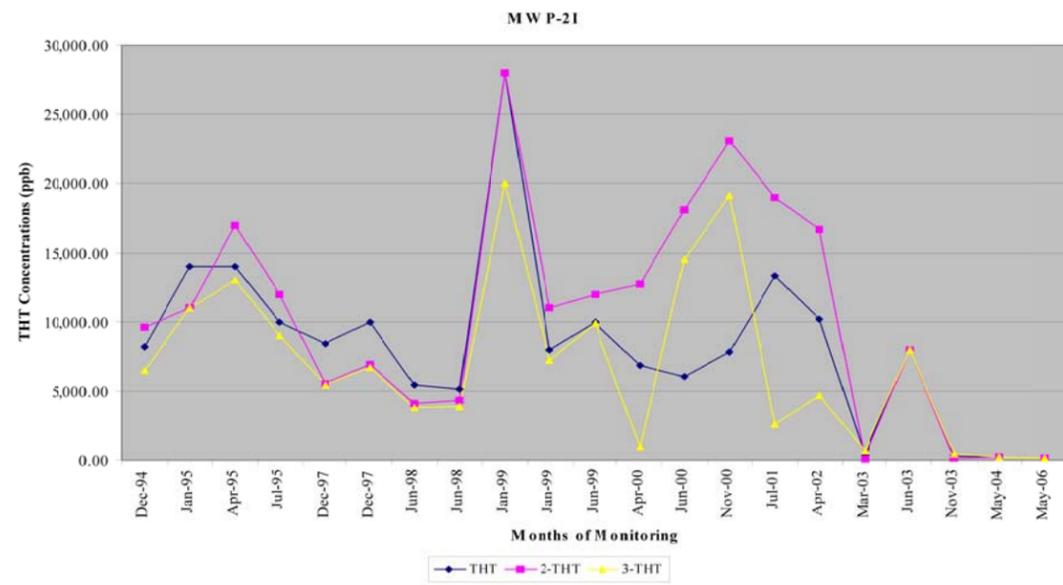
Note: For graphical purposes, the reporting limits were used for non detect (ND) sample results.

Months of Monitoring
 Benzene Ethylbenzene Toluene Xylene

FIGURE 7.0
BTEX Laboratory Results
 Wells P-2I, P-10XD, P-10D, P-10L

MCCOLL SUPERFUND SITE
AN ENVIRONMENTAL MANAGEMENT & DEVELOPMENT COMPANY
 NEWPORT BEACH, CALIFORNIA 949.261.8098





Notes:
 1) For graphical purposes, the reporting limits were used for non detect (ND) sample results.
 2) During the June and November 2003 sampling event, higher than anticipated reporting limits were utilized for some samples (see Appendix F for laboratory results).

FIGURE 8.0
THT Laboratory Results
 Wells P-2I, P-10XD, P-10D, P-10L

MCCOLL SUPERFUND SITE
AN ENVIRONMENTAL MANAGEMENT & DEVELOPMENT COMPANY
 NEWPORT BEACH, CALIFORNIA 949.261.8098



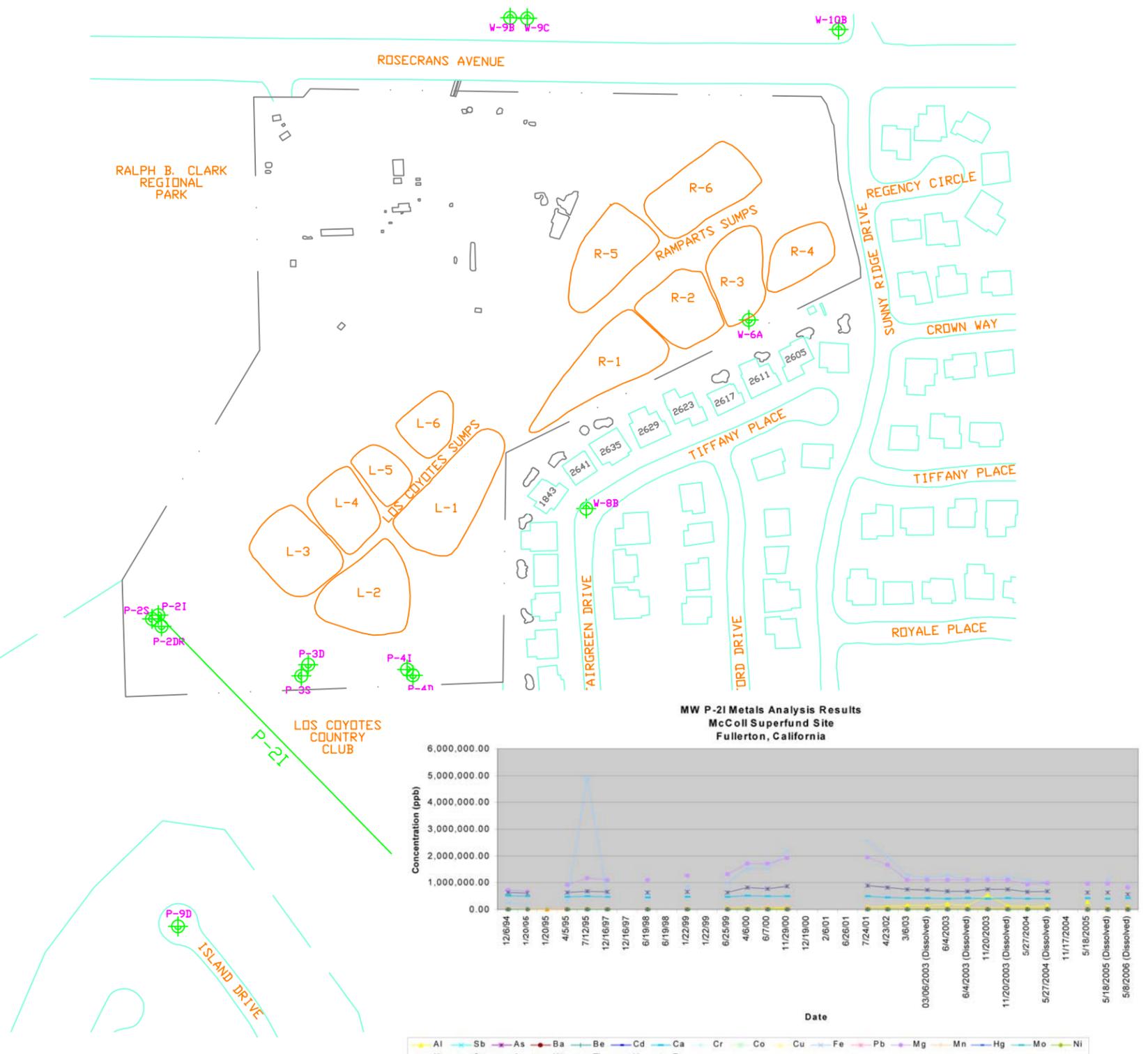
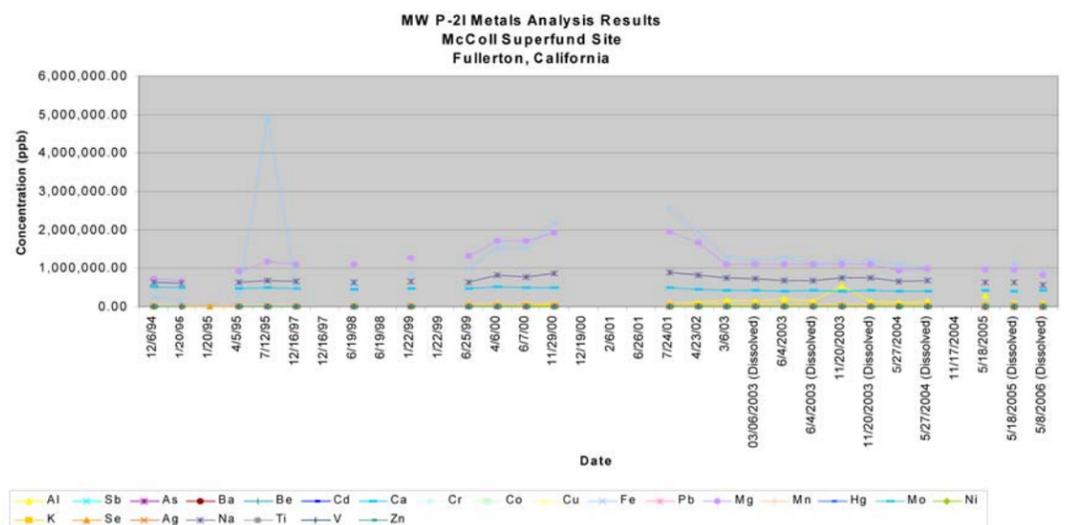
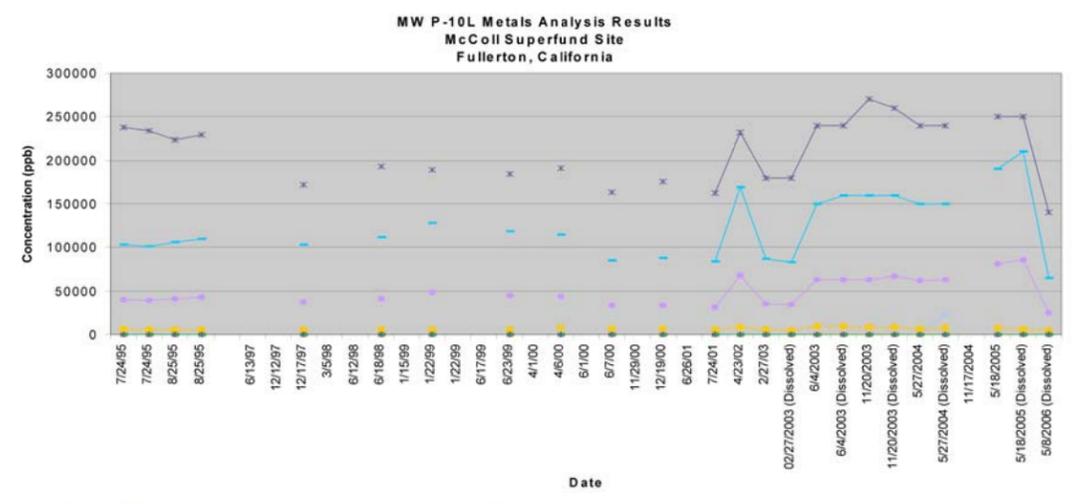
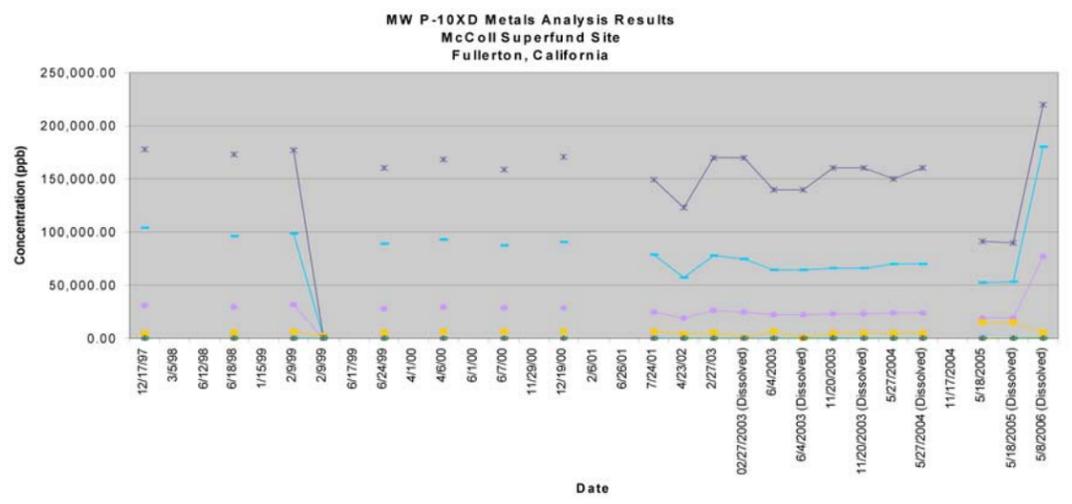
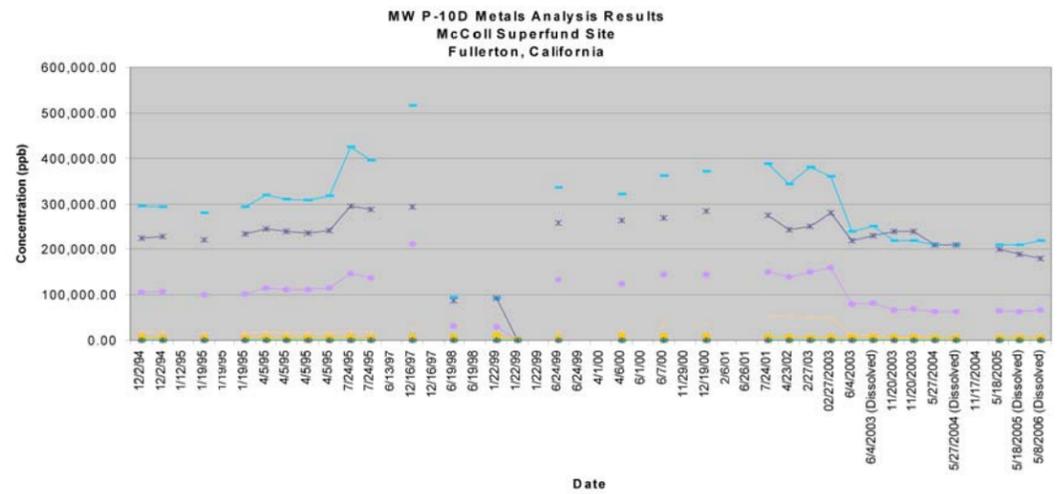
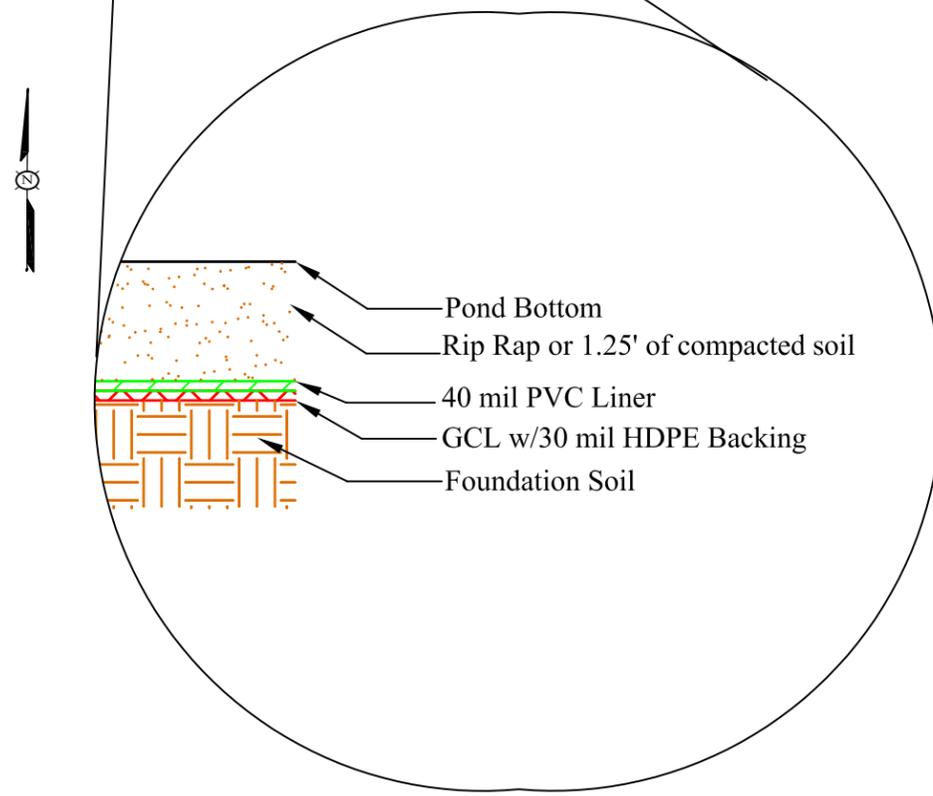
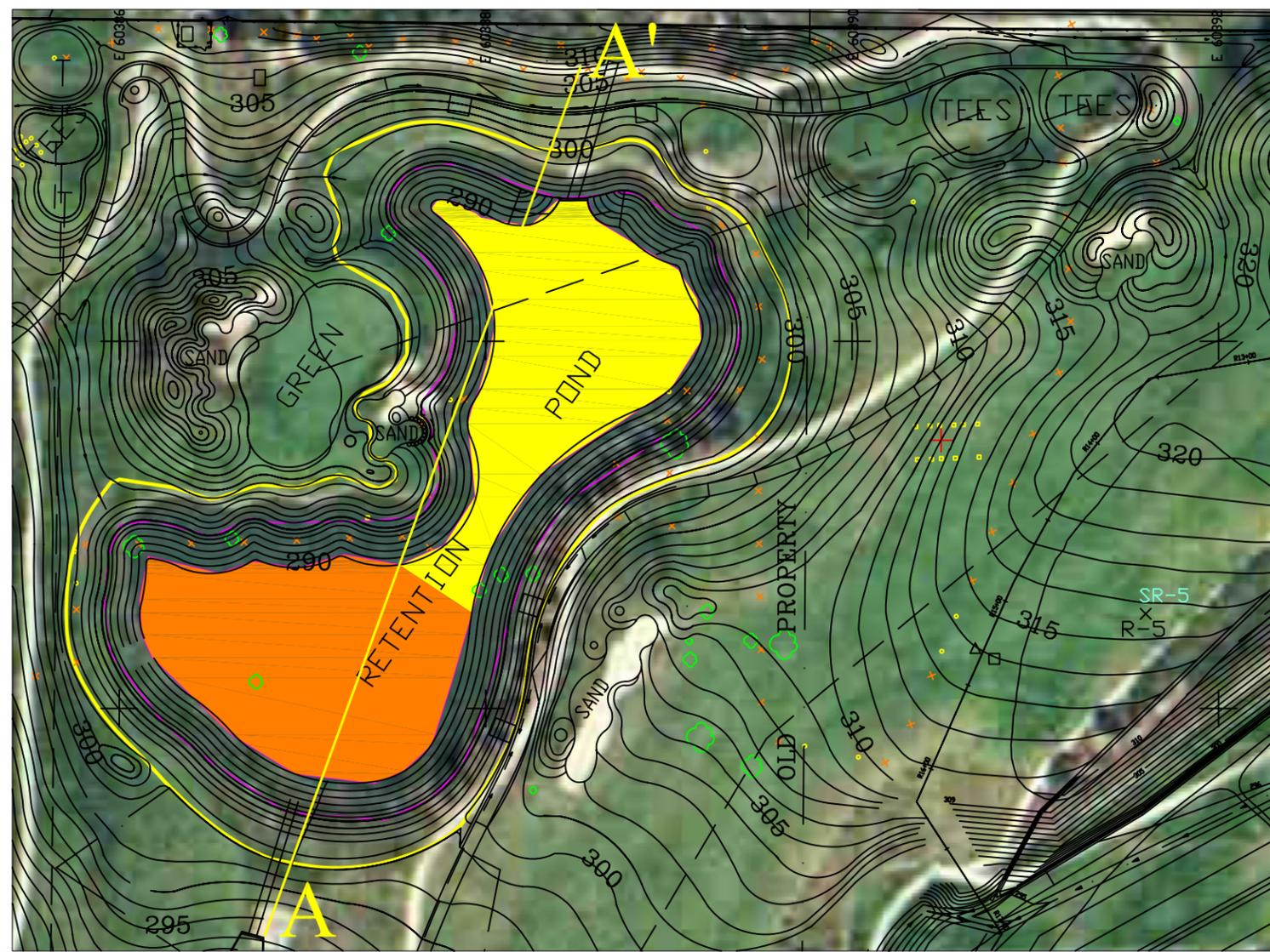
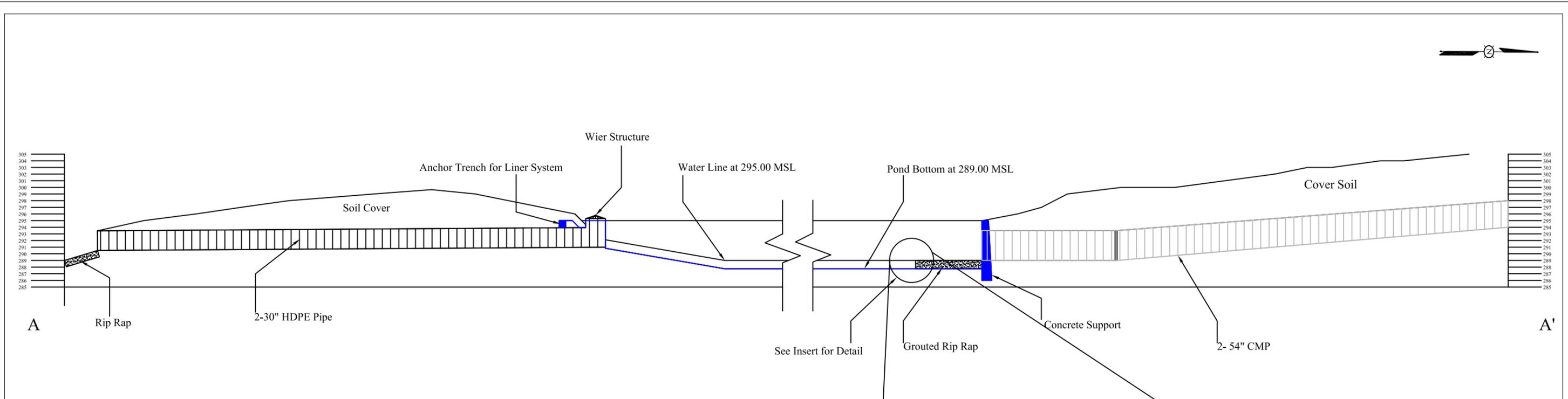


FIGURE 9.0
Metals Laboratory Results
Wells P-2I, P-10XD, P-10D, P-10L

MCCOLL SUPERFUND SITE
AN ENVIRONMENTAL MANAGEMENT
& DEVELOPMENT COMPANY
NEWPORT BEACH, CALIFORNIA 949.261.8098





Pond Liner Detail

- Average Settlement Thickness: 0.41 ft
- Average Settlement Thickness: 0.43 ft

SOURCE: LENSKA Aerial Image - photo date 1-2002

FIGURE 10.0
RETENTION POND LINER & SETTLEMENT
 Wells P-2I, P-10XD, P-10D, P-10L
MCCOLL SUPERFUND SITE
AN ENVIRONMENTAL MANAGEMENT & DEVELOPMENT COMPANY
 NEWPORT BEACH, CALIFORNIA 949.261.8098

