PROJECT NAVIGATOR, LTD.®

March 2, 2006

Project No. 01-114

Mr. Thomas Cota, Chief
Southern California Cleanup Operations Branch – Cypress Office
Attention: Ms. Christine Chiu, Project Manager
Southern California Cleanup Operations Branch, Cypress
Department of Toxic Substances Control
5796 Corporate Avenue
Cypress, CA 90630-4732

Ascon Landfill Site
Emergency Action Completion Report

Dear Ms. Chiu:

Enclosed please find the Emergency Action Completion Report for the Ascon Landfill Site located in Huntington Beach, California. Two additional hard copies of the Emergency Action Completion Report (without the appendices) are included, with the appendices on CD.

Please feel free to call me if you have any questions or comments at (714) 388-1804.

Sincerely,

Tamara Zeier, P.E.
Ascon Landfill Site Project Coordinator

TZ:tz
Enclosure

cc: Mike Schum, DTSC
Fire Chief Duane Olson, City of Huntington Beach
Fire Marshall Eric Engberg, City of Huntington Beach
Terri Elliot, City of Huntington Beach Public Works Department
Mary Beth Broeren, City of Huntington Beach Planning Department
Bob Beardsley, Director of Huntington Beach Public Works Department
Paul Emery, Assistant City Administrator, City of Huntington Beach
Ascon Responsible Parties
Mary Urashima, Urashima and Associates
Nevin Matasovic, GeoSyntec Consultants
Mike Mallett, Waste Management
Matt Jackson, Remedial Construction Services

ONE POINTE DRIVE, SUITE 320, BREA, CALIFORNIA, 92821
T: (714) 388-1800 • F: (714) 388-1839 • www.projectnavigator.com

EMERGENCY ACTION COMPLETION REPORT

Ascon Landfill Site

Huntington Beach, California

CERTIFICATION

THIS DOCUMENT WAS PREPARED UNDER THE DIRECTION AND SUPERVISION OF A QUALIFIED REGISTERED CALIFORNIA PROFESSIONAL ENGINEER

Tamara Zeier 3/2/06

TAMARA ZEIER
PROFESSIONAL ENGINEER
C 65982

Emergency Action Completion Report
Ascon Landfill Site

List of Tables

List of Figures

List of Appendices

1.0 INTRODUCTION

1.1 Site Background

The Emergency Action conducted at the Ascon Landfill Site (Site) is documented in this Emergency Action Completion Report. This Emergency Action Completion Report was prepared by Project Navigator, Ltd. (PNL), with assistance from GeoSyntec Consultants (GeoSyntec), on behalf of the Ascon Landfill Site Responsible Parties (RPs).

The Site is an approximately square parcel located at 21641 Magnolia Street in Huntington Beach, California, on the southwestern corner of the intersection of Hamilton Avenue and Magnolia Street, approximately ½ mile north of Huntington Beach State Park and the Pacific Ocean (**Figures 1.1-1**). The Site consists of approximately 38 acres, and is enclosed by a perimeter chain link fence with three 20-foot-wide locked gates. The gate at the northwestern corner provides access from Hamilton Avenue and a second gate provides access from Magnolia Street in the southeastern portion of the Site. A third gate at the southeastern corner of the Site was constructed in 2005 to facilitate haul truck exit for the Emergency Action.

The Site was operated as a waste disposal facility from approximately 1938 through 1984. Wastes disposed at the Site include oil production wastes and construction debris. Oil production wastes such as drilling mud, slag, fuel oils, styrene, and other wastes, such as acids, were disposed on the Site until 1971. From 1971 to 1984, inert solid wastes, such as concrete, were disposed on the Site.

Wastes were placed directly upon the native sediments or in surface impoundments such as lagoons and pits. The Site consists of five impoundments (Lagoons 1 through 5), one covered pit (Pit F), and seven former pits that are no longer visible. The approximate locations of the lagoons and other significant features are presented on **Figure 1.1-2**. Soil and fill materials were historically used to form containment berms and cover the areas where wastes were disposed. An earthen berm approximately 10 to 20 feet high was constructed around much of the Site perimeter to contain the surface impoundments located in the interior of the Site. This berm was not built according to proper engineering standards.

The 2004-2005 winter brought record-breaking precipitation to Southern California, and was the wettest season in the Site's recorded history. The lagoons, including Lagoons 4 and 5 behind the Hamilton (north) berm, filled with stormwater requiring pumping, treatment, and discharge under permit of approximately 3.8 million gallons of water. To mitigate the potential of an uncontrolled release of water that had come into contact with drilling mud inside the lagoons, excess water was discharged to Orange County Sanitation District (OCSD). Routine Site inspections during that period revealed surface cracks in the north berm and potential water seeps along Hamilton Avenue.

A geotechnical assessment was then performed by the RPs. It was determined that the north berm could have been weakened by the record heavy rainfall and that, if the Site experienced a similar level of rainfall in the next rainy season then the north berm could become unstable to a factor of safety below accepted engineering standards. The geotechnical assessment concluded that action was required prior to the 2005-2006 rainy season to avoid the risk of an emergency condition, to protect the public and the environment, and minimize the risk to public and private property. GeoSyntec documented these finding in a letter report titled Stability of the Earthen Berm along Hamilton Avenue (**Appendix A**).

The California Department of Toxic Substances Control (DTSC) reviewed this assessment and agreed that immediate action at the Site was necessary because there may have been, or could be, an imminent or substantial endangerment to the public health or welfare or to the environment due to the current conditions of the Site. DTSC issued an Imminent or Substantial Endangerment Determination letter to the RPs on May 13, 2005 (**Appendix B**). This Determination letter required the RPs to take immediate action (Emergency Action) prior to the 2005-2006 rainy season to prevent an emergency due to the risk of potential failure of the north berm.

Subsequently, an Emergency Action Workplan was prepared by PNL and GeoSyntec [PNL/GeoSyntec, 2005a] and submitted to DTSC for review in June 2005 and finalized and approved in July 2005 [PNL/GeoSyntec, 2005b].

1.2 Emergency Action Objectives

The primary objectives of the Emergency Action were to regrade and reduce the load on the berm and to mitigate seepage along the northern edge of the Site. The following work was performed as part of the Emergency Action: Removal of a significant portion of the drilling mud in Lagoons 4 and 5, reshaping of the north berm to reduce the height and flatten the north (outboard) slope, and installation of an underdrain (toe drain) at the toe of the outboard slope of the north berm. In addition, a buttress constructed from onsite concrete debris was placed at the toe of Lagoon 4's south berm, the berm between Lagoons 3 and 4, to support that berm after the removal of drilling mud from Lagoon 4.

The specific goals of the Emergency Action were:

1. Increasing the calculated static Factor of Safety (FS) of the north berm to the commonly accepted value of FS ≥ 1.5. This was to be achieved by regrading the north berm and removing approximately 40,000 cubic yards of drilling mud from Lagoons 4 and 5.

2. Limiting the calculated seismically-induced permanent displacement of the north berm (u_{max}) to the commonly accepted value of $u_{max} \leq 1$ ft. This was also to be accomplished by regrading the north berm and by the removal of approximately 40,000 cubic yards of drilling mud.

3. Mitigating seeps along the northern edge of the Site. This was to be accomplished by installing a toe drain along the toe of the north berm along Hamilton Avenue.

A more detailed description of the activities performed under the Emergency Action is included in Section 2 of this report.

2.0 DESCRIPTION OF WORK ACTIVITIES

2.1 Emergency Action

2.1.1 Site Preparation Activities

In June 2005, prior to mobilization, fifteen groundwater monitoring wells and geoprobe wells in the northern and western portions of the Site were destroyed in preparation for the work involved in the Emergency Action. These wells were located in the primary work area of the Emergency Action construction activities. This was done so that the wells would not be hit or damaged by construction equipment. The wells are shown in **Figure 2.1-1**, and the rationale for destruction of these wells is shown in **Table 2.1-1**. The well destruction permit obtained from Orange County Health Care Agency for this work is included in **Appendix C**.

During the destruction of monitoring well NMW-1 in the northwest corner of the Site on June 30, 2005, drum remnants were encountered approximately five feet below grade. The Drum Excavation Memorandum in **Appendix D** presents a summary of information regarding the finding of these drum remnants. The drums fragments were excavated and placed into a plastic-lined, sealed container prior to offsite disposal to Waste Management's Kettleman Hills Facility. Prior to the start of the Emergency Action fieldwork, a Drum Management Plan was prepared and submitted to DTSC to address the procedures for identification, handling, and disposal of drums or drum fragments and their contents in the event that more drums were discovered during the Emergency Action. No additional drums or drum remnants were encountered during the Emergency Action field activities. The Drum Management Plan is included in **Appendix E.**

The first week of July 2005 Site mobilization activities commenced with the arrival of construction personnel from Remedial Construction Services, Inc. (RECON). RECON's initial activities included:

- Mobilization of equipment and materials such as an office trailer, Moxy dump trucks, front end loaders and dozers, and drums of pneumatic odor suppressing foam (**Figure 2.1-2** shows photos of some of the main types of construction equipment utilized during the Emergency Action project),
- Clearing and grubbing areas in preparation for placement of a stockpile staging area/materials processing pad/waste haul truck tarping and weighing station (**Figure 2.1-3**), equipment staging area/fueling facility/break area, and waste haul truck staging area,
- Placement of gravel onto Site perimeter access roads,
- Erection of oversized construction equipment such as a pontoon-mounted excavator for use in the lagoons (refer to **Figure 2.1-2** to see this equipment),
- Construction of an exit road and driveway (with a new chain link gate) for waste haul vehicles,
- Conducting health and safety training for Site personnel,
- Construction of an asphalt pad for waste processing, stockpile placement, and loading and weighing haul trucks,
- Delineation of Site work zones, and
- Placement of odor control equipment (i.e., drums that contain odor suppressing compound).

Figure 2.1-3 shows the Site facilities layout during the Emergency Action activities.

Site preparation activities were completed in approximately 4 weeks. A timeline of major activities for the Emergency Action project is shown on **Figure 2.1-4**.

2.1.2 Permits

Several types of permits were required from the City of Huntington Beach (City) and other local jurisdictions to complete various Emergency Action construction activities. A brief description of these permits is outlined below.

South Coast Air Quality Management District Rule 1150/1166 Permit:

Prior to mobilization of RECON, a Site-specific Rule 1150/1166 Excavation Permit was obtained from the South Coast Air Quality Management District (SCAQMD). This permit contained conditions applicable to execution, monitoring, and notification requirements in the event of disturbance of VOC-contaminated materials[1] at the Site. The Rule 1150/1166 Permit limited the total volume of VOC-contaminated materials excavated and the total area of excavation exposing VOC-contaminated materials; required real-time monitoring (using a photoionization detector [PID]) at the excavation face and Site perimeter and offsite disposal of VOC-contaminated materials within 30-days; specified implementation of odor control measures, such as the application of foam suppressants during excavation and disturbance of materials while handling; and precluded excavation during adverse weather conditions (e.g., instantaneous wind speeds greater than 25 miles per hour). In accordance with the Rule 1150/1160 Permit, PNL notified SCAQMD on 1) the first occasion where VOC-contaminated material was encountered and 2) on a few occasions where VOC-contaminated materials emitting VOCs greater than 1,000 ppm within three inches of the excavated material, as measured by a PID, were encountered (see **Figure 2.1-4).**

The Rule 1150/1166 Permit included action levels for moderating work practices based on PID readings at the Site perimeter. The permit called for two tiers of response to elevated VOC concentrations at the Site perimeter. When concentrations reached a level of 0.5 ppm above background, the Permit required implementation of mitigation measures, such as workface area reduction and application of vapor suppressant. When concentrations reached 5 ppm above background, the Permit required cessation of work activities and implementation of such mitigation measures. Resumption of work activities was not permitted until the readings returned to background levels. Similar procedures were required based on particulate readings.

A copy of the Site-specific SCAQMD Rule 1150/1160 permit is attached in **Appendix C**.

Off-Site Hauling Permit:

Also prior to mobilization, an Off-Site Hauling Permit was obtained from the City. This permit specified the days of the week and hours when hauling was permitted, the number of truck trips allowed per day, the total volume of waste to be transported offsite, the inbound and outbound truck haul routes, and various street maintenance and dust control provisions. A copy of the Off-Site Hauling Permit is attached in **Appendix C**.

Coastal Development Permit:

A Coastal Development Permit was needed for the Emergency Action at the Site, because all development[2] within the coastal zone requires a Coastal Development Permit unless specifically

[1] VOC-contaminated material is defined as material that registers 50 parts per million (ppm) or greater of volatile organic compounds (VOCs) with an organic vapor analyzer (OVA) or photoionization detector (PID), before suppression materials have been applied, when measured within three inches of the excavated material.

[2] Development is defined as: The placement or erection of any solid material or structure on land, in or under water; discharge or disposal of any materials; grading, removing, dredging, mining, or extraction of any materials; change in the density or intensity of use of land, including, but not limited to, subdivision pursuant to Section 66410 of the Government Code, and any other division of land, including lot splits, except where the land division is brought about in connection with the purchase of such land by a public agency for public recreation use; and change in the intensity of use of water, or of access thereto; construction, reconstruction, demolition, or alteration of the size of any structure, including any facility of any private, public, or municipal utility; and the removal or harvesting of major vegetation. (Chapter 245 Coastal Development Permit)

exempted or excluded. The purpose of the Coastal Development Permit is to implement the California Coastal Act of 1976 (Division 20 of the Public Resources Code), as amended, in accordance with the City's Local Coastal Program.

During the Site preparation phase, an Emergency Coastal Development Permit was obtained from the City. The Emergency Coastal Development Permit was needed in order to expedite issuance of a permit so that the Emergency Action fieldwork could begin on schedule and before the standard Coastal Development Permit was issued. A standard Coastal Development Permit requires a public hearing and an appeal period after the public hearing before becoming final. A standard Coastal Development Permit was applied for and obtained prior to the expiration of the Emergency Coastal Development Permit. Copies of the Coastal Development permits and responses to the City's conditions are attached in **Appendix C**.

Encroachment Permits:

Several Encroachment Permits were obtained from the City because work activities were to be conducted on the City's easement that is located within the Site boundaries on the northern and eastern sides of the Site. These work activities included: construction of a driveway and new perimeter chain-link gate for truck egress onto Magnolia Street (permit number 05-680), relocation of the chain-link fence at the toe of the north berm along Hamilton Avenue (permit number 05-690), placement of K-rails (refer to section 4.4) along the western side of Magnolia Street south of the Site (permit number 05-691), construction of a toe drain system at the toe of the north berm along Hamilton Avenue (permit number 05-1120), installation of an outfall pipe for the Site's stormwater management system (permit number 05-1124), and installation of a new perimeter chain-link fence at the toe of the north berm along Hamilton Avenue (permit number 05-1153). These permits were obtained at various stages of the work, prior to implementation of the activity for which they were needed. The encroachment permits are attached in **Appendix C**.

2.1.3 Security

24-hour Site security was maintained for the duration of the Emergency Action work. Security services were provided for the first few weeks by Beavers Associates and for the remainder of work activities by Pedus Services.

2.1.4 Emergency Action Work Activities

Figure 2.1-5 depicts the primary work activities completed during the Emergency Action, outlined below:

- Construction of a concrete buttress on south side of Lagoon 4 (to support the berm between Lagoons 3 and 4),
- Excavation of drilling mud from Lagoons 4 and 5,
- Transportation and disposal of Site material to waste disposal facility,
- North berm reshaping and strengthening, and
- North berm toe drain installation.

Personnel trained in environmental and air monitoring and construction quality assurance (CQA) were onsite during all work activities. Environmental monitoring personnel collected readings of VOCs, odor, and dust emissions at the work face and Site perimeter using handheld instruments, such as a PID for VOCs, in accordance with the SCAQMD Rule 1150/1166 Permit. Refer to Section 3 for a discussion of real-time monitoring conducted during the Emergency Action. CQA personnel oversaw the progress of Site excavation and construction of engineered structures, such as the concrete buttress. The Value Engineering and CQA Observation Report is attached as **Appendix F**.

Concrete Breaking/Broken Concrete Buttress Construction

Collection and breaking of reinforced concrete debris was a substantial activity undertaken during the early stages of the Emergency Action work. This activity required three steps: 1) collection of concrete debris from around the Site, 2) breaking of the concrete using a mechanical attachment to an excavator, and 3) cutting of rebar from concrete using a power saw. Initially, much of the broken concrete was collected from the area of the stockpile pad on the western side of the Site (**Figure 2.1-3**). After most of this concrete was stockpiled, concrete was gathered from around the perimeter of Lagoons 1 and 2.

Broken concrete was needed for construction of a broken concrete buttress at the southern side of Lagoon 4 to support the berm between Lagoons 3 and 4. The concrete buttress is approximately 30 feet wide, 300 feet long, and 6.5 feet thick. The buttress design was modified during construction to avoid placing broken concrete against the slope of the north face of the berm between Lagoons 3 and 4. The revised buttress design called for a longer and thicker apron with the dimensions listed above. Additional details of the design change of the buttress are depicted in **Appendix F**. The buttress was placed at design grade (see below) on the drilling mud in Lagoon 4. 16-ounce non-woven geotextile, overlapping 2 feet between sections of geotextile, was placed onto the drilling mud prior to placement of the broken concrete for the buttress. **Appendix F** presents design and as-built drawings for the broken concrete buttress.

Lagoon Excavation

Excavation of drilling mud in Lagoons 4 and 5 was completed in approximately 2 months (**Figure 2.1-4**). A volume of approximately 34,000 cubic yards of drilling mud, tar, and construction debris was excavated from Lagoons 4 and 5 prior to reshaping the north (Hamilton) berm. Following excavation, the elevation of the surface of the Lagoons was approximately 12 feet above mean sea level in all areas of the Lagoons 4 and 5. A majority of the 34,000 cubic yards was excavated from Lagoon 4. Only a few feet of material was removed from the northern portion of Lagoon 5 because this was the only area in Lagoon 5 where drilling mud was present above 12 foot elevation.

The drilling mud was removed from the lagoons using conventional construction equipment, such as a tracked long-reach excavator, as well as unconventional equipment, such as a pontoon-mounted excavator[3] (**Figure 2.1-2** shows examples of these pieces of equipment). Material was removed from the central portions of the lagoons by transferring it from a pontoon-mounted excavator into a temporary stockpile that was reachable by a long-reach excavator situated on the edge of the lagoon. The long-reach excavator then transferred the material into a Moxy dump truck for transfer to the stockpile pad west of Lagoon 2 and 3 as shown on **Figure 2.1-3**. A marsh carrier, equipped with a small odor suppressant foam rig, was also used in the lagoons to apply foam at the excavation work face to control odors and emissions during excavation. A second trailer-mounted odor suppressant foam rig was situated at the edge of the lagoon to apply suppressants to disturbed material closer to the edges of the lagoons.

Excavation of the drilling mud was characterized by a number of factors:

1. A large portion of the drilling mud was firmer than expected, especially at the west end of Lagoon 4.
2. The drilling mud located in the southeastern portion of Lagoon 4 contained the highest portion of tar and was highly odiferous.
3. The material in the northern portion of Lagoon 5 contained more soil-like material in general and also had pockets of tar that were highly odiferous.

Design and as-built drawings for Lagoons 4 and 5 are presented in **Appendix F.**

[3] The pontoons allow the excavator to float, which helped to facilitate movement in the Lagoon's low density drilling mud.

Prior to excavation of drilling mud and impacted soil in the northern portion of Lagoon 5, a geophysical survey was conducted to evaluate the presence of two oil exploration wells understood to be buried beneath the surface within the footprint of Lagoon 5. Due to the chronology of the Ascon Landfill Site, and because the wells were installed prior to placement of the lagoon materials, it was not considered likely that these wells would be buried close to the surface of Lagoon 5. Additionally, document review indicated that the wells were likely in the southern portion of Lagoon 5, outside of the Emergency Action work area. Before the excavation in Lagoon 5 began, work was performed to confirm that the wells were not near the work area.

On September 30, 2005, Geovision investigated the entire surface of Lagoon 5 using a handheld magnetic instrument called a magnetometer. The results of the investigation indicated existence of magnetic anomalies consistent with a steel casing in the southern portion of Lagoon 5. The locations were approximately 30 feet apart and only about 10-15 feet away from the approximate locations inferred from historical Site information. The magnetic signatures of the two wells indicated at least one of the two wells may be present at a relatively shallow depth. Subsequent to the geophysical survey, the coordinates of the two anomalies were established via a land survey. The Geophysical Investigation report prepared by Geovision is included in **Appendix F**.

While Lagoon 5 was under excavation, the area was monitored for lower explosive limit (LEL) and hydrogen sulfide, in addition to the VOC monitoring for compliance with SCAQMD Rule 1166 and worker safety. Ten percent of the LEL was not exceeded.

North Berm Excavation

The north berm adjacent to Lagoons 4 and 5, with a length of approximately 1,000 feet, was reshaped to reduce its slope from the previous average of 1.5 foot horizontal to 1 foot vertical (1.5H:1V) to a more stable 2.5H:1V to 3H:1V. In the process, the elevation of the berm was reduced to approximately 15 feet, or about 3 feet above the final surface of Lagoons 4 and 5. Excavation of the north berm was characterized by the presence of large quantities of construction debris, such as reinforced concrete, and pockets of drilling mud that extended above the final design elevation. A significant portion of the north berm required over-excavation and reinforcement using geogrid due to the presence of drilling mud. The geogrid was placed on top of the drilling mud in a sandwiching effect between layers of compacted soil. As a result of the removal of debris and installation of geogrid reinforcement, the berm will be much more stable when in a saturated state, and there will be a pronounced reduction in water seepage pathways. The north berm excavation was completed in approximately 6 weeks (**Figure 2.1-4**). Design drawings and as-built drawings for the north berm are presented in **Appendix F**.

Odor and emissions control during excavation of the north berm proved challenging due to the nature of the impacted materials and proximity to the Site perimeter and offsite receptors. Specifically, the materials in this area were more soil-like, unsaturated drilling mud, which allowed for liberation of greater emissions. Grading the north face of Lagoon 4 generated the highest emissions. On three occasions when working in this area, work was stopped, and work practices were evaluated[4] because detected concentrations reached a second tier action level of 5 ppm above the background concentration level at the Site perimeter using a PID (**Figure 2.1-4**). Work was stopped when necessary until VOC levels in the area returned to less than 5 ppm above background levels, and work practices were modified, by, for instance, applying higher volumes or concentrations of foam and/or water to the cut face. If, after work resumed, the levels increased again to over the threshold, then the work proceeded in another portion of the berm until atmospheric conditions assisted in reduction or redirection of concentrations away from sensitive receptors. To complete some portions of the north berm, excavation was only conducted during atmospheric conditions when there was a slightly offshore wind pattern, such

[4] This practice was in accordance with the Air Monitoring Plan presented in the Emergency Action Work Plan and as required by the SCAQMD Rule 1150/1166 Excavation Permit.

as early in the mornings. During the north berm excavation, odor levels were also highest onsite and offsite, which translated into an increased frequency of odor complaints from offsite residents (see Section 4). Additional details on odors and emissions, including laboratory data, are presented in Section 3.

Construction of North Berm Toe Drain

In order to capture potential seepage flow from the berm and perched water, a 6-inch diameter toe drain (or french drain) was installed along the toe of the north berm. Since this water may have had contact with contaminated materials in the berm, the water is classified as "contact" water (refer to Section 2.2 for additional details on the classification of "contact" versus "non-contact" water). The toe drain was buried at a depth of approximately four feet below ground surface. The toe drain runs along the entire length of the north berm and is intersected in a few locations by fiberglass sumps. These sumps are designed to collect the seepage flow into the toe drain and convey it back to Lagoon 2 via 2-inch diameter discharge piping. Specifically, three of the sumps are equipped with submersible pumps that are automatically activated by float switches. Electrical control boxes have also been installed to enable manual or automatic operation. The toe drain also collects seepage flows and runoff from a french drain and a drainage swale on the western perimeter of the Site, which were installed to mitigate Site runoff (Section 2.2 provides additional details). Construction of the north berm toe drain and appurtenances was completed in approximately 4 weeks. Design details and as-built drawings of the toe drain, sumps, and appurtenances are presented in **Appendix F**.

Decontamination/Demobilization

Decontamination/demobilization began concurrently with the completion of the northern berm grading and was completed at the end of the project, a period of approximately 3 months (**Figure 2.1-4**). Thus, some of the first equipment to be decontaminated/demobilized was specialty equipment involved in the Lagoon 4 and 5 and berm excavation, such as the pontoon-mounted excavator, marsh carrier, and odor suppressing foam rigs. Decontamination was conducted using hot water pressure washers on the stockpile/waste processing pad, which was constructed of asphalt and graded to drain away from the perimeter road for runoff containment purposes. **Figure 2.1-3** shows the location of the processing pad. Final equipment and materials removed from the Site included equipment that was used for construction of the toe drain, such as the long-reach excavator, and RECON office trailer.

Drilling Mud Processing ("Solidification")

As described above, drilling mud and impacted soil from Lagoons 4 and 5 and the north berm were transported from the excavation area to the waste processing pad. At the stockpile/waste processing pad, the drilling mud was mixed with soil to facilitate loading and offsite disposal in proportions that varied according to the consistency of the drilling mud. In many areas of the lagoons, the drilling mud was quite firm and thus required a relatively small volume of soil to process for offsite disposal. In other locations, particularly the southeastern portion of Lagoon 4 and northwestern portion of Lagoon 5, the drilling mud was much softer, with a consistency similar to that of wet cement, and accordingly required a much higher percentage of mixing soil for processing purposes. Mixing was accomplished by placing the drilling mud onto a lift of soil on the stockpile pad, adding a second lift onto the mud, and then thoroughly working the soil into the mud using a loader or excavator.

In accordance with the SCAQMD Rule 1150/1166 Permit, drilling mud/soil stockpiles were limited to 500 cubic yards and an acrylic soil sealant (Soil Seal®) was applied at the end of each work day and after completion of processing to control odors and emissions.

Transportation and Disposal

Following solidification at the processing pad, impacted materials were loaded into lined end-dump trucks for transportation to an offsite disposal facility, Waste Management's Kettleman Hills Facility in central California. The Off-Site Hauling Permit (included in **Appendix C**) and **Figure 2.1-6** show the specific haul route utilized by outbound as well as inbound empty haul trucks. Trucks entered the Site at the Hamilton gate entrance in the northwestern corner of the Site (**Figure 2.1-3**). Upon arriving onsite the trucks were directed to a temporary staging area (see **Figure 2.1-3**), where plastic liners were placed inside the beds of the haul trucks. The plastic liners were designed to facilitate removal of the drilling mud from the bed at the disposal facility. Next, the trucks proceeded to a gross loading station, located on the waste processing pad, where a few loader buckets of material were applied to the front end and back end of the truck bed. After that, the trucks pulled onto an electronic scale for weighing to ensure that the truck's weight did not exceed the permitted weight for highway travel[5]. At this point, the scale operator communicated with a second loader as to how much material should be added to each load to bring it within an appropriate range of the weight limit. After weighing, the trucks proceeded to a tarping station, also located on the processing pad, where tarps were placed and secured onto the top of each truck. At this station, truck tires and the sides of the trailers were decontaminated using brushes. After tarping/decontamination, the trucks proceeded slowly to the truck exit, received signed hazardous waste manifests, exited the Site onto Magnolia Street, and followed the prescribed route to the disposal facility.

Transportation and disposal of Site material excavated during the Emergency Action, including VOC-contaminated material, was conducted over an approximate 3-month period (**Figure 2.1-4**). During this time, a total of approximately 2,600 truck round-trips covering over 1 million miles was accomplished without a single incident.

2.1.5 Waste Profile Testing

A majority of the VOC-contaminated materials removed were excavated from Lagoons 4 and 5. As described above, these materials required mixing with Site soils for solidification to facilitate loading/unloading. These soils were generated during construction of the waste processing pad, from reshaping the north berm, and grading various areas onsite during construction of stormwater control structures (see Section 2.2 for additional details). Based on historical characterization sampling of impacted soils and, in particular, the results for lead solubility, all waste materials (i.e., drilling mud mixed with impacted soil) were shipped from the Site as California Hazardous waste. Initial discrete samples of lagoon drilling mud and fill soil collected from borrow sources onsite confirmed this classification. Additionally, the waste disposal profile for Waste Management's Kettleman Hills Facility, the disposal destination for all shipped materials, required periodic confirmation sampling. Samples were analyzed for total petroleum hydrocarbons, Title 22 metals, including the Toxicity Characteristic Leaching Procedure (TCLP) for lead and Soluble Threshold Limit Concentration (STLC) for lead, VOCs, and semi-volatile organic compounds (SVOCs). The main contaminant of interest, soluble lead, was present at an average STLC concentration of 12 mg/L and an average TCLP concentration of 0.6 mg/L. Laboratory analytical reports and chain-of-custody reports for the waste profiles are presented in **Appendix G**.

2.1.6 Vibration Survey

At the beginning of the Emergency Action field activities, vibration studies were conducted to measure the potential impacts of equipment and truck traffic associated with Emergency Action activities. The purpose of these studies was to determine the contribution, if any, of Site-associated equipment and offsite truck departures to ground vibration levels caused by vehicular traffic on Magnolia Street and Hamilton Avenue and the industrial buildings on the western portion of the Site. The program consisted of two phases of vibration measurements, which were

[5] The scales were operated by a trucking company representative knowledgeable in highway weight restrictions.

collected at different conditions at various times of the day. In the first phase, ground vibrations associated with regular traffic in the area (such as buses, passenger cars, and light trucks) were recorded. In the second phase, ground vibrations associated with Emergency Action equipment/truck traffic, and particularly the waste haul vehicles, were measured. The results of both phases of ground vibration measurements indicate that the Emergency Action equipment/trucks generated ground vibrations that are lower in magnitude than those from the everyday vehicle traffic in the area. Additionally, the vibration from the Emergency Action equipment did not appreciably increase background vibration levels. Finally, with respect to ISO 2631, "Guide for the evaluation of human exposure to whole-body vibration," there was no significant increase in "comfort level" associated with vibrations from the Emergency Action equipment/vehicles versus background levels.

The vibration studies were conducted by Geovision; a copy of their vibration measurement report is attached in **Appendix H**.

2.2 Stormwater Runoff Control

2.2.1 Background/Objectives

The scope of Emergency Action field activities included reshaping and strengthening the north berm to reduce the slope and height, while removing and then replacing low strength materials in the process; reducing the volume of drilling mud in Lagoons 4 and 5 behind the berm, thereby reducing the load on the berm; and installing a toe drain at the toe of the north berm to capture potential seepage flow from the berm and western perimeter of the Site and return it to the Site as described below. Following the Emergency Action, Lagoons 4 and 5 are able to capture and retain rainwater with an acceptable engineering safety factor. Rainwater that directly impinges on the five lagoons, as well as potential seepage which flows through the north berm, is classified as "contact" water that may not leave the Site except through permitted discharge (e.g., to storm drain or sewer) following treatment, if required.

Site surface water (stormwater runoff) has been classified as non-contact water based on surface water samples collected from three locations at the Site during 2005, most recently in September 2005[6]. The first samples of the 2005-2006 rainy season that began in October 2005 were collected on February 28, 2006 (due to the lack of appreciable rain before this time). The samples will be analyzed in accordance with the Industrial Stormwater Pollution Prevention Plan (SWPPP) described in more detail in Section 2.2.3 below. Management of non-contact surface runoff has been achieved by the construction of stormwater detention basins and grass swales, hydroseeding the north berm and other disturbed areas, and implementation of best management practices (BMPs), such as installation of erosion control blanket on steep slopes and deployment of silt fencing and straw waddle. BMPs are documented in the Industrial SWPPP, prepared in January 2006 for use following completion the Emergency Action (see below for additional details), that is maintained onsite.

The following sections describe the Construction SWPPP and BMPs that governed work activities during the Emergency Action project; permitting strategy related to the management of contact and non-contact stormwater; provisions of the Industrial SWPPP that will supercede the Construction SWPPP following establishment of 70% of the BMPs implemented during Emergency Action work; and the basis of design for the stormwater detention basins and drainage swales.

2.2.2 Construction SWPPP

[6] The results of these analyses were reported through email communication to DTSC in February and March of 2005 (emails from Tamara Zeier to Christine Chiu, dated February 7, 2005, and March 18, 2005). Hard copy of September 20, 2005 laboratory reports were given to Greg Holmes at a meeting conducted at the Site on September 29, 2005.

A SWPPP was developed for the Site in June 2005 in accordance with requirements of the Statewide Stormwater General Permit for Construction Activities (Order No. 99-08-DWQ) (General Permit). This General Permit requires all dischargers where construction activity disturbs one acre or more to:

1. Develop and implement a SWPPP which specifies BMPs that will prevent all construction pollutants from contacting stormwater and with the intent of keeping all products of erosion from moving offsite into receiving waters.
2. Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the State.
3. Perform inspections of all BMPs.

The SWPPP has two major objectives: (1) to help identify the sources of sediment and other pollutants that affect the quality of stormwater discharges, and (2) to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in stormwater as well as non-stormwater discharges.

A fundamental component of the SWPPP is the pollutant source identification, which includes an inventory of materials and activities at the Site that may pollute stormwater. Materials identified as having the potential to contribute to stormwater contamination at the Site included disturbed soil and debris stockpiles, vehicle fluids, and general litter. Activities identified as having the potential to contribute to stormwater contamination at the Site included grading, excavating (of lagoon soils and drilling mud), stockpiling, soil/debris loading, and waste transport operations. Therefore, all BMPs for the Site were selected and designed with the goal of addressing or controlling sediment and pollutants (such as VOCs, SVOCs, and metals, which are known to be found in measurable quantities in Site soils and drilling mud wastes) from these identified materials and activities.

RECON's construction manager was identified in the SWPPP as the Storm Water Pollution Prevention Manager (SWPPM), and was responsible for the implementation and maintenance of BMPs at the Site throughout the Emergency Action construction phase.

The Ascon SWPPP described the following controls which were implemented at the Site and are shown on the attached construction SWPPP Site map (**Figure 2.2-1**):

- Erosion Controls
  - Erosion control blanket (ECB) on the northern berm slope and other steep slopes,
  - Hydroseeding along all disturbed areas, and
  - Soil-binding polymer spraying on all disturbed areas without ECB.
- Sediment Controls
  - Silt fence along toe of northern berm slope, and
  - Straw waddle along eastern perimeter of Site and paved entrance/exit areas.
- Tracking Controls
  - Street sweeping at entrances and exits,
  - Dry decontamination with brushes at tarping station on waste processing pad, and
  - Rumble strips at two locations–one near the exit of the waste processing/stockpile pad and a second near the Site exit (**Figure 2.1-3**).
- Wind Erosion Controls
  - Stockpile management (plastic covers and/or application of Soil Seal), and
  - Regular water truck spraying along dirt roads and exposed soil areas.
- Non-stormwater Controls
  - Controlled irrigation and water conservation practices, and
  - Controlled/contained vehicle and equipment cleaning and fueling areas.

- Waste Management and Materials Pollution Controls
    - Various procedural (e.g., careful tracking and record keeping) and structural BMPs associated with the following waste management activities: material delivery and storage, stockpile management, solid and liquid waste management, hazardous waste and contaminated soil management, and sanitary/septic waste management.

A copy of the Construction SWPPP Notice of Intent (NOI) is provided in **Appendix C**.

2.2.3 Post-Construction Permitting Strategy and Industrial SWPPP

To assess the quality of surface water runoff at the Site, surface water samples were collected at three locations at the Site in 2005. These locations are shown on **Figure 2.2-1** as ALS-1,-2, and -3. Lab results demonstrated that organic and metal concentrations were low, indicating that potentially hazardous levels of Site pollutants were not leaching into surface water runoff. These data, along with a post-construction stormwater management strategy, were presented to staff from the relevant lead environmental agencies (DTSC and the Santa Ana Regional Water Quality Control Board [SARWQCB]) in October 2005. The post-construction stormwater management strategy (see attached flow chart, **Figure 2.2-2**) introduced the concept of "contact" stormwater (i.e., rainwater or runoff that had drained into the lagoons and come in contact with waste materials) versus "non-contact" stormwater (i.e., runoff from the non-lagoon areas of the Site) and described a lagoon containment strategy for all contact water and grass swale and detention basin treatment for all non-contact water. Staff from the lead remediation agency (DTSC) and the lead stormwater agency (SARWQCB) approved the strategy, and swale and detention basin construction commenced.

The swales, detention basins, and other stormwater BMPs are described in the new Site Industrial SWPPP, referenced above, covering the post-Emergency Action construction phase to the overall Site remedial action implementation (expected to be 3 to 5 years) in accordance with the Statewide Stormwater General Permit for Industrial Activities (Order No. 97-03-DWQ). The grass swales and detention basins currently serve as the primary water quality and sediment control BMPs for this ongoing post-construction, industrial permit phase of Site operation. These and other surface water quality management strategies and BMPs are shown on the attached Industrial SWPPP Site map (**Figure 2.2-3**) and are briefly described in the following sections, which are taken from the January 2006 Industrial SWPPP. In addition to identifying potential pollutant source areas and describing BMP strategies at the Site, the Industrial SWPPP also prescribes a monitoring and reporting program that requires regular inspection as well as stormwater discharge sampling twice a year throughout the entire permit coverage period.

A copy of the Industrial SWPPP NOI is provided in **Appendix C**.

Primary Existing Stormwater BMPs

The general onsite drainage direction is towards the lagoons for the areas immediately surrounding the lagoons, and towards the southeast for the non-lagoon areas, or approximately two-thirds of the Site. The only exception to this general drainage pattern is for the slopes on the northern and northwestern perimeter of the Site which drain north onto Hamilton Avenue and to the west. Both slopes also have toe drains which collect potential seepage water for pumpback into Lagoon 2 (see Section 2.1.4 and **Figure 2.2-3**).

Management of stormwater from the lagoon areas will generally be accomplished by utilizing the lagoon's water storage capacity. Sufficient storage capacity is available in the lagoons to contain rainfall, except during the most severe flood events, that falls directly onto the lagoons, minor runoff that drains from lagoon perimeter areas towards the lagoons, and runoff captured in the Hamilton berm toe drain system that is pumped back into Lagoon 2 (see below for additional details). In the unlikely event that a very severe storm occurs such that water levels in the

lagoons begin approaching the freeboard elevation (1 ft from top of berms), an emergency treatment plan will be implemented in which a temporary granular activated carbon based filtration system will be used to treat "contact" water that is pumped from the lagoons and subsequently discharged to the sewer. This discharge will be regulated under an emergency discharge permit from the Orange County Sanitation District.

Regarding the management of runoff from the non-lagoon areas, grass swales have been constructed to convey runoff along the perimeter of the Site towards detention basins located in the southwest and southeast corners of the Site. The southwest basin drains via a 24-inch diameter corrugated metal pipe (CMP) to the southeast basin, which is the final point of discharge for runoff from the non-lagoon areas of the Site. The primary functions of the swales and basins are for sediment control and general stormwater quality improvement. Stormwater runoff which exits the southeast detention basin will discharge from the Site to the storm gutter along Magnolia (on the east side of the Site), which connects to the municipal storm drain system via a nearby culvert entrance. The swale and basin designs are described further in Section 2.2.4 below.

In addition to the lagoon and non-lagoon areas, there is a nearly 1,400-foot long berm located along the northern perimeter of the Site that consists of a slope that drains toward Hamilton Avenue, as noted above. A shorter section of slope along the northwest perimeter of the Site that historically drained offsite to the west has been graded to direct flow into a v-ditch running parallel to the property line. Surface flow in the v-ditch drains north into a sump near the Hamilton gate entrance, where it collects with seepage flows for reconveyance back onsite (see below). For erosion control, these slopes were covered with erosion control blankets and hydroseeded, and a silt fence was installed at the toe of the northern slope. Additionally, to assist with drainage control along these slope areas, buried toe drains were installed, with seepage flows collected in a series of sumps. The sumps are equipped with float switch-controlled submersible pumps, which transfer captured seepage into Lagoon 2. These underdrains are intended to serve as precautionary measures to control potential contaminant migration from the lagoons, as well as to alleviate and direct runoff ponding. Straw waddle is also placed along the eastern Site perimeter to control any drainage from adjacent Site areas that drain onto Magnolia Avenue via sheet flow.

2.2.4 Stormwater Control Structures – Basis of Design

2.2.4.1 Grass Swales

Three grass swales are provided for conveyance and treatment of non-lagoon stormwater runoff, as shown in the attached Industrial SWPPP Site map (**Figure 2.2-3**). These facilities are used to treat runoff through a combination of vegetation and soil filtration. The swales are sized to treat 85 percent of the average annual runoff volume, consistent with the volume-based design criterion for the Site's detention basins and guidance from the WEF Urban Runoff Quality Management manual [URQM, 1998]. The swales are designed to accommodate a design rainfall intensity of 0.36 inches/hour based on the 0.74 inch depth, 2-hour duration rainfall event from the Orange County Hydrology Manual [OCHM, 1986] per the guidelines in the WEF Urban Runoff Quality Management manual. The dimensions of the swales were determined using Manning's Equation with a conservative manning coefficient of 0.24 corresponding to infrequently mowed swales. After the swales were sized to treat the design flow (i.e., design depth of 4 inches, or flows not to exceed grass height), each swale's total capacity was confirmed to accommodate the 50-year peak flow for flood control purposes.

The west swale drains to the west detention basin. It is approximately 890 ft long with an average longitudinal slope of approximately 0.5%. Given this very low slope, a perforated underdrain collection pipe was installed to ensure that ponded water drains from the swale. The swale was sized for a design flow rate of 0.35 cubic feet per second (cfs) and a minimum treatment depth of 4 inches (so that design flows do not exceed grass height). The swale is approximately 6 feet wide at the bottom, and 1 foot deep

including 8 inches of freeboard. The sides of the swale are sloped at approximately 4H:1V creating a trapezoidal cross-sectional profile. Existing Site soils, or a sandy loam fill material, were used to line the swale bottoms and are considered adequate for both infiltration and pollutant removal (via filtration) of infiltrated flows.

The south swale drains to the east detention basin. It is approximately 920 ft long with an average longitudinal slope of approximately 0.7%. Given this very low slope, a perforated underdrain collection pipe was installed to ensure that ponded water drains from the swale [URQM, 1998]. The swale was sized for a design flow rate of 0.06 cfs and a maximum treatment depth of 4 inches (so that design flows do not exceed grass height). The swale is approximately 2 feet wide at the bottom, and 1 foot deep including 8 inches of freeboard. The sides of the swale are sloped at approximately 4H:1V creating a trapezoidal cross-sectional profile. Existing Site soils, or a sandy loam fill material, were used to line the swale bottoms and are considered adequate for both infiltration and pollutant removal (via filtration) of infiltrated flows.

The east swale also drains to the east detention basin. It is approximately 880 ft long with an average longitudinal slope of approximately 1.1%. This slope is adequate to allow for proper drainage without the need of an underdrain. The swale was sized for a design flow rate of 0.16 cfs and a minimum treatment depth of 4 inches (so that flows do not exceed grass height). The swale is approximately 2 feet wide at the bottom, and 1 foot deep including 8 inches of freeboard. The sides of the swale are sloped at approximately 4H:1V creating a trapezoidal cross-sectional profile.

Monthly inspection and maintenance will be conducted to maintain the conveyance capacity and pollutant removal efficiency of the swales, as well as the proper functioning of the underdrain pipes.

Design and as-built drawings and documentation are attached in **Appendix F**. Design calculations are presented in **Appendix I**.

2.2.4.2 Detention Basins

Two dry extended detention basins have been designed and constructed for the purpose of reducing sediment and other pollutant loading in stormwater discharges from the non-lagoon areas of the Site as shown in **Figure 2.2-3**. The basins will promote sedimentation of suspended sediment and sediment-associated pollutants prior to discharge of stormwater from the Site. Target pollutants include sediment, metals, oil and grease, and other hydrophobic organics.

Each detention basin is sized to treat at least 85 percent of the average annual runoff volume consistent with the volume-based design guidance from the WEF Urban Runoff Quality Management manual [URQM, 1998]. This design will capture and treat the smaller, more frequent storm events which produce most of the rainfall on a long term basis. This design will also capture and treat the first flush from the larger (>85 percentile) runoff events.

The west detention basin receives runoff from approximately 7.3 acres of grassed, non-lagoon area. A grassed swale (approximately 0.5% slope) along the west side of the Site conveys sheet flow towards the detention basin. The design volume of this detention basin is 4,400 cubic feet at freeboard elevation. The depth of the detention basin is 2 feet (including 1 foot of freeboard) and it has a trapezoidal cross-section with side slopes of approximately 4H:1V. The detention basin is 110 ft long and 55 ft wide, or a total surface area of 6,050 square feet, and with a length to width ratio of 2:1. The west detention basin discharges into a 24-inch CMP. This pipe then discharges into the east detention basin. The west detention basin has a low flow outlet (i.e., a series of orifices

located in a metal plate which covers the bottom 1 foot of the outlet pipe entrance) which controls drain times and retention times in the basin such that runoff will be retained for sufficient time to allow sediment and pollutants to settle. This outlet structure is designed such that the top half of the basin volume will drain over approximately 16 hours and the remaining volume will drain over approximately 32 hours, resulting in a total basin drain time of 48 hours. High flows will discharge through the 24-inch diameter CMP that drains to the east basin.

The east detention basin receives runoff from approximately 10.8 acres of grassed, non-lagoon area along the southern and eastern portions of the Site, as well as from discharge from the west detention basin. A rip rap energy dissipation structure is included to control influent flows from the 24-inch diameter CMP. Two grass swales, south and east, convey runoff towards the east detention basin (**Figure 2.2-3**). Rip rap energy dissipation structures are installed to control influent flows from the south and east swales into the east detention basin. The total storage volume of this detention basin is 27,000 cubic feet at spillway elevation. The depth of the detention basin is 2.5 to 4 feet (including 1 foot of freeboard; note that depth is greater near the outlet due to a 1.0% bottom slope that is used to facilitate proper drainage), and it has a trapezoidal cross-section with side slopes ranging from 3H:1V to 4H:1V. The detention basin is approximately 180 ft long and 150 ft wide, or a total surface area of 27,000 square feet. The east detention basin will drain via an 8-inch diameter PVC low flow outlet pipe that discharges to the gutter along Magnolia Street near the Site entrance as shown in **Figure 2.2-3**. Effluent from this 8-inch diameter drain pipe, before contacting the gutter, will be sampled in accordance with the monitoring program reporting requirements of the Industrial SWPPP. This water will then flow northward towards a 12-inch diameter roadside culvert, which connects to the regional municipal storm drain that runs eastward along the median of Hamilton Avenue towards the nearby flood control channel. Outlet flow is controlled through a series of orifices located in an open-top PVC riser pipe, so that drain times and retention times in the basin are sufficient to allow sediment and pollutants to settle. This outlet structure is designed such that the top half of the basin volume will drain over approximately 16 hours and the remaining volume will drain over approximately 32 hours, resulting in a total basin drain time of 48 hours. A 25-foot emergency spillway is also provided to allow for the controlled discharge of flood flows to the gutter along Magnolia, if needed.

Monthly inspection and maintenance will be conducted to maintain the sediment and pollutant removal efficiency of the basins. Outlet structures will be inspected for clogging and/or deterioration and appropriate maintenance will be implemented, as necessary. Sediment removal will also be conducted as necessary using properly trained personnel to avoid tracking and dispersal. Excavated material will be tested and proper disposal procedures will be implemented.

Design and As-built drawings and documentation are attached in **Appendix F**. Design calculations are presented in **Appendix I**.

2.3 Value Engineering and Construction Quality Assurance

The value engineering support and CQA monitoring activities were conducted by GeoSyntec Consultants of Huntington Beach, California, for the Emergency Action and construction of the surface water management system (Housekeeping Activities) at the Ascon Landfill Site. Value engineering included the development of design modifications to accommodate field conditions and the supervision and resolution of construction challenges afforded by unexpected Site conditions encountered during construction. The CQA activities included visual observation and monitoring of earthwork construction (grading), underdrain system construction, drilling mud removal, placement of a broken concrete buttress, and construction of an overall Site drainage and surface water management system. The complete Value Engineering and Construction

Quality Assurance Observation Report is included in **Appendix F**, and contains detailed documentation that the construction, value engineering, and CQA activities associated with the project were performed in general accordance with the design guidelines, drawings and specifications, and approved clarifications and modifications thereto. The design drawings, design changes, and as-built drawings are also included in **Appendix F**. **Figure 2.3-1** provides a completion aerial of the Site after the Emergency Action and Housekeeping activities identified in this report were completed, and is also included in **Appendix F**.

DTSC was regularly emailed descriptions of daily field activities. These fieldwork descriptions are included as **Appendix J**.

3.0 AIR MONITORING

3.1 Emergency Action Air Monitoring Program

Perimeter air monitoring was conducted as part of the Emergency Action work and included the collection of real-time perimeter air quality measurements and time-integrated perimeter air samples for laboratory testing at seven locations along the Site perimeter. Sampling and monitoring locations are shown in **Figure 3.1-1**.

Real-time perimeter air monitoring was conducted at each location using a "walk-around procedure" approximately every hour throughout each work day. Monitoring included measurements for VOCs using a PID, particulate matter (i.e., dust) using a Dust Track monitor, and odors using worker perception (recorded according to the SCAQMD odor classification scale). Action levels, or thresholds, for real-time air measurements were established, above which necessitated the use of mitigative measures such as the application of vapor suppressants or dust controls, or to modify work practices as needed, to control concentrations of VOCs, dust, and odors at the Site perimeter (see Section 2.1.2).

Wind speed and direction, determined by the onsite meteorological station, were logged each hour in conjunction with the perimeter monitoring. The station also provided continuous wind speed and direction data that were later used to create wind rose diagrams.

Perimeter air monitoring work tasks also included the collection of 10-hour[7] integrated SUMMA canister air samples from each of the seven perimeter locations each work day[8]. SUMMA canister samples were analyzed for VOCs by EPA Method TO-15. SUMMA canister data were evaluated against agency-approved chronic and acute chemical-specific comparison criteria (see **Table 3.1-1**).

Samples of air-borne dust were collected at two downwind and one upwind location using High-Volume particulate samplers for analyses for total particulate matter (PM-10) and metals and using polyurethane foam (PUF) samplers for analysis for polynuclear aromatic hydrocarbons (PAHs). The PUF and PM-10 Hi-Volume air sampling events were conducted during the first weeks of excavation of Lagoons 4 and 5 (see **Figure 2.1-4**).

3.2 Air Monitoring Results

3.2.1 Real-time Monitoring

Real-time air monitoring for VOCs, dust, and odor was conducted with hand held instruments once an hour at each perimeter air monitoring location. VOCs and dust were also monitored in the work area in compliance with the SCAQMD Rule 1150/1166 Permit. Perimeter air monitoring logs were sent to DTSC each week and are found in **Appendix K**. Logs of the monitoring results from work area and stockpile monitoring are included in **Appendix L**.

During three occasions, perimeter air measurements exceeded the action level of 5 ppm VOCs above background by PID, causing temporary work stoppage and mitigation. Also, work was stopped during three other occasions due to PID measurements exceeding the work face action level of 1,000 ppm VOCs within three inches from the excavated material.

[7] The SUMMAs were changed from 10-hour samples to 9-hour samples during the week of October 31, 2005, after daylight savings time ended, in order to prevent the work crews from working and sampling in the dark.
[8] The number of sampled perimeter locations was reduced to four during Site preparation and after the excavation and loading of drilling mud was completed.

Vapor suppressants such as foam, water, and misters were consistently used to mitigate odors during the excavation activities. However odors were frequently observed during excavation. Noticeable odors in the downwind locations generally correlated to times of excavation and handling of lagoon drilling mud and impacted materials in close proximity of the perimeter.

3.2.2 Meteorological Monitoring

Measured wind directions at the Site during the Emergency Action were found to be generally consistent with those recorded during previous perimeter air monitoring events (GeoSyntec, 2002, 2003a, b, 2004). The southwestern corner monitoring location, EA-AA-06, the same location as station AA-07 during previous work, including Pilot Study No. 3, is generally upwind of the Site and is considered a consistent background sampling location.

Wind rose diagrams for each day of work, corresponding to sampling events, and for all weekly data are included in **Appendix M**. Wind directions at different times of each day are shown in the perimeter air monitoring logs **(Appendix K)**.

3.2.3 SUMMA and High-Volume Samplers

During the Emergency Action activities conducted from July 2005 through January 2006, low concentrations of VOCs were detected at the property perimeter and compared to background concentrations. Measured concentrations of constituents were below health-based comparison criteria, with the exception of five detections of naphthalene that exceeded chronic comparison criteria. Daily exposure for an entire year at concentrations above the chronic comparison criteria would be needed before health effects might be observed. Therefore, the observed naphthalene concentrations did not result in a significant offsite exposure.

A project cumulative summary of the analytical results from each sampling location is provided in **Table 3.2-1**. Daily and weekly summaries of detected analytes from the samples collected from each perimeter air monitoring station are found in **Appendix N**. The laboratory data reports are provided in **Appendix O**.

Approximately ten percent of the data was evaluated with respect to data quality (see **Appendix P**). The data are considered acceptable for use in evaluating the air quality during the Emergency Action activities.

3.3 Air Monitoring Conclusions

Emergency Action perimeter air monitoring data indicate the ability to control VOCs, PAHs, and dust to approved levels at the property perimeter during excavation and waste handing activities. Based on the number of complaints from nearby residents, offsite migration of odors has been shown to be the most challenging aspect to control during active waste excavation and handling.

4.0 PUBLIC PARTICIPATION

4.1 Public Participation Plan for the Emergency Action

The Public Participation Plan for the Emergency Action was implemented through distribution of a community Fact Sheet, Public Meetings/Open House, public information resources, neighborhood work notification, and additional Site signage. These activities are described in more detail below.

4.2 Fact Sheet

A fact sheet was prepared by the RPs and DTSC to serve as both an explanation of the Emergency Action work and as a notice for the July 6, 2005, public meeting for the surrounding community. The fact sheet was distributed via direct mail to the approved mailing distribution list (residents and businesses within a one-quarter mile radius of the Site) and posted on the www.ascon-hb.com website prior to Emergency Action fieldwork and the public meeting.

4.3 Display Advertisement

Paid display advertisements announcing the July 6, 2005, public meeting and the Emergency Action fieldwork ran in local newspapers prior to the July 6, 2005, public meeting. Newspapers in which the advertisements were displayed were the Huntington Beach Independent, Huntington Beach Wave, and the Orange County Register.

4.4 Public Meetings

There was a public meeting on July 6, 2005, at the Huntington Beach City Council Chambers. The meeting was held from 6 p.m. to approximately 9:30 p.m., with the first portion of the meeting (6 – 7 p.m.) being an informal open house for one-on-one conversations with community members. A formal presentation was given by the Chief of Southern California DTSC and the RPs' Project Manager, followed by a question/answer session, until 9:30 p.m. K-rails were placed along the southbound side of Magnolia Street, south of the Site to Pacific Coast Highway, prior to truck hauling in response to concerns raised by the community at this public meeting regarding truck traffic.

An open house was held on October 5, 2005, from 6 p.m. through 9 p.m. at the Edison Community Center in Huntington Beach. Representatives from the DTSC, SCAQMD, RPs, and the Huntington Beach Fire Department were present to answer questions and explain the work activities. The open house was open to the community and enabled residents to see photographs, figures, and general updates of the Emergency Action work, plus some of the actual air sampling and monitoring equipment used at the Site. Residents were able to meet with the contractors doing the work and the agencies overseeing the work.

4.5 Site Signage

At the start of the fieldwork mobilization, additional Site signage was posted in the work area to inform the community of the Emergency Action work, providing an estimated schedule, work hours, and haul truck hours. The telephone number for an information line (discussed in Section 4.8 below) was also posted on the sign for questions or concerns from the community.

4.6 Work Notice Flyers

Work notification flyers with information and key contacts for the Emergency Action were distributed to adjacent neighbors and businesses prior to the start of the Emergency Action.

4.7 Other City Updates

Information regarding public meetings, work mobilization, and specific work activities was provided to key contacts with the City of Huntington Beach for internal notification. Presentations were given to City Council at City Council Study Sessions in June of 2005 and January of 2006, updating the City Council on the Emergency Action activities. A presentation was given to Edison High School staff on September 21, 2005, updating the staff on the Emergency Action activities. The Ascon Landfill Site's website, www.ascon-hb.com, was regularly updated throughout the Emergency Action to keep the public informed about current Site activities.

4.8. Ascon Emergency Action Information Line

An information line (714-388-1833) was set up before the public meeting on July 6, 2005, to give the surrounding community the opportunity to ask questions regarding the Emergency Action and identify any potential concerns or complaints. The information line was answered 24 hours a day, 7 days a week, beginning in the week that the Emergency Action field activities began in late July.

All calls into the information line and all other inquiries were responded to by Emergency Action staff. The majority of the calls were regarding odor complaints or questions or concerns about odors and emissions. There were only four calls regarding the truck traffic. In summary, there was a total of 67 inquiries about the Site during the Site preparation work and Emergency Action work (from July 6, 2005 – January 13, 2006), 41 of which were odor complaints or inquiries. The second most common subject of the inquiries was general Site or work inquiries, including: inquiries made for jobs and sales of products, inquiries about what the project is, as well as what is being done with the property after the work is completed, and two calls from reporters. The information line helped the workers and the entire Emergency Action staff understand what the main concerns of the community were during the Emergency Action work, and to better respond to the community's concerns.

5.0 EMERGENCY ACTION FINDINGS AND METRICS

5.1 Key Findings

The following are key findings from completion of Emergency Action activities conducted from July 2005 to January 2006:

- The method of excavating drilling mud from the internal sections of Lagoons 4 and 5--using a pontoon-mounted excavator inside the lagoon transferring material to another long-reach excavator--worked well. It is possible that a pontoon-mounted excavator may not be required if comparable low ground pressure (LGP) excavators are used in conjunction with timber mats to facilitate access.
- Drilling mud was firmer than expected in most locations of Lagoons 4 and 5 during the course of excavation. Despite this, the drilling mud still required processing with Site soils, as detailed in Section 2 above, to facilitate handling onsite and at the disposal facility.
- Soluble lead impacts in Site soils were pervasive, as detailed above, and this led to characterizing all materials to be disposed as non-RCRA (California) hazardous waste.
- The berm contained large quantities of drilling mud and construction debris from a few feet below previous top of grade to below final design elevation. Thus, the suspected weakness of the berm prior to the Emergency Action, with its potential for failure in a saturated state, was confirmed.
- Truck traffic did not prove to be a significant impact to the community, based on inquiries from nearby residents (see Section 4 above).
- There were no unacceptable health risks from the Emergency Action to onsite workers or offsite residents.
- Nuisance odors were difficult to control, both onsite and offsite, even with implementation of mitigation measures, and particularly when work activities were conducted at or near the Site perimeter. Odors were also the primary source of inquiries or complaints from the surrounding community.

5.2 Project Metrics

A summary of key project metrics, such as work duration, excavation rate, and disposal volume, is presented in **Table 5.2-1**.

6.0 REFERNCES

GeoSyntec Consultants, 2002, Report – Ambient Air Quality Evaluation, Ascon Site, Huntington Beach, California, September 13, 2002.

GeoSyntec Consultants, 2003a, May 2003 Perimeter Air Sampling Report, July 24, 2003.

GeoSyntec, 2003b, August 2003 Perimeter Air Sampling Report, October 16, 2003.

GeoSyntec Consultants, 2004a, Report of Findings, Perimeter Air Sampling Program, February 23, 2004.

Project Navigator, Ltd. and GeoSyntec Consultants, 2005a, Emergency Action Workplan, June 13, 2005.

Project Navigator, Ltd. and GeoSyntec Consultants, 2005b, Final Emergency Action Workplan, July 6, 2005.

TABLES

Table 2.1-1
Rationale for Well Destruction
Ascon Landfill Site Emergency Action

Well #	Casing Type	Casing Diam. (inches)	Boring Diam. (inches)	Well Depth (feet)	Boring Depth (feet)	Rationale
MW-4	PVC	4	10?[1]	44	44	Located in north berm to be restructured
MW-14	PVC	4	10?[1]	43	45	Located in north berm to be restructured
MW-20	PVC	2	8 5/8	64-74	74.5	Located within grading area for restructuring of L4/5 south berm
NMW-1	PVC	4	10	39	40	Located within grading area for north berm restructuring
P-1	PVC	6	12	33	39	Located within grading area for north berm restructuring and within concrete staging area
P-2	PVC	6	12	36	36	Located in north berm to be restructured
P-3	PVC	6	12	36	36.5	Located within equipment staging area and decon area
P-4	PVC	6	12	32.5	35.5	Located within grading area for restructuring of L4/5 south berm
B-2	Steel	2	10	76	77	Located within grading area for north berm restructuring and within concrete staging area
GP-1	PVC	1	2.5	31	32	Located within grading area for north berm restructuring and within concrete staging area
GP-2	PVC	1	2.5	32	31	Located within concrete staging area
GP-3	PVC	1	2.5	25	25	Located within construction equipment staging area and truck staging area
GP-4	PVC	1	2.5	25	25	Located within stockpile staging area
GP-24	PVC	1	2.5	35	38.5	Located within grading area for restructuring of L4/5 south berm and in high-traffic area
GP-25	PVC	1	2.5	40	40	Located in high-traffic area between staging areas

Notes:
1. No well construction diagram or information is available for the boring diameters of MW-4 or MW-14.

Table 3.1-1
Comparison Criteria for Target Compounds
Ascon Landfill Site Emergency Action

Chemical	Comparison Criteria									
	California OEHHA REL				ATSDR Inhalation MRL					
	Acute		Chronic		Acute		Intermediate		Chronic	
	ug/m3	ppbv	ug/m3	ppbv	ug/m3	ppbv	ug/m3	ppbv	ug/m3	ppbv
Volatile Organic Compounds										
Acetone	--	--	--	--	6.2E+04	2.6E+04	3.1E+04	1.3E+04	3.1E+04	1.3E+04
Acrylonitrile	--	--	5.0E+00	2.3E+00	2.2E+02	1.0E+02	--	--	--	--
Benzene	1.3E+03	4.1E+02	6.0E+01	1.9E+01	1.6E+02	5.0E+01	1.3E+01	4.0E+00	--	--
1,3 Butadiene	--	--	2.0E+01	9.0E+00	--	--	--	--	--	--
2-Butanone (MEK)	1.3E+04	4.4E+03			--	--	--	--	--	--
Carbon Disulfide	6.2E+03	2.0E+03	8.0E+02	2.6E+02	--	--	--	--	9.3E+02	3.0E+02
Chloroethane	--	--	3.0E+04	1.1E+04	4.0E+04	1.5E+04	--	--	--	--
Chloromethane	--	--	--	--	1.0E+03	5.0E+02	4.1E+02	2.0E+02	1.0E+02	5.0E+01
cis-1,2-Dichloroethene	--	--	--	--	--	--	--	--	--	--
Cumene (isopropylbenzene)	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethene (1,1-DCE)	--	--	7.0E+01	1.8E+01	--	--	7.9E+01	2.0E+01	--	--
Dichloromethane (Methylene Chloride)	1.4E+04	4.0E+03	4.0E+02	1.2E+02	2.1E+03	6.0E+02	1.0E+03	3.0E+02	1.0E+03	3.0E+02
1,4-Dioxane	3.0E+03	8.3E+02	3.0E+03	8.3E+02	7.2E+03	2.0E+03	--	--	3.6E+03	1.0E+03
Ethylbenzene	--	--	2.0E+03	4.6E+02	--	--	4.3E+03	1.0E+03	--	--
4-Ethyltoluene	--	--	--	--	--	--	--	--	--	--
n-Hexane	--	--	7.0E+03	2.0E+03	--	--	--	--	2.1E+03	6.0E+02
2-Hexanone	--	--	--	--	--	--	--	--	--	--
d-Limonene	--	--	--	--	--	--	--	--	--	--
4-Methyl-2-pentanone	--	--	--	--	--	--	--	--	--	--
n-Nonane	--	--	--	--	--	--	--	--	--	--
alpha-Pinene	--	--	--	--	--	--	--	--	--	--
Styrene	2.1E+04	4.9E+03	9.0E+02	2.1E+02	--	--	--	--	2.6E+02	6.0E+01
Tetrachloroethene (PCE)	2.0E+04	2.9E+03	3.5E+01	5.1E+00	1.4E+03	2.0E+02	--	--	2.7E+02	4.0E+01
Toluene	3.7E+04	9.8E+03	3.0E+02	8.0E+01	3.8E+03	1.0E+03	--	--	3.0E+02	8.0E+01
1,1,1-Trichloroethane (TCA)	6.8E+04	1.2E+04	1.0E+03	1.8E+02	1.1E+04	2.0E+03	3.8E+03	7.0E+02	--	--
Trichloroethene (TCE)	--	--	6.0E+02	1.1E+02	1.1E+04	2.0E+03	5.4E+02	1.0E+02	--	--
Trichlorofluoromethane (CFC 11)	--	--	--	--	--	--	--	--	--	--
Trichlorotrifluoroethane	--	--	--	--	--	--	--	--	--	--

Table 3.1-1
Comparison Criteria for Target Compounds
Ascon Landfill Site Emergency Action

Chemical	Comparison Criteria									
	California OEHHA REL				ATSDR Inhalation MRL					
	Acute		Chronic		Acute		Intermediate		Chronic	
	ug/m3	ppbv	ug/m3	ppbv	ug/m3	ppbv	ug/m3	ppbv	ug/m3	ppbv
1,2,4-Trimethylbenzene	--	--	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	--	--	--	--	--	--	--	--	--	--
m,p-Xylenes	2.2E+04	5.1E+03	7.0E+02	1.6E+02	4.3E+03	1.0E+03	3.0E+03	7.0E+02	4.3E+02	1.0E+02
o-Xylene	2.2E+04	5.1E+03	7.0E+02	1.6E+02	4.3E+03	1.0E+03	3.0E+03	7.0E+02	4.3E+02	1.0E+02
Vinyl Acetate	--	--	2.0E+02	5.7E+01	--	--	3.5E+01	1.0E+01	--	--
Polycyclic Aromatic Hydrocarbons										
Flouranthene	--	--	--	--	--	--	--	--	--	--
Naphthalene	--	--	9.0E+00	1.7E+00	--	--	--	--	3.7E+00	7.0E-01
Phenanthrene	--	--	--	--	--	--	--	--	--	--
Pyrene	--	--	--	--	--	--	--	--	--	--
Metals										
Antimony	--	NA	--	NA	--	NA	--	NA	--	NA
Arsenic	1.9E-01	NA	3.0E-02	NA	--	NA	--	NA	--	NA
Barium	--	NA	--	NA	--	NA	--	NA	--	NA
Cadmium	--	NA	2.0E-02	NA	--	NA	--	NA	--	NA
Chromium	--	--	--	--	--	--	--	NA	--	--
Copper	1.0E+02	NA	--	NA	--	NA	--	NA	--	NA
Lead	--	NA	--	NA	--	NA	--	NA	--	NA
Mercury	1.8E+00	NA	9.0E-02	NA	--	NA	--	NA	2.0E-01	NA
Nickel	6.0E+00	NA	5.0E-02	NA	--	NA	2.0E-01	NA	9.0E-02	NA
Silver	--	NA	--	NA	--	NA	--	NA	--	NA
Thallium	--	NA	--	NA	--	NA	--	NA	--	NA
Vanadium	--	NA	--	NA	2.0E-01	NA	--	NA	--	NA
Zinc	--	NA	--	NA	--	NA	--	NA	--	NA

Notes:
" -- " not available
NA - Not applicable to metals
OEHHA - Office of Environmental Health Hazard Assessment (California)
ATSDR - Agency for Toxic Substances and Disease Registry (Federal)
MRL - Minimal Risk Level
REL - Reference Exposure Level

Table 3.2-1
Summary of Laboratory Data
Perimeter Air Samples 12 July 2005 - 13 January 2006
Ascon Landfill Site Emergency Action

Analyte	Sample Location														
	EA-AA-01					EA-AA-02					EA-AA-03				
	Minimum (µg/m3)	Maximum (µg/m3)	Number analyzed	Number detected	Frequency of detection (%)	Minimum (µg/m3)	Maximum (µg/m3)	Number analyzed	Number detected	Frequency of detection (%)	Minimum (µg/m3)	Maximum (µg/m3)	Number analyzed	Number detected	Frequency of detection (%)
1,1-Dichloroethene	<0.61	0.85	72	1	1%	-	-	-	-	-	-	-	-	-	-
Chloromethane	0.69	1.5	72	57	79%	0.69	1.5	140	113	81%	<0.73	1.5	139	116	83%
1,3-Butadiene	-	-	-	-	-	<0.62	1.8	140	3	2%	<0.61	2.2	139	7	5%
Bromomethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chloroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acetone	7.6	730	72	67	93%	<0.76	66	140	111	79%	7	46	139	118	85%
Trichlorofluoromethane	0.94	2.1	72	72	100%	0.95	2.1	140	138	99%	0.93	2.2	139	137	99%
Methylene chloride	<0.65	7.8	72	36	50%	<0.62	4.1	140	60	43%	<0.61	3.7	139	48	35%
Trichlorotrifluoroethane	<0.61	0.94	72	3	4%	<0.62	4.9	140	9	6%	<0.61	4.1	139	11	8%
Carbon Disulfide	<0.61	7.5	72	3	4%	<0.62	4.8	140	10	7%	<0.61	14	139	10	7%
Methyl tert-Butyl Ether	-	-	-	-	-	-	-	-	-	-	<0.61	1.8	139	1	1%
Vinyl Acetate	<0.73	20	72	23	32%	<0.71	8.5	140	10	7%	<0.71	8.4	139	21	15%
2-Butanone (MEK)	<0.76	29	72	65	90%	<0.62	10	140	120	86%	<0.70	8.7	139	120	86%
cis-1,2-Dichloroethene	-	-	-	-	-	-	-	-	-	-	<0.61	1.1	139	1	1%
n-Hexane	<0.63	4.8	72	23	32%	<0.63	9.9	140	106	76%	<0.63	14	139	80	58%
Chloroform	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	<0.61	2.6	72	14	19%	<0.62	7.8	140	71	51%	<0.63	9.9	139	75	54%
Carbon Tetrachloride	-	-	-	-	-	<0.62	1.5	140	1	1%	-	-	-	-	-
Trichloroethene	<0.61	1.1	72	1	1%	<0.62	1.1	140	2	1%	<0.61	33	139	3	2%
1,4-Dioxane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone	<0.61	9.4	72	2	3%	<0.62	1.3	140	1	1%	<0.61	1.1	139	1	1%
1,1,2-Trichloroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	<0.76	29	72	64	89%	<0.63	19	140	133	95%	<0.63	33	139	120	86%
2-Hexanone	<0.61	2.7	72	7	10%	<0.62	2.2	140	12	9%	<0.61	2.3	139	10	7%
Tetrachloroethene	<0.65	3.3	72	15	21%	<0.62	2.8	140	28	20%	<0.61	4.5	139	27	19%
Ethylbenzene	<0.61	1.9	72	6	8%	<0.62	6.8	140	66	47%	0.62	6.9	139	54	39%
m,p-Xylenes	<1.2	7.3	72	14	19%	<1.3	14	140	90	64%	<1.3	30	139	74	53%
Styrene	<0.61	0.99	72	4	6%	<0.62	160	140	25	18%	<0.61	3	139	24	17%
o-Xylene	<0.61	2.6	72	10	14%	<0.63	5.3	140	79	56%	<0.63	12	139	64	46%
n-Nonane	<0.61	0.85	72	3	4%	<0.63	14	140	71	51%	0.62	3.9	139	43	31%
1,1,2,2-Tetrachloroethane	-	-	-	-	-	<0.62	1	140	1	1%	-	-	-	-	-
Cumene	<0.61	380	72	1	1%	<0.62	2.6	140	7	5%	<0.61	4.5	139	1	1%
alpha-Pinene	<0.61	450	72	3	4%	<0.62	3.8	140	16	11%	<0.61	3.4	139	17	12%
4-Ethyltoluene	<0.61	1.2	72	1	1%	<0.62	3.3	140	28	20%	<0.61	3.3	139	17	12%
1,3,5-Trimethylbenzene	<0.61	1.5	72	1	1%	<0.62	3.1	140	21	15%	<0.61	3.3	139	12	9%
1,2,4-Trimethylbenzene	<0.61	7	72	12	17%	<0.63	12	140	95	68%	<0.63	13	139	75	54%
1,4-Dichlorobenzene	-	-	-	-	-	<0.62	0.74	140	1	1%	-	-	-	-	-
d-Limonene	<0.61	1.6	72	5	7%	<0.62	4.5	140	22	16%	<0.61	10	139	19	14%
Naphthalene	<0.61	23	72	4	6%	<0.62	10	140	30	21%	<0.61	3.9	139	8	6%

Notes:

Dash (-) indicates no detection at sample location

For maximum the maximum detected value is reported.

For minimum the lower of either the minimum detected value or minimum reported limit presented.

Table 3.2-1
Summary of Laboratory Data
Perimeter Air Samples 12 July 2005 - 13 January 2006
Ascon Landfill Site Emergency Action

Analyte	Sample Location														
	EA-AA-04					EA-AA-05					EA-AA-06				
	Minimum (µg/m3)	Maximum (µg/m3)	Number analyzed	Number detected	Frequency of detection (%)	Minimum (µg/m3)	Maximum (µg/m3)	Number analyzed	Number detected	Frequency of detection (%)	Minimum (µg/m3)	Maximum (µg/m3)	Number analyzed	Number detected	Frequency of detection (%)
1,1-Dichloroethene	<0.61	3.5	130	1	1%	-	-	-	-	-	-	-	-	-	-
Chloromethane	0.69	1.6	130	109	84%	<0.71	1.6	86	60	70%	<0.76	2.3	140	113	81%
1,3-Butadiene	<0.61	1.3	130	3	2%	-	-	-	-	-	<0.63	1.1	140	3	2%
Bromomethane	-	-	-	-	-	-	-	-	-	-	<0.63	0.74	140	1	1%
Chloroethane	-	-	-	-	-	<0.62	3	86	1	1%	-	-	-	-	-
Acetone	<0.85	42	130	111	85%	<0.76	61	86	71	83%	7.4	260	140	112	80%
Trichlorofluoromethane	0.84	5.3	130	128	98%	0.93	3.3	86	86	100%	0.92	2.1	140	138	99%
Methylene chloride	<0.61	4.1	130	45	35%	<0.62	2.5	86	8	9%	<0.64	4	140	52	37%
Trichlorotrifluoroethane	<0.61	0.87	130	2	2%	<0.63	3.4	86	9	10%	<0.63	2.9	140	7	5%
Carbon Disulfide	<0.61	1.4	130	3	2%	<0.62	1.1	86	1	1%	<0.63	19	140	7	5%
Methyl tert-Butyl Ether	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vinyl Acetate	<0.72	14	130	29	22%	<0.76	21	86	21	24%	<0.74	33	140	24	17%
2-Butanone (MEK)	<0.63	11	130	114	88%	<0.69	8.1	86	73	85%	<0.74	38	140	126	90%
cis-1,2-Dichloroethene	-	-	-	-	-	<0.62	2	86	1	1%	-	-	-	-	-
n-Hexane	<0.61	4.8	130	70	54%	<0.62	8.3	86	24	28%	<0.64	4.9	140	65	46%
Chloroform	-	-	-	-	-	-	-	-	-	-	<0.63	1.4	140	1	1%
Benzene	<0.61	5	130	61	47%	0.62	2.7	86	15	17%	<0.63	5	140	56	40%
Carbon Tetrachloride	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroethene	<0.61	4.7	130	6	5%	<0.62	1.2	86	2	2%	<0.63	35	140	8	6%
1,4-Dioxane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
4-Methyl-2-pentanone	<0.61	1.3	130	2	2%	<0.62	1.2	86	3	3%	<0.63	1.8	140	5	4%
1,1,2-Trichloroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	<0.63	20	130	101	78%	<0.63	11	86	53	62%	<0.65	23	140	96	69%
2-Hexanone	<0.61	2.8	130	7	5%	<0.62	2.1	86	6	7%	<0.63	2.4	140	8	6%
Tetrachloroethene	<0.61	3.4	130	29	22%	<0.62	5.7	86	9	10%	<0.63	3.4	140	29	21%
Ethylbenzene	<0.61	3.4	130	46	35%	<0.62	2	86	7	8%	<0.63	3.5	140	40	29%
m,p-Xylenes	<1.2	14	130	59	45%	<1.2	8.9	86	18	21%	<1.3	14	140	57	41%
Styrene	<0.61	26	129	22	17%	<0.62	1.3	86	4	5%	<0.63	3.3	140	18	13%
o-Xylene	<0.61	4.8	130	51	39%	<0.62	3.2	86	9	10%	<0.63	4.9	140	50	36%
n-Nonane	<0.61	3.1	130	22	17%	<0.62	1.1	86	3	3%	<0.63	1.9	140	18	13%
1,1,2,2-Tetrachloroethane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cumene	<0.61	23	130	2	2%	<0.63	58	86	2	2%	<0.63	2.5	140	1	1%
alpha-Pinene	<0.61	7.2	130	20	15%	<0.63	53	86	6	7%	<0.63	8.5	140	17	12%
4-Ethyltoluene	<0.61	1.4	130	10	8%	-	-	-	-	-	<0.63	1.5	140	12	9%
1,3,5-Trimethylbenzene	<0.61	1.2	130	7	5%	-	-	-	-	-	<0.63	1.2	140	6	4%
1,2,4-Trimethylbenzene	<0.61	4.2	130	57	44%	<0.62	2.4	86	13	15%	<0.63	4.4	140	46	33%
1,4-Dichlorobenzene	<0.61	0.86	130	1	1%	-	-	-	-	-	<0.63	0.89	140	3	2%
d-Limonene	<0.61	72	130	23	18%	<0.63	110	86	8	9%	<0.63	12	140	21	15%
Naphthalene	<0.61	1.7	130	5	4%	<0.62	4.1	86	6	7%	<0.65	2.2	140	6	4%

Notes:

Dash (-) indicates no detection at sample location

For maximum the maximum detected value is reported.

For minimum the lower of either the minimum detected value or minimum reported limit presented.

Table 3.2-1
Summary of Laboratory Data
Perimeter Air Samples 12 July 2005 - 13 January 2006
Ascon Landfill Site Emergency Action

Analyte	Sample Location				
	EA-AA-07				
	Minimum (µg/m3)	Maximum (µg/m3)	Number analyzed	Number detected	Frequency of detection (%)
1,1-Dichloroethene	-	-	-	-	-
Chloromethane	<0.69	1.2	73	53	73%
1,3-Butadiene	-	-	-	-	-
Bromomethane	-	-	-	-	-
Chloroethane	-	-	-	-	-
Acetone	<0.89	55	73	62	85%
Trichlorofluoromethane	0.9	1.8	73	71	97%
Methylene chloride	<0.69	1.4	73	5	7%
Trichlorotrifluoroethane	<0.69	0.86	73	3	4%
Carbon Disulfide	<0.69	1.3	73	1	1%
Methyl tert-Butyl Ether	-	-	-	-	-
Vinyl Acetate	<0.77	9.4	73	19	26%
2-Butanone (MEK)	<0.74	12	73	63	86%
cis-1,2-Dichloroethene	-	-	-	-	-
n-Hexane	<0.69	6.5	73	18	25%
Chloroform	-	-	-	-	-
Benzene	<0.69	2.7	73	14	19%
Carbon Tetrachloride	-	-	-	-	-
Trichloroethene	<0.69	100	73	3	4%
1,4-Dioxane	<0.69	0.96	73	1	1%
4-Methyl-2-pentanone	<0.69	2.1	73	8	11%
1,1,2-Trichloroethane	-	-	-	-	-
Toluene	<0.69	11	73	38	52%
2-Hexanone	<0.69	3.5	73	8	11%
Tetrachloroethene	<0.69	1.4	73	2	3%
Ethylbenzene	<0.69	2	73	3	4%
m,p-Xylenes	<1.4	7.5	73	17	23%
Styrene	<0.69	1.1	73	4	5%
o-Xylene	<0.69	2.7	73	7	10%
n-Nonane	<0.69	1.5	73	5	7%
1,1,2,2-Tetrachloroethane	-	-	-	-	-
Cumene	-	-	-	-	-
alpha-Pinene	<0.69	1.2	73	1	1%
4-Ethyltoluene	<0.69	0.75	73	1	1%
1,3,5-Trimethylbenzene	-	-	-	-	-
1,2,4-Trimethylbenzene	<0.69	3.2	73	6	8%
1,4-Dichlorobenzene	-	-	-	-	-
d-Limonene	<0.69	1.1	73	4	5%
Naphthalene	<0.69	1.9	73	5	7%

Notes:

Dash (-) indicates no detection at sample location

For maximum the maximum detected value is reported.

For minimum the lower of either the minimum detected value or minimum reported limit presented.

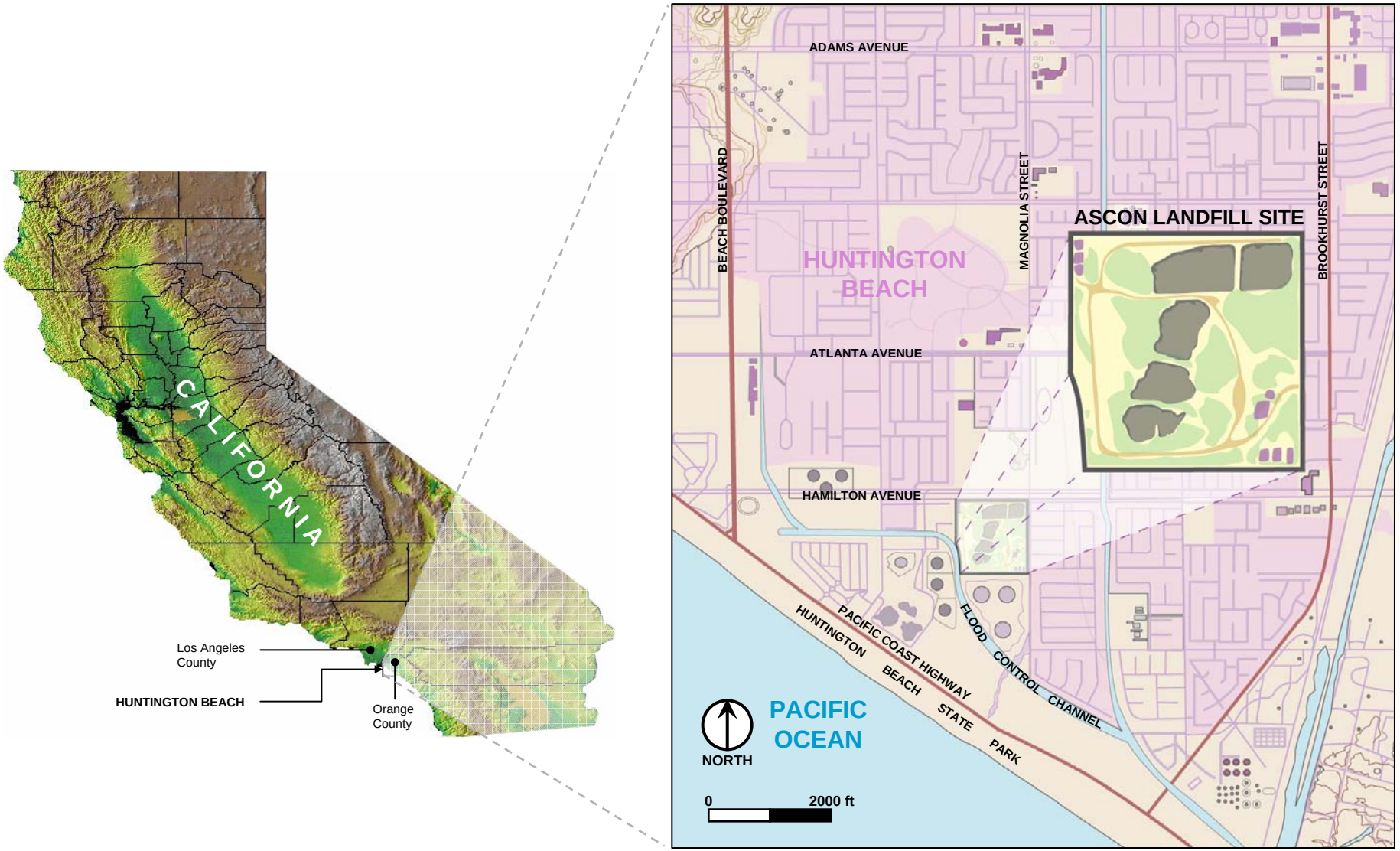
Table 5.2-1
Project Metrics
Ascon Landfill Site Emergency Action

Health and Safety		
1	Work Hours, total	39,000
2	OSHA Recordables	0
3	Lost Time/Lost Work Day Incidents	0
4	First Aid Incidents	6
5	Near Miss Reports	15
6	Spills	0
7	Loss Prevention Observations (LPO)	120
Public		
1	Total Inquiries (including through hotline)	67
2	Odor/Dust Complaints Received (61%)	41
3	Odor/Dust Complaints Received from one household (49% of odor complaints)	20
4	Truck Complaints (6%)	4
5	Other Inquiries (33%)	22
Transportation and Disposal (T&D)		
1	Truck Loads Leaving Site to KHF [(1)]	2,597
2	Total Truck Miles Driven to/from Site and KHF	1,038,800
3	Approximate Tons Shipped from Site	62,294
4	Average Tons per Day	989
Excavation		
1	Approximate Cubic Yards Excavated	
	a. Lagoons 4 and 5	34,000
	b. North (Hamilton) Berm	4,500
	c. Drainage Swales	5,000
	d. West Slope	2,200
	e. Other Borrow Sources	1,300
	Total	47,000
2	Material Density Conversion Factor (ton/cy)	1.33
3	Daily Excavation Rate, Lagoons 4 & 5 (cy)	700
4	Time to Excavate Drilling Mud from Lagoons 4 and 5 (days)	58
Odors and Emissions Control		
1	Rusmar® Foam Applied, gallons (at twice recommended concentration)	4,600
2	EcoCare 250® odor control concentrate (mister), gallons used	110
3	Soil Seal® applied to stockpiles and lagoons, gallons used	3,000
Air Monitoring		
1	Number of SUMMA canister samples (TO-15 VOCs)	774
2	Number of Puff and PM10 samples	19
3	Number of exceedances (1 + 2)	5
4	Percentage of samples exceeded	0.65%
5	Stopped work (> 5 ppm with PID at perimeter monitoring station)	3
6	Stopped work (> 1,000 ppm with PID in work area)	3

Notes
KHF - Kettleman Hills Facility

[(1)] End dump truck loads - Does not include several roll-off bin loads of material from toe drain excavation that were shipped out after the main lagoon excavation activities concluded.

FIGURES

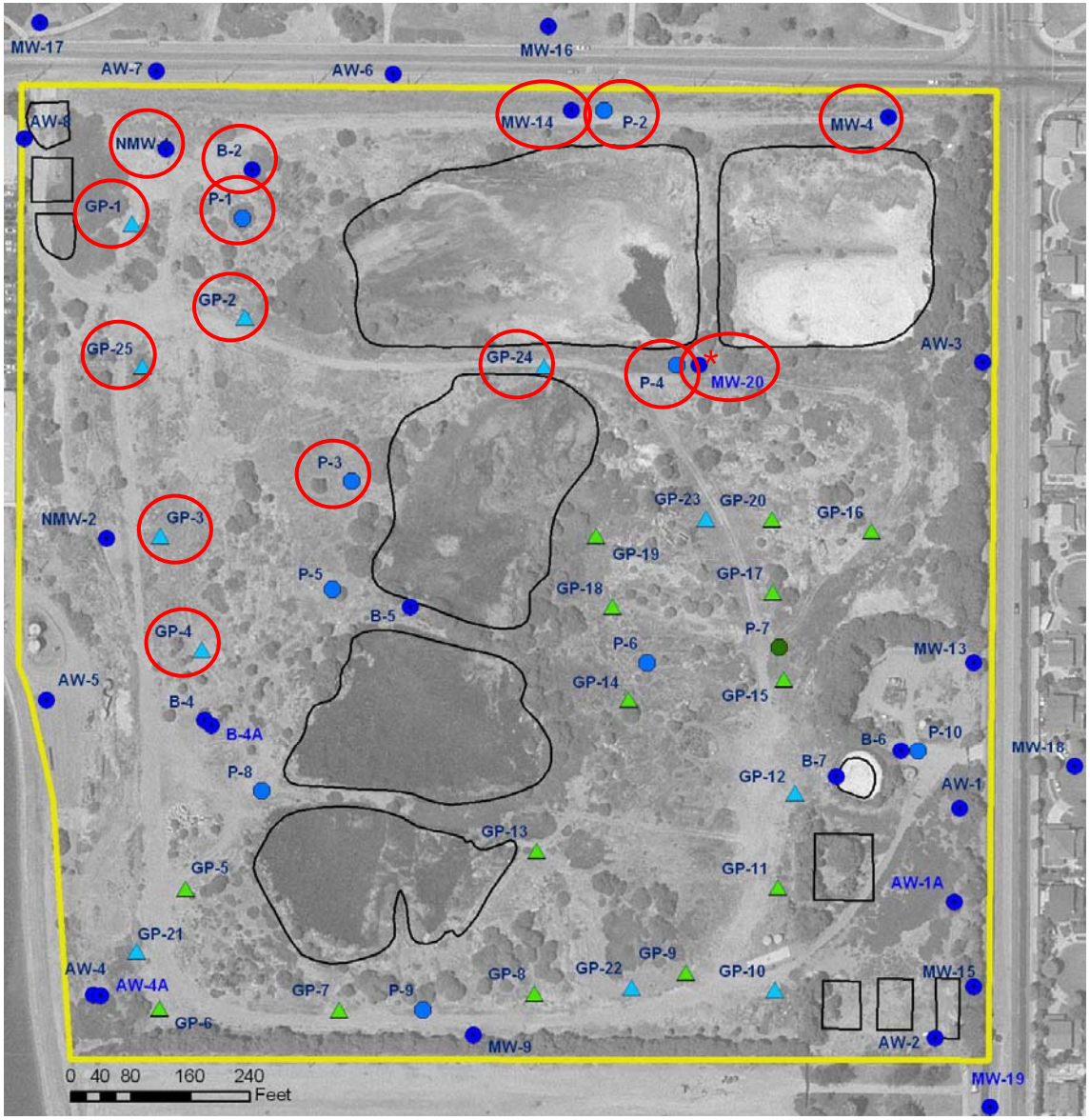


Site Location Map

Figure 1.1-1

Site Vicinity and Features Map

Figure 1.1-2



Legend

- Monitoring Well in SPA
- Piezometer in SPA
- Geoprobe Well in SPA
- Piezometer in Perched Zone
- Geoprobe Well in Perched Zone
- Ascon Site Boundary
- Pit or Lagoon
- Destroyed GW Monitoring Point

SPA = Semi-Perched Aquifer

* = Monitoring well completed in deeper portion of SPA

Well #	Casing Type	Casing Diam. (inches)	Boring Diam. (inches)	Well Depth (feet)	Boring Depth (feet)
MW-4	PVC	4	10?	44	44
MW-14	PVC	4	10?	43	45
MW-20	PVC	2	15/8	64-74	74.5
NMW-1	PVC	4	10	39	40
P-1	PVC	6	12	33	39
P-2	PVC	6	12	36	36
P-3	PVC	6	12	36	36.5
P-4	PVC	6	12	32.5	35.5
B-2	Steel	2	10	76	77
GP-1	PVC	1	2.5	31	32
GP-2	PVC	1	2.5	32	31
GP-3	PVC	1	2.5	25	25
GP-4	PVC	1	2.5	25	25
GP-24	PVC	1	2.5	35	38.5
GP-25	PVC	1	2.5	40	40

Location of Destroyed Groundwater Monitoring Points

Figure 2.1-1

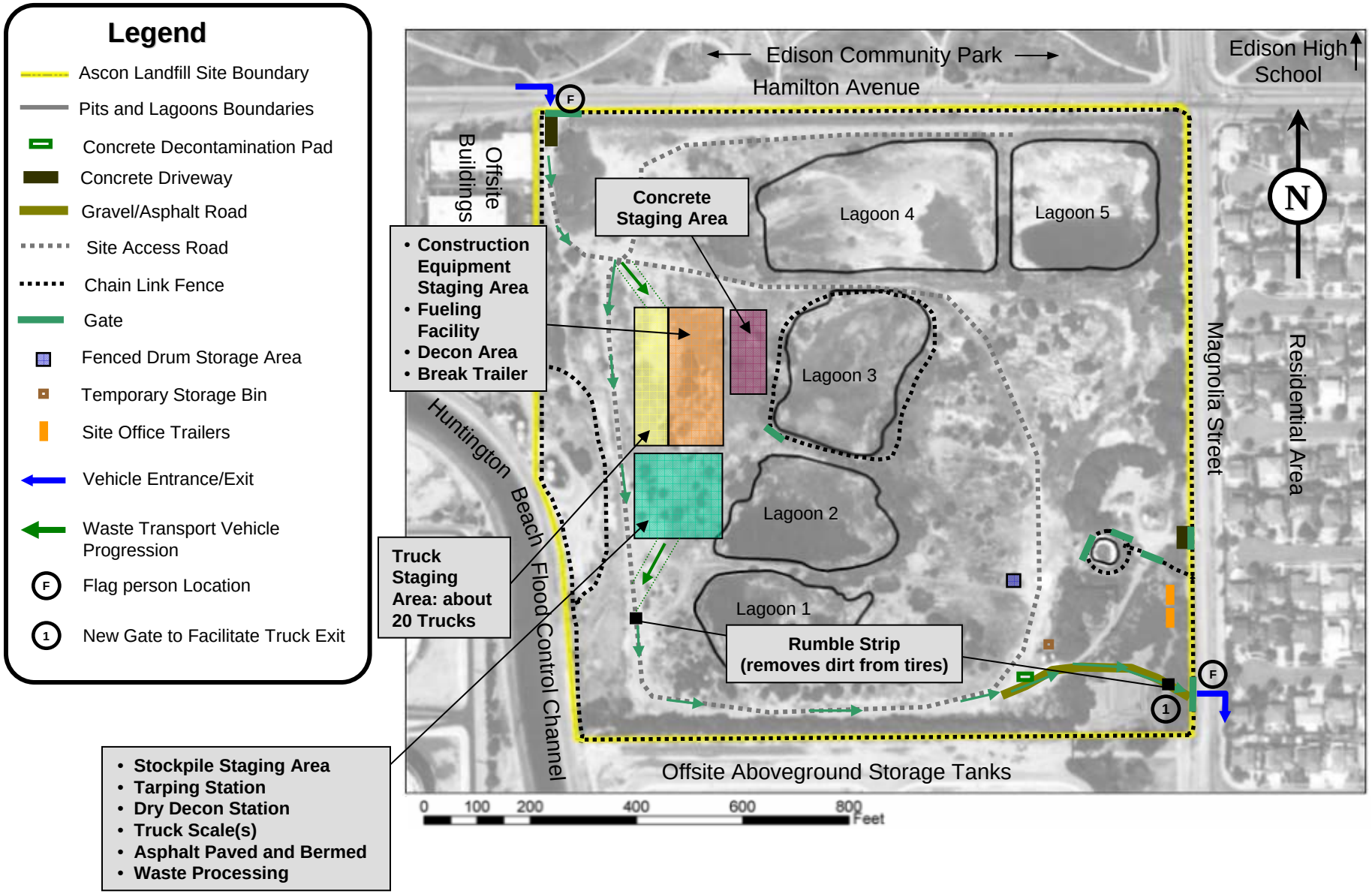
Tarped Truck

Pontoon-Mounted Excavator

Front End Loader

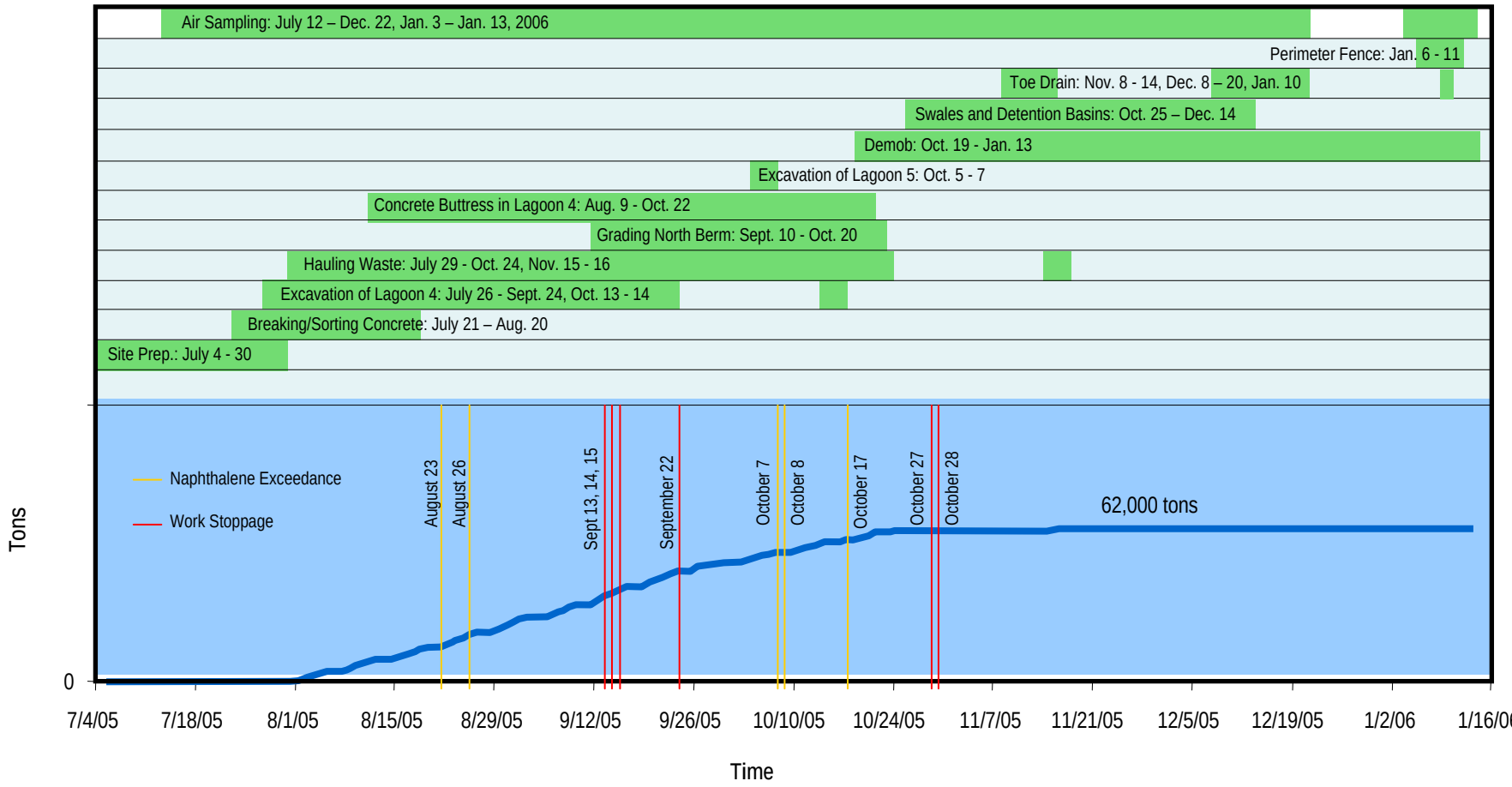
Long Reach Excavator

Emergency Action Equipment	Figure 2.1-2



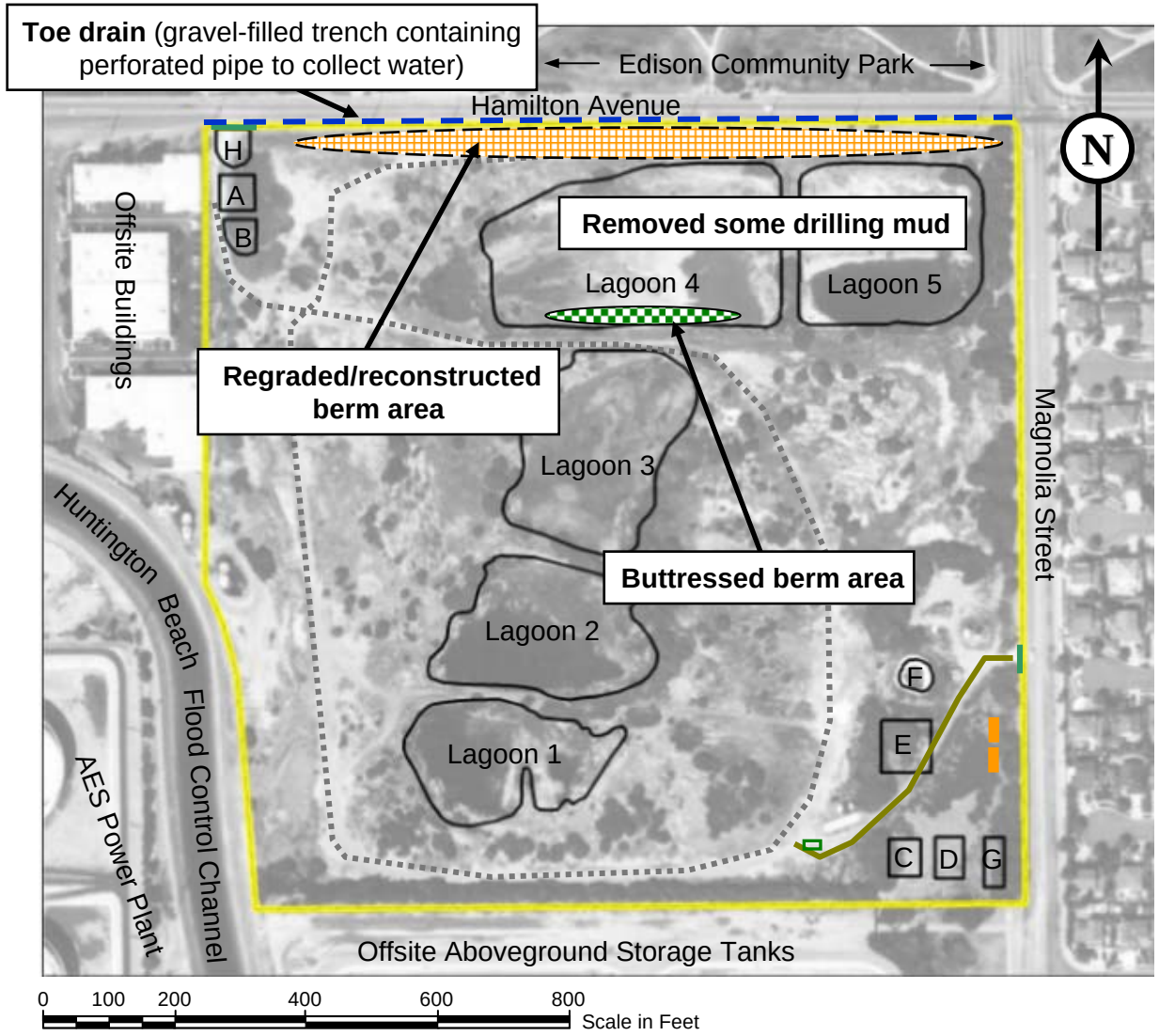
Emergency Action Site Layout

Figure 2.1-3



Timeline of Emergency Action Key Activities

Figure 2.1-4



Legend

- Ascon Landfill Site Boundary
- Pits and Lagoons Boundaries
- Concrete Decontamination Pad
- Asphalt-Paved Road
- Dirt/Gravel Access Road
- Site Entry Gate
- Site Office Trailer
- Toe Drain

Emergency Action Metrics

- Total truck trips: ~2,600 trucks
- ~34,000 cy of drilling mud removed
- Total of ~47,000 cy (~62,000 tons) material removed
- Daily avg. material shipped offsite: ~990 tons/day
- Daily avg. truck trips: ~40 trucks/day (> 1 MM truck miles traveled without incident)
- Disposal facility: all loads were shipped to Kettleman Hills

Emergency Action Summary of Key Activities

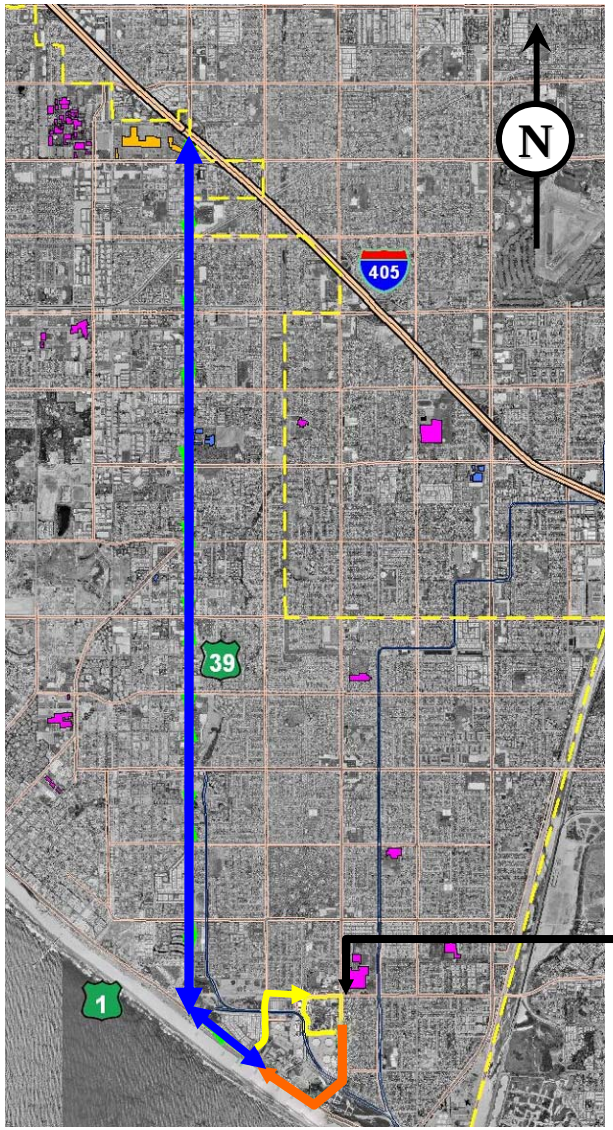
Figure 2.1-5

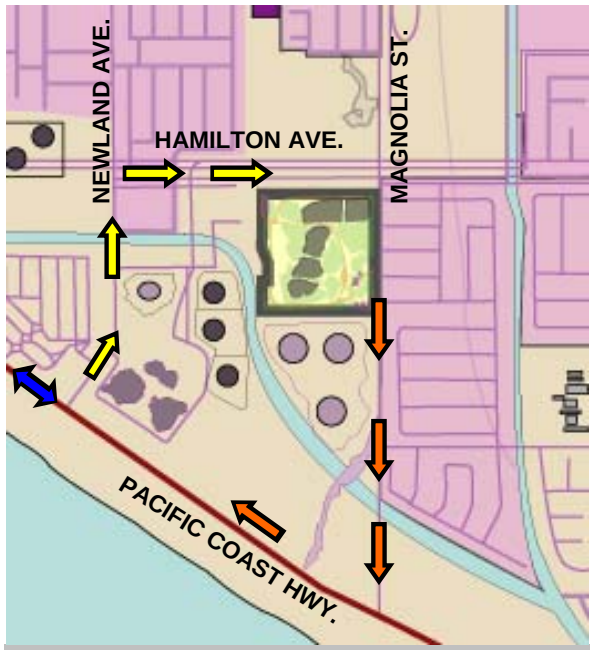
Legend

- Drainage Channel
- Huntington Beach City Limit
- Outgoing and Incoming Transportation Route
- Incoming (Unloaded Truck) Route
- Outgoing (Loaded Trucks) Route
- 39 Beach Boulevard (Hwy 39)
- 1 Pacific Coast Highway

Scale

0.0 0.5 1.0 1.5 2.0 Mi



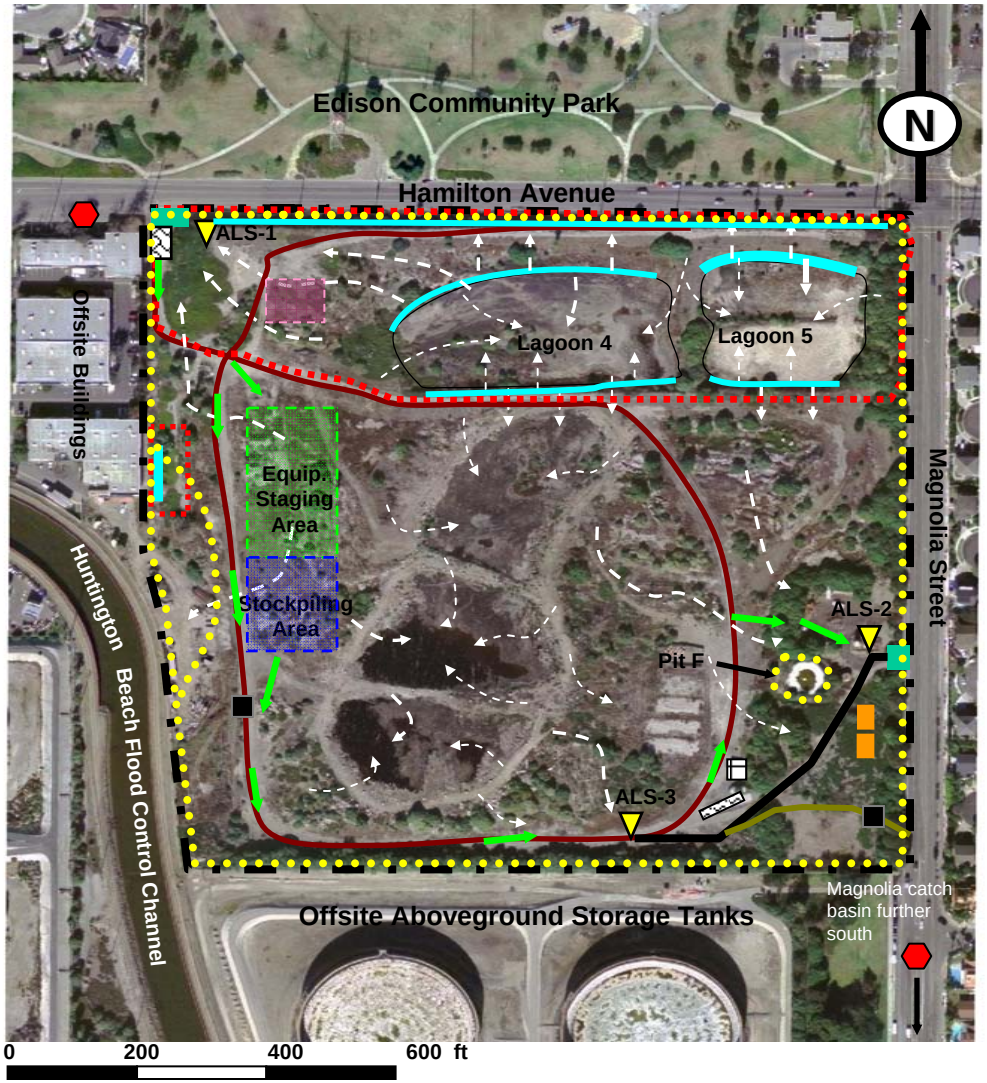


Unloaded and Loaded Trucks
Truck Entrance (Unloaded Trucks)
Truck Exit (Loaded Trucks)

Ascon Landfill Site

Emergency Action Offsite Truck Route

Figure 2.1-6

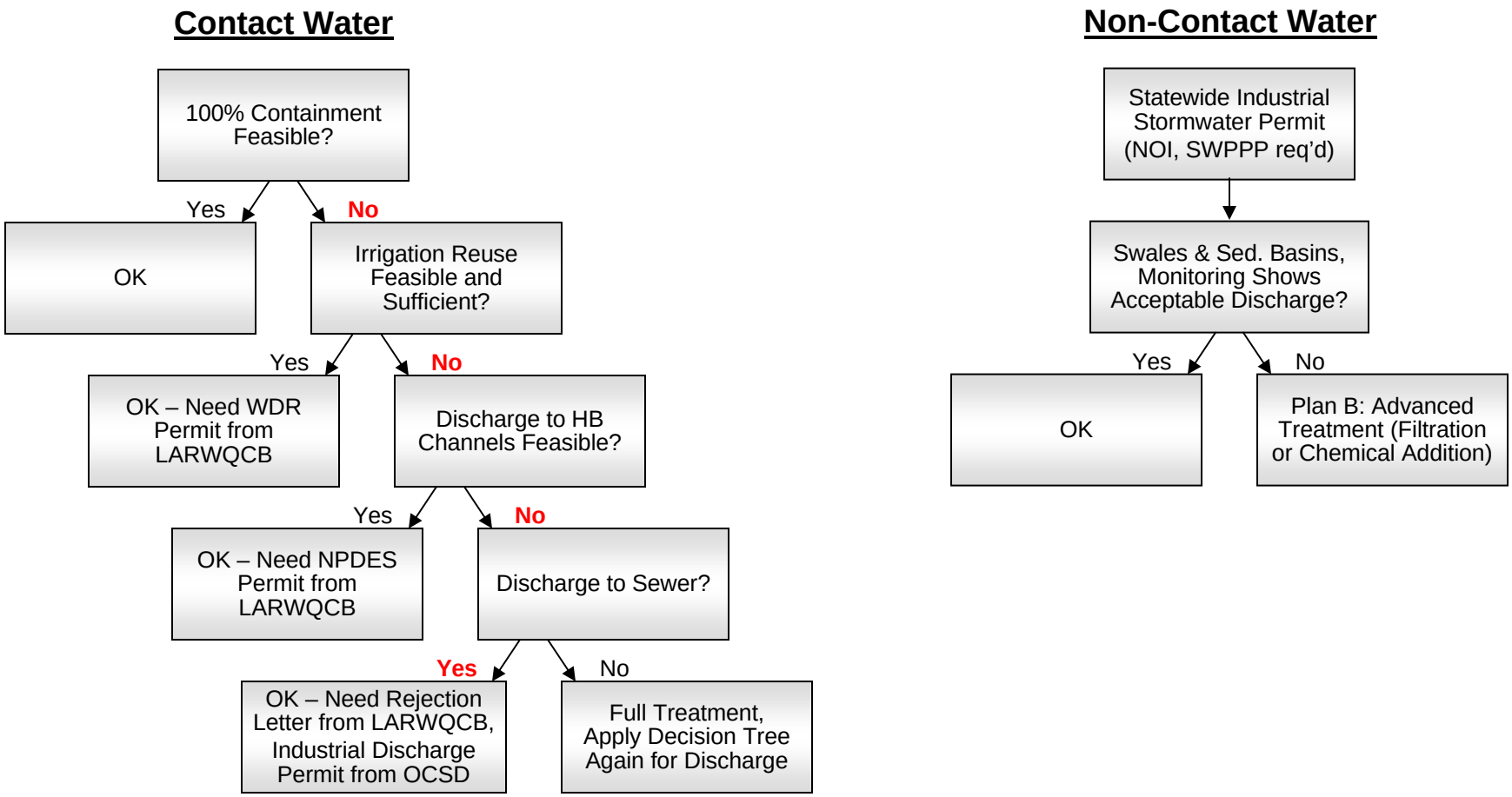


Legend

Symbol	Description	Applicable BMPs
	Ascon Landfill Site Boundary	None
	Disturbed Area	EC-1 Scheduling EC-2 Preservation of Existing Vegetation Seeding as Permanent Stabilization
	Chain Link Fence	None
	Slope/Berm Grading and Stabilization	EC-7 Geotextiles/mats EC-9 Earth Dikes/ Drainage Swales EC-11 Slope Drains EC-10 Velocity / Energy Dissipation Devices SE-1 Silt Fence SE-5 Fiber Rolls SE-6 Gravel Bag Berm
	Site Access Road	WE-1 Wind Erosion Control NS-1 Water Conservation Practices
	Waste Transport Vehicle Route	None
	Asphalt Paved Road	None
	Gravel Road	None
	Rumble Strip	None
	Entrance/Exit Gates	TC-1 Stabilized Construction Entrance / Exit TC-3 Entrance/Outlet Tire Wash SE-7 Street Sweeping and Vacuuming
	Concrete Driveway	None
	Site Office Trailers	WM-5 Solid Waste Management WM-9 Sanitary/Septic Waste Management NS-6 Illicit Connection/Discharge Detection and Reporting
	Temporary Storage Bin	WM-1 Material Delivery and Storage
	Concrete Decontamination Pad	WM-10 Liquid Waste Management
	Soil/Debris Stockpiling Area	EC-7 Geotextiles and Mats SE-6 Gravel Bag Berm WM-3 Stockpile Management WM-7 Contaminated Soil Management
	Equipment & Truck Staging Area, Fueling Facility	MW-1 Material Delivery and Storage NS-8 Vehicle and Equipment Cleaning NS-9 Vehicle and Equipment Fueling NS-10 Vehicle and Equipment Maintenance MW-4 Spill Prevention and Control MW-6 Hazardous Waste Management MW-10 Liquid Waste Management
	Concrete Staging Area	WM-2 Material Use
	Direction of Drainage	None
	Stormwater Sampling Location	None
	Catch Basin	SE-10 : Storm Drain Inlet Protection

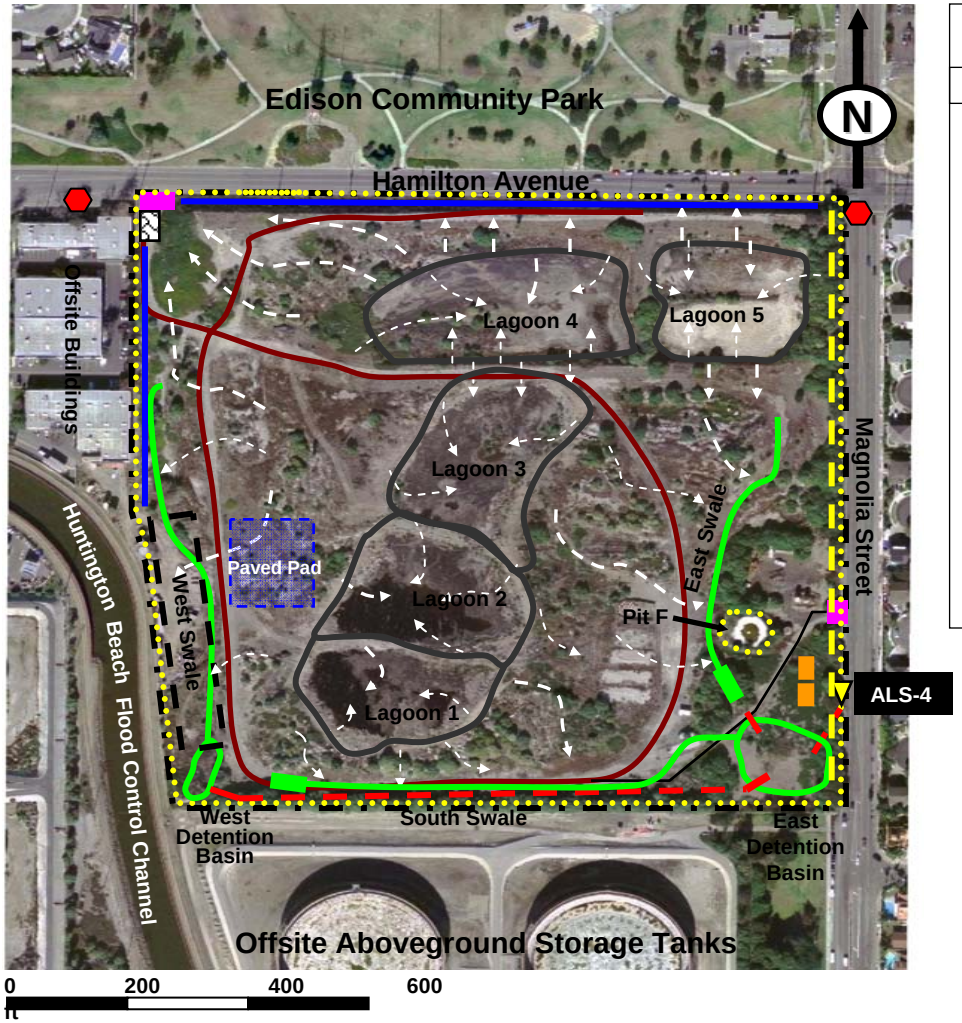
Construction Stormwater Pollution Prevention Plan Site Map and Best Management Practices

Figure 2.2-1



Surface Water Management Strategies – Contact and Non-Contact Stormwater

Figure 2.2-2



LEGEND

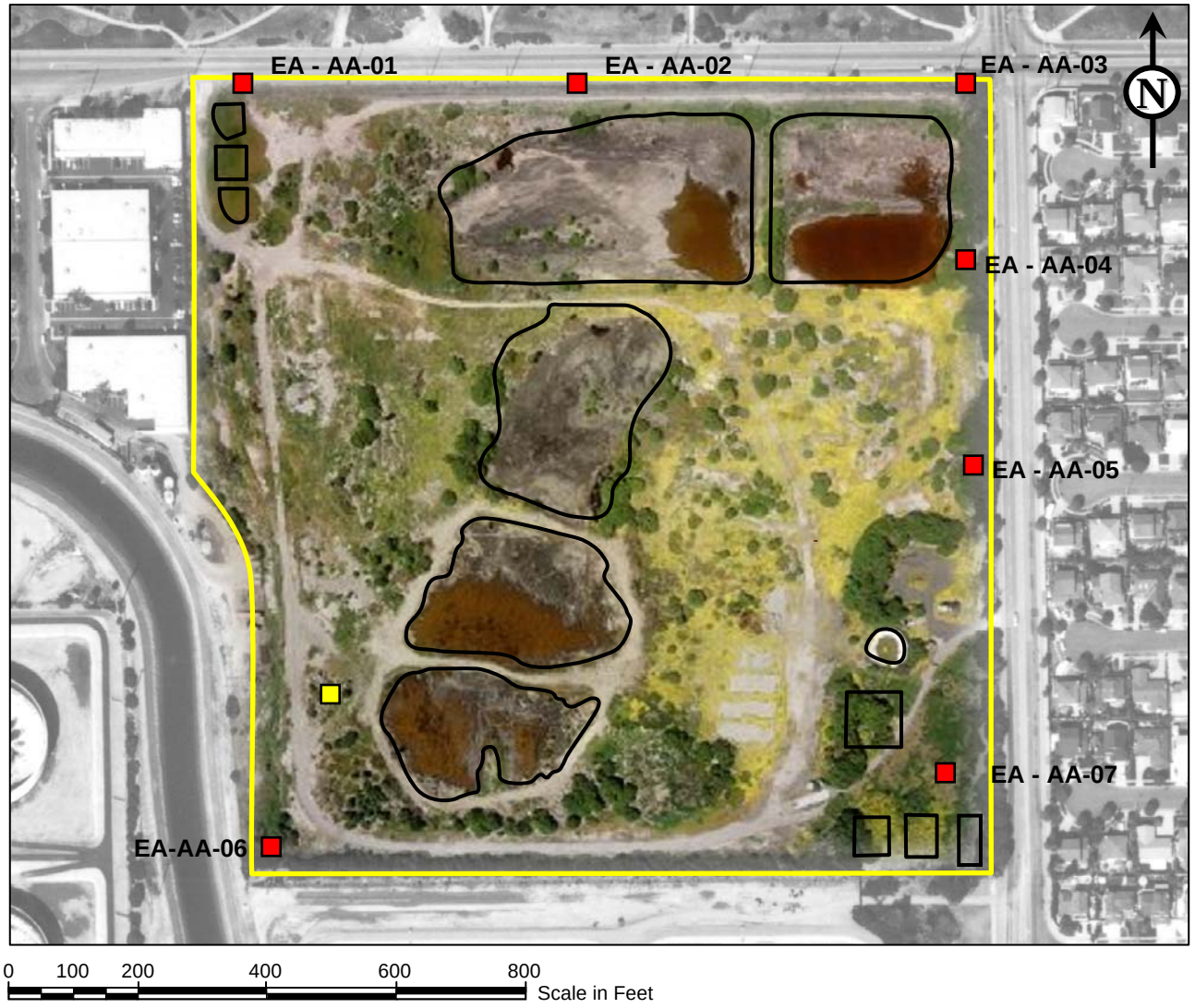
Symbol	Description	Symbol	Description
	Ascon Landfill Site Boundary		Paved Pad
	Chain Link Fence		Direction of Drainage
	Swale and Detention Basin		Stormwater Sampling Location
	Berms		Catch Basin
	Site Access Road		Drain Pipe
	Asphalt Paved Road		Erosion Control Blanket, Hydroseeding, Silt Fencing(North Berm Only), and Underdrain at Toe of Slope
	Entrance/Exit Gates		Straw waddle
	Concrete Driveway		
	Site Office Trailers		

Industrial Stormwater Pollution Prevention Plan Site Map and Best Management Practices

Figure 2.2-3

Ascon Landfill Site 2006 Aerial Photograph

Figure 2.3-1



LEGEND

- Ascon Landfill Site Boundary
- Pits and Lagoons Boundaries
- Meteorological Monitoring Station (to monitor wind conditions)
- Air Monitoring and Sampling Location (Approximate) for Real - Time and Time-Integrated Sampling (monitoring for odors, dust, and chemical vapors)

Note: Air sampling was conducted at an elevated location during the berm reconstruction.

Emergency Action Air Monitoring Locations

Figure 3.1-1