Romic Environmental Technologies Corp.

AZD 009015389

Chandler, Arizona
TSD Facility

Section J

Closure Plan

Revision 2A

December 2004

TABLE OF CONTENTS

The Tables, Figures and Attachments are presented as separate sections following the main body of the text.

TABLE OF CONTENTS

TABLES

FIGURES

ATTACHMENTS

SECTION J - CLOSURE PLAN

1 CLOSURE PLAN

40 CFR 270.14(b)(13), 264.112

This Closure Plan (Plan) describes the procedures Romic Environmental Technologies Corp. (Romic) will follow to close the existing and planned hazardous waste management units at the Chandler Arizona facility (Facility). Closure activities will be performed in accordance with 40 CFR 264 Subpart G. The Facility does not currently have and is not planned to have waste piles, surface impoundments, land treatment, landfills, or incinerators at the site; thus the closure requirements for these units do not apply and are not included in this Plan.

The Plan describes the procedures that Romic will use to close the Facility when hazardous waste activities cease at this location. In accordance with regulatory guidance, the Plan includes a closure cost estimate that assumes that site closure will be performed by an independent third party. The Plan also assumes that all applicable Corrective Action requirements have been satisfied prior the initiation of closure activities.

1.1 Facility Description

Facility Identification
Romic Environmental Technologies Corp. (Romic)
Chandler Facility
6760 West Allison Rd.
Chandler, Arizona 85226
Telephone: 520-796-1040
EPA/State Identification Number: AZD 009015389

The Facility receives a broad range of hazardous wastes for treatment and disposal management. The various treatment and disposal processes utilized and planned at the Facility include:

- **Solids Consolidation:** Sorting and homogenizing containers of solid hazardous waste to remove liquids and non-uniform solid debris (e.g., sharps) prior to consolidating materials with similar hazard characteristics into a uniform, bulk waste stream for off-site transfer and disposal.

- **Solvent Recycling**: The distillation of used thinners and solvents (e.g., lacquer thinner, methanol, acetone, mineral spirits) to achieve a reclaimed solvent product of specified purity for resale or reuse.

- **Ethylene Glycol Recycling:** The distillation of used ethylene glycol (e.g., antifreeze) to achieve a useable product for resale or reuse.

- **Fuel Blending**: The mixing of impure waste materials of a sufficiently high heat content to produce a consistent alternative fuel for use in off-site cement kilns.

- **Wastewater Treatment (Planned)**: Treatment of onsite or off-site wastewaters that are contaminated with organic and inorganic contaminants using various aqueous treatment techniques including distillation, filtering and ultra-violet oxidation to meet local sewer agency discharge limits.

- **Neutralization (Planned)**: Adjustment of caustic and acidic wastes to achieve a neutral pH. Neutralized waste streams may undergo secondary industrial wastewater treatment to remove organic contaminants.

- **Inorganic Treatment (Planned)**: Treatment of inorganic wastes using neutralization/pH adjustment, chemical precipitation, oxidation/reduction, de-watering, filtration, and stabilization.

- **"Off-Site" Transfer:** Waste shipped off-site for treatment or disposal without on-site treatment by the Facility.

The Facility also does the following waste management practices:

- **Consolidation of Small Containers**: Field service technicians receive small quantity chemicals (e.g., outdated chemicals, lab packs) packaged in DOT-approved containers by hazard class for sorting and transfer to the appropriate treatment process.

- **Can Crushing**: Small containers (e.g., liter, 1- and 5-gallon) that contain chemical residuals (e.g., latex paint, motor oil, roofing materials) are received and crushed in compatible batches. The residuals are collected and transferred to the appropriate treatment process.

- **Aerosol Depressurization**: Commercial aerosol containers are punctured to remove flammable propellant and contents. The propellants are released to an air emission control unit. The hazardous material is collected and transferred to the fuel blending operation.

- **Drum Crush:** Empty and nearly empty drums are crushed. Residue removed from nearly empty drums is collected and treated on-site, as appropriate.

- **Truck Wash:** The interior of tanker trucks is washed out at the Facility. Rinse water is collected and transferred to the appropriate treatment process.

The Facilities hazardous waste management units and associated operations are discussed in detail in Sections D and E of the Part B Application. Figure J-1, Facility Layout, is the site map of the existing and planned facilities, and identifies areas discussed in the Plan.

1.2 Closure Performance Standards

40 CFR 264.111

The closure activities conducted under the Plan at the Facility will:

- Minimize the need for further maintenance;

- Control, minimize, or eliminate to the extent necessary to the post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated run-off, or hazardous waste decomposition products to the ground, surface water, groundwater, or atmosphere; and

- Confirm that any equipment, structures, or buildings left in place on site meet the performance standards established for site closure.

In general, the closure of each hazardous waste management units at the Facility will be accomplished by:

1. Removing or processing all regulated waste present at the Facility at the time of closure;

2. Decontaminating all contaminated equipment, containment system components, structures, and soils to specified closure performance standards; and/or

3. Removing for disposal from the site all contaminated equipment, containment system components, structures, soils, and equipment. All wastes will be properly characterized to determine if they are hazardous in accordance with 40 CFR 262.11 and transported, if necessary, off-site to an appropriate TSDF.

Site closure will be based on a combination of both "clean closure" and "risk-based closure" performance standards depending upon the specific hazardous waste management unit closed at the site. The hazardous waste management unit will be considered clean closed if any detectable metal constituents identified in 40 CFR 261 Appendix VIII are below background levels while detectable organic constituents are below EPA Region 9's Preliminary Remediation Goals (PRGs) or equivalent. A risk-based closure for a hazardous waste management unit will demonstrate through a human health and ecological risk assessment (HHERA)) that any detectable hazardous constituents identified in 40 CFR 261 Appendix VIII will not impact any environmental media in excess of Agency-established criteria or equivalent. The risk-based clean-up standards will be developed at time of closure, using current toxicological protocols and site data collected at that time.

The performance standards for clean closure and risk-based closure will be agreed upon with the Regional Administrator prior to start of site closure. An independent professional engineer registered in the State of Arizona will monitor all closure activities to confirm that they are conducted in accordance with the Plan and that the performance standards are met.

Closure performance standards for each specific hazardous waste management unit at the Facility are described as follows:

- **Metal Storage Tanks –**The closure performance standard for metal storage tanks will be based on a clean closure. Following decontamination, the interior surfaces of the tanks will be sampled for verification as specified in the Sampling and Analysis Plan (SAP).

- **Plastic Storage Tanks –** No performance standards will be established for plastic storage tanks since they will be removed from the site for disposal. The tanks and their contents will be managed appropriately as a hazardous or non-hazardous waste, depending on the waste characterization. If the plastic storage tanks were previously used to manage an RCRA-listed hazardous waste, then the tanks shall be considered hazardous, but they may be further tested to determine if they meet land disposal restriction (LDR) requirements.

- **Lined Containment Areas –**The closure performance standard for lined containment areas in good condition (no visible cracks, gaps, or deterioration of the liner through to the concrete) will be based on a clean closure. Verification chip and wipe samples will be collected and analyzed according to the SAP.

- **Unlined Containment Areas –** The closure performance standard for unlined containment areas and containment areas with liners that have deteriorated will be based on a risk-based closure. Verification samples will be collected and analyzed according to the SAP.

- **Miscellaneous Equipment –**All mobile or fixed equipment that has been used to process or handle hazardous wastes will be cleaned, decontaminated, and re-used, salvaged, or transported off-site, if necessary, to an appropriate treatment, storage or disposal facility (TSDF).

- **Rinse Water and Wastewater -**Wastewater generated from decontamination activities will be characterized and transported off-site, if necessary, to an appropriate TSDF. Confirmation of equipment decontamination will be based on the final rinse water meeting clean closure requirements.

- **Soils –** The closure performance standard for potentially impacted soils will be based on a risk-based closure. Soil samples will be collected and analyzed according to the SAP.

- **Groundwater –** No closure performance standards are established for groundwater. The Closure Plan assumes that all applicable Corrective Action requirements, including groundwater remediation, have been completed before the initiation of site closure activities. If groundwater contamination is present at site closure, risk-based clean-up standards will be developed. The SAP includes contingencies for groundwater well installation and monitoring if required.

- **Storm Water –** Appropriate engineering controls will be established during site closure to limit the spread of potential contamination from storm water run-on and run-off. Storm water will be isolated or diverted, as necessary, to avoid contact with contaminated materials. Impacted storm water will be collected, characterized, and transported, if necessary, off-site to an appropriate TSDF.

1.3 Estimated Date of Closure

There are no current circumstances that would indicate the need to close the Facility. However, for the purposes of this Plan, the Facility will be assumed to operate for an additional 16 years and have an estimated closure date of December 1, 2020. The Facility may remain in service past this date as economic and regulatory factors allow. If the closure date is to be extended, such will be indicated in an amendment to the Plan as indicated in Section 1.4.

1.4 Amendment of Closure Plan

40 CFR 264.112(c)

The Plan may require amendment and approved modification in accordance with the procedures under 40 CFR 124 and 270. The EPA and Romic will review the Plan for adequacy at least 60 days prior to commencement of any partial or final closure at the site. The Plan may also be amended the upon any of the following situations:

- Changes in operating plans or Facility design affecting the Plan (such as the construction of new units);
- Change in anticipated year of closure;
- Unexpected events arising during partial or final closure that affect the Plan;
- Changes in regulations that affect Facility closure; or
- Request of the Regional Administrator.

If necessary, Romic will submit to the Regional Administrator a request to modify the Plan at least 60 days prior to any anticipated change. Romic will also request a Plan modification within 60 days after any unanticipated event, such as following the effective date of a regulatory change or per the Regional Administrator's request, unless the Regional Administrator request occurs during partial or final closure. If a Regional Administrator's request occurs during partial or final closure, Romic will submit a request to modify the Plan within 30 days of the Administrator's request.

Post-Closure Applicability

The Facility is not considered to be subject to post-closure requirements, however post-closure requirements may become applicable under the following contingencies:

- Site groundwater contamination is confirmed at the time of closure, or
- Non-attainment of the closure performance standards for specific hazardous waste management units (i.e., risk-based clean-up standards).

1.5 Maximum Waste Inventory for Site Closure

40 CFR 264.112(b)(3), 270.14(b)(13)

The maximum waste Inventory for site closure includes the unit capacities for the hazardous waste management units described in Tables D-1 through D-5 of the Part B Permit Application. In addition, closure activities will generate additional volumes of hazardous and non-hazardous waste that will require collection, handling, and disposal. These wastes may include lube oils and fuels remaining in auxiliary tanks within decommissioned process equipment; wastes received from off-site, process-generated operations (such as tank bottom sludges); and wastes generated from on-site activities (such as rinse waters from cleaning tanks and contaminated personal protective equipment [PPE]). The basis for the maximum waste inventory for site closure is summarized in Table J-1. The estimated volumes of closure-generated wastes are further detailed in the Closure Cost Estimate worksheets in Attachment A.

1.6 Disposition of Wastes

During closure, Romic will treat, if possible, all hazardous wastes accumulated onsite in appropriately authorized waste management units. The on-site treatment will include the inventory of all off-site hazardous waste remaining at time of closure as well as any wastes generated on-site during closure. Wastes that cannot be treated onsite under the prevailing Part B permit will be sent offsite to an appropriate TSDF.

Prior to sending any hazardous wastes offsite, Romic will assess and qualify each TSDF to determine if they are permitted to receive the specific waste. In addition, an effort will be made to determine if the TSDFs are in good standing with the authorizing agency. Standard TSDF waste acceptance procedures will be followed including establishing waste profiles. Table J-2 describes potential TSDFs that may be used for handling liquid and solid hazardous wastes generated by closure activities or may be present at time of closure.

Any wastes sent offsite to a TSDF during closure will be placed in proper shipping containers that meet the United Nations performance-oriented packaging standards or bulk containers that meet the U.S. Department of Transportation (DOT) requirements under 49 CFR 172 et seq. All containers used will be properly labeled at the time of waste generation and manifested in accordance with generator standards under 40 CFR 262. A hazardous waste manifest form approved by the state where the receiving TSDF is located will accompany all shipments of hazardous waste. Shipments will be placarded and marked in accordance with U.S. DOT rules. If the receiving state has no special manifest form, a Uniformed Manifest form will be used.

LDR Forms will be filled out for any hazardous wastes subject to LDR standards. The forms will identify all the applicable waste codes and treatment standards. The LDR forms will be either maintained with the profile or they will accompany each hazardous waste manifest, depending on the standard procedures of the receiving TSDF. Copies of any LDR forms used will be included with the Closure Report.

1.7 Closure Schedule

40 CFR 264.112(b)(6), 270.14(b)(13)

Romic will notify the Regional Administrator in writing at least 90 days prior to the date final closure is expected to begin. This notification will provide time to review and update the Plan, including the establishment of approved closure performance standards for the Facility.

Since on-site generated wastes will be treated within the Facility during closure, a portion of the Facility's hazardous waste management units will remain active. As hazardous waste management units, discrete Facility areas and equipment are closed per the Plan; they will be isolated and marked so that they will not be further used during closure. Any closure-generated wastes will be placed in authorized container storage areas that have not yet been closed.

Due to the variety and quantity of wastes and the size of the closure areas, closure may take longer than 180 days. Therefore, Romic will submit a request for an extension of the 180-day closure time allowance. Table J-3, Closure Schedule, presents the anticipated time required to complete each closure step. Total estimated time to site closure is 51 weeks following notification to the Regional Administrator.

1.8 Closure Activities

40 CFR 264.112(b)(1) through (7), 270.14(b)(13)

This section describes the closure activities for the hazardous waste management units at the Facility. Romic will close the Facility in a sequential manner to allow for various waste management units to remain operational during the site closure. Romic intends to perform the following general tasks during closure and until the Regional Administrator accepts the final site closure certification:

- Romic employees will be directly involved in closure of various hazardous waste management units. However, the closure cost estimates are based on third party closure of the site.
- All required daily, weekly, and monthly Facility inspections will continue to be performed.
- Normal site security measures, as discussed in Section F of the Part B Permit Application, will be maintained.
- All required and applicable standard operating procedures for proper waste management and worker health and safety will be followed at all times.
- All hazardous wastes within the Facility will be processed in the same manner as they would be under normal operating circumstances. Hazardous wastes and process residues will continue to be segregated and stored according to their compatibility.

An independent professional engineer registered in the State of Arizona will monitor all closure activities to confirm that they are conducted in accordance with the Plan. The certifying engineer, or their agent, will visit the Facility at least weekly during site closure. The inspections during closure will become part of the Facility's operating record.

1.8.1 Inventory Elimination

40 CFR 264.112(b)(3), 270.14(b)(13)

After receiving the final volume of hazardous waste into the Facility, the existing container inventory will be sorted, segregated and eliminated through on-site treatment or disposal to an appropriate off site TSDF. Empty containers will be salvaged, reconditioned, or disposed of, as necessary, at an appropriate off-site TSDF. Bulk shipment by rail is assumed for wastes sent to TSDFs that can receive rail shipments. Remaining unused treatment chemicals and materials will be sold for beneficial reuse or will be transported for reuse at another Romic facility. Non-hazardous waste will be collected into roll-off bins and disposed of at an appropriate off site facility.

Waste drums will be inventoried in accordance with information on the hazardous waste labels and Romic's waste tracking numbers (see Section C of the Part B permit application). An allowance has been made that a small percentage of the drum inventory during closure will have labels that are illegible or non-existent. These drums will be subject to additional hazard categorization (HAZCAT) to identify the waste type and therefore, the appropriate disposal disposition. Sampling of waste drums for HAZCAT is described in the SAP. After the HAZCAT procedure, the waste drums may be eliminated through on-site treatment or disposal to an appropriate off site TSDF.

1.8.2 Decontamination Procedures

40 CFR 264.112(b)(4), 264.114, 270.14(b)(13)

The decontamination requirements and procedures are based on federal regulations, USEPA closure guidance manuals and Romic company policies and standard operating procedures. The decontamination requirements and procedures are designed to ensure that all federal requirements for decontamination during site closure will be met. Decontamination activities during closure will include the following:

- All equipment, including mobile equipment and earth moving equipment that comes in contact with hazardous waste constituents during closure, will be decontaminated before leaving the contaminated area or removal from the Facility.
- All fixed contaminated equipment, system components, and structures will be decontaminated, if possible, and removed for salvage or beneficial use, or transported offsite to an appropriate TSDF for disposal.

- Contaminated secondary containment structures, the exterior and interior surfaces of bulk storage tanks, transfer piping and associated process equipment will be decontaminated, if possible, to achieve the closure performance standards if they are to be left on-site. As an option, the contaminated structures, storage tanks, and associated equipment may not be decontaminated and would be demolished, cut up, and transported offsite as a hazardous waste to an appropriate TSDF.
- Contaminated environmental media (soil and/or groundwater) identified during site closure will be treated on-site to approved closure performance standards or removed and transported offsite to an appropriate TSDF for disposal.
- Any residues generated during decontamination activities will be handled in accordance with all applicable hazardous waste requirements of 40CFR 264.114. Rinse water and wastewater generated during decontamination activities will be treated on-site or transported offsite to an appropriate TSDF.

Decontamination Technologies

Tanks, piping, containment structures and process equipment at the Facility will be decontaminated using one or more of the following technologies:

- Physically scraping the surfaces with appropriate hand tools to remove attached materials;
- Rinsing with low-pressure water or a detergent/surfactant cleaning solution to remove scaling and surface debris;
- Hydroblasting with high-pressure water to scour the surface to remove contaminants and carry them away from the surface; or
- Steam cleaning to remove significant deposits of oils or other petroleum contaminants that cannot be adequately removed by other means.

Decontamination of Concrete Containment Pads

All concrete containment surfaces including, but not limited to, the container storage areas, loading/unloading areas, container processing areas, and tank system containment structures will be decontaminated to the maximum extent possible. The decontamination procedures will also apply to the sump collection systems throughout the Facility. If it is determined that a containment area cannot be successfully decontaminated, then the structures may be demolished, removed and disposed of off-site at a permitted TSDF.

The containment surfaces will initially be inspected for any cracks, gaps or other major structural defects prior to decontamination to determine potential subsurface soil sampling locations. The containment pads then will be decontaminated by an appropriate decontamination technology. Areas with extensive staining or impacted contamination will be noted and addressed. All scarified materials removed from the concrete surfaces and wash water generated during decontamination will be isolated and contained within the containment pad using appropriate engineering controls, such as sand bags, visqueen plastic sheeting, and temporary absorbent barriers.

Following decontamination, all rinsate wash water and debris will be removed using pumps or vacuum devices, and loaded into 55-gallon drums for additional characterization. Incompatible rinsate and cleaning residues will not be commingled. The collected rinsate will be treated on-site, if possible, or transported off site to an approved TSDF. The plastic sheeting or equivalent materials will also be removed and drummed for off-site disposal at an approved TSDF.

After the concrete surfaces have been cleaned and dried, the containment surfaces will be inspected again for additional cracks or gaps for soil sampling locations. Areas damaged by the decontamination process will not be considered in this assessment.

After the containment areas have been decontaminated, verification sampling will be conducted according to the SAP. Concrete chip and wipe samples will be collected from each structure as appropriate and analyzed for the specific Contaminants of Concern (COC). Upon verification that the containment area has met the closure performance standards, the area will be marked and isolated, or demolished and removed for disposal off site as a non-hazardous waste. Additional investigation of the subsurface foundation soils may also be conducted.

Decontamination of Tank Systems

All regulated storage tanks, associated pumps and piping will be decontaminated at the Facility. If it is determined that a storage tank or piece of equipment cannot be successfully decontaminated, then the structure or equipment may be cut up, removed and disposed of off-site at a permitted TSDF.

Decontamination of bulk storage tanks will be accomplished using hydroblasting or another cleaning methods to achieve the closure performance standards. Field tasks will consist of draining the storage tank of its contents, decontamination of the tank exterior surface, purging the internal space, removing and cleaning all associated piping, and confined space entry to clean the tank interior. Additional decontamination and closure details for individual storage tanks, piping and pumps are provided in the Attachment C of the Plan.

Following decontamination, all rinsate wash water and debris will be removed from the tank using pumps or vacuum devices, and loaded into 55-gallon drums for additional characterization. Incompatible rinsate and cleaning residues will not be commingled. The collected rinsate will be treated on-site, if possible, or transported off site to an approved TSDF.

Verification wipe sampling of the bulk storage tanks will be conducted per the SAP. Decontaminated tanks that meet the closure performance standard may be re-used, sold for re-use, or scrapped. Decontaminated

tanks may be left in place on the containment pad unless removal of concrete structures or soil under the containment system becomes necessary. A list of bulk storage tanks that may be left on-site after decontamination and site closure is provided in Table J-4.

Decontaminated tanks to be scrapped will be rendered unusable prior to leaving the facility. This will be accomplished by cutting the tanks in half, or by cutting large holes in the tanks. Decontaminated tanks may be disposed of at an appropriately permitted off-site facility as a non-hazardous waste or as exempt scrap metal. Written proof of decontamination will be obtained from the independent professional engineer monitoring closure activities prior to removal of the decontaminated tank from the site.

As an alternative to tank decontamination, tanks may be drained, purged, sealed and disposed of as a hazardous waste at an appropriately permitted off-site TSDF. Verification sampling under this scenario will not be required.

Decontamination of Equipment

All Facility equipment subject to closure will be decontaminated prior to removal from the site. Facility equipment potentially requiring decontamination includes waste processing equipment, water treatment equipment, distillation equipment, trucks, forklifts, hoses, pumps, sampling equipment, and cleaning and decontamination equipment. To the maximum extent possible, the on-site wastewater treatment system and distillation equipment will be used to treat hazardous wastewaters and rinsate generated during the site closure activities. Therefore, the decontamination of this process equipment will occur after decontamination and verification of all other hazardous waste management units have been completed

If equipment is to be left onsite, it will be cleaned until the closure performance standards are met. Equipment decontamination may be performed in concrete containment areas with adequate secondary containment. All rinsate from decontamination will be collected and treated on-site or, when necessary, sent off site to an approved TSDF. If equipment cannot be adequately decontaminated, then it will be disposed of offsite as a hazardous waste at an appropriately permitted TSDF. Verification sampling using wipe samples and analysis of the final rinse water will be conducted per the SAP.

During the final decontamination stage, a small temporary decontamination area (approximately 10 feet by 20 feet) may be established on-site once all concrete containment areas have been fully decontaminated. This area will be constructed of plastic sheeting or an equivalent protective material with full containment, and will be used for decontamination of small sampling equipment, PPE, and other miscellaneous tools used during site closure.

1.8.3 Soil Investigation

40 CFR 264.112(b)(4), 264.114, 270.14(b)(13)

Following decontamination of the containment structures, storage tanks and equipment at the site, the site soils will be investigated. The soil underlying secondary containment pads and building structures will be sampled and analyzed to confirm that no residual contamination is present. The surface areas surrounding the buildings within the Facility boundaries will also be investigated. The purpose of soil sampling and analysis is to identify areas where remediation may be necessary as a result of past practices and to meet the site closure performance standards.

All collection and analysis of soil samples will be in accordance with the SAP, which includes provisions for using standard test methods, a state-certified laboratory for analyses, proper chain-of-custody procedures, and quality control/quality assurance samples such as field blanks, trip blanks, and duplicate samples.

Soils beneath each of the secondary containment areas will be sampled in a minimum five-point arrangement, with four samples collected near the corners of the structure and one sample near the center. Additional sample locations within each structure will be based on the most likely collection point of any contaminants, such as in floor sumps or under process equipment. Locations of cracks or stains in the secondary containment system will also be priority locations for soil sampling. In addition, visual observations of past repair locations from the Facility's operating log will be used to determine selective locations for soil sampling during closure.

Sampling in storage tank locations will be dependant upon whether the tank remains in place. For tanks removed from the site, the containment area will be sampled as described above, with additional sample points located directly under the previous foundation of the tank. If the tank remains at the site, soil samples may be collected from under the tank foundation using horizontal drilling techniques if possible.

A sample grid will be created for collecting soil samples across the open area of the Facility around the building structures. Sampling will be based upon a fixed square grid with 30-foot interval spacing as detailed in the SAP. Additional soil sampling will be conducted in those areas observed to have ground surface staining and where past spills had been documented from the Facility's operating log.

Background samples will also be collected from three separate locations according to the SAP. The locations will be selected outside the facilities' operational boundaries and will represent constituent concentrations that have not been impacted by site operations. The results of these soil samples will be used in the development of closure performance standards for the site.

Soil samples will generally be collected at depths just below the interface of the containment system and the soil interface in native soils. Additional soil samples, such as those under storage tanks, sumps, and stained areas, will also be collected at approximately 1 meter (3 feet) and 2 meters (6 feet) below surface grade. Samples will be collected using a hand auger or by a direct push technology (DPT) drilling rig (i.e., Geoprobe). The soil borings and samples will be collected from the locations shown in the SAP**.**

After the samples are collected, each boring will be backfilled with grout. The collected soil samples will be transferred under formal chain-of-custody documentation to a state-certified laboratory for analysis under the methods specified in the SAP. Other sample collection, documentation, and handling procedures will be in accordance with standard procedures described in the SAP.

1.8.4 Groundwater Investigation

40 CFR 264.111

The Plan assumes that all applicable Corrective Action requirements for site groundwater have been completed prior the initiation of site closure activities. However, it is assumed that if sufficient documentation is not available, groundwater monitoring will be conducted to confirm that no residual contamination is present from past activities at the site.

All collection and analysis of groundwater samples will be in accordance with the SAP, which includes provisions for the installation of groundwater monitoring wells, if needed. In addition, the SAP describes the sampling procedures using standard test methods, a state-certified laboratory for analyses, proper chain-of-custody procedures, and quality control/quality assurance samples such as field blanks, trip blanks, and duplicate samples.

If not present at time of closure, a minimum of three groundwater monitoring wells will be installed at the site to define groundwater gradients and determine if contamination is present. Additional monitoring wells may be installed at locations within the Facility where possible soil contamination was identified during site closure.

If no significant contamination is detected in the site groundwater, the monitoring wells will be abandoned and closed in accordance with the procedures in the SAP. If groundwater contamination is present and attributed to the site, a Corrective Action may be developed and further closure activities will be reviewed with the Regional Administrator.

1.8.5 Partial Closure

40 CFR 264.112(b)(4)

During the course of operations it may be necessary to close portions of hazardous waste management units in the Facility. An example of this type of closure would be the replacement of a bulk storage tank that has developed a leak or integrity assessment indicates that the minimum shell thickness is inadequate for storage or treatment.

Tanks and ancillary equipment may be closed in their original location, or moved to an alternative location on the site, as long as the closure is conducted within a secondary containment system. Tanks and ancillary equipment shall be moved to an alternative location only if such transport can be achieved without spilling any waste from the vessel or ancillary equipment; and the movement will not jeopardize the integrity of the waste management equipment. Romic shall maintain records of partial closure activities and include them with the final documentation of Closure as described in Section 7.3. The procedures for partial closure for storage tanks, piping, and pumps are described in Attachment C to the Plan.

2 POST-CLOSURE PLAN

40 CFR 270.14(b)(13), 264.118(a), 264.197(c)(2), 264.228(b) and (c)(1), 264.258(b) and (c)(1)(B), 264.303(c), 264.310(b)

The Facility does not contain hazardous waste disposal units. The storage tank systems and other treatment processes were provided adequate secondary containment, and are not expected be subject to the contingent Post-Plan requirements of 40 CFR 264.197(c)(2). Soil contamination was inherited by Romic from past practices by others at the site as identified in Section B7.3 of the Part B Permit. Remediation of this impacted soil was completed in 1993 and the Regional Administrator approved the clean up. Therefore, post-closure cost estimates are not provided. If previous Corrective Action measures did not fully address the soil and groundwater contamination at closure, then a post-closure permit may be required.

3 CLOSURE COST ESTIMATES

40 CFR 270.14(b)(15), 264.142

The Closure Cost Estimate (CCE) is provided in Attachment A of the Plan and was prepared in accordance with 40 CFR 264.142(a). The CCE will be:

- Adjusted annually for inflation, and/or other factors, in accordance with 40 CFR 264.142(b) within 60 days prior to the anniversary date of its closure financial assurance mechanism;
- Revised as necessary in accordance with 40 CFR 264.142(c), within 30 days of any modification of the Plan that results in a change in the cost required to close the Facility; and

- Revised as necessary at least 30 days before operating a new hazardous waste management unit.

Romic will maintain at the Facility a copy of the most current CCE in accordance with 40 CFR 264.142(d). The unit costs associated with preparing the CCE are based on the following assumptions and procedures:

- The unit costs for all closure activities are based on the cost of hiring a third party to close the Facility. A third party is someone other than the parent or subsidiary of the owner or operator. However, it is intended that trained Romic personnel will be used to conduct closure activities to the greatest extent possible in order to maintain continuity of Facility operations.
- Unit costs were obtained, where possible, from actual operating costs and experience, and contractor estimates.
- Unit transportation costs used for estimating inventory elimination costs are based on contractor estimates for transporting bulk and containerized solids and liquids to an off-site permitted TSDF. Bulk liquid shipments are assumed to be by rail for wastes when practical (e.g., aqueous wastes and fuel blending wastes). Unit disposal costs for off-site landfill, incinerator, hazardous waste fuel, and other treatment options are based on Romic operating experience.
- Treatment costs are rates presently estimated for existing waste management units.
- Supplies and equipment will be salvaged to the extent possible. However, salvage value has not been incorporated into the closure cost estimate. Romic on-site equipment (e.g., trucks, lifts, and vacuum tankers) will be used where possible to close the Facility. Outside contractors' equipment will be used as necessary.
- Cost for decontaminating sampling equipment between samples is considered to be negligible.
- A total of 34 drums (2.5% of the drum inventory expected at closure) were considered to be inadequately labeled and would require HAZCAT prior to disposal.

3.1 Inventory Elimination Costs

The costs associated with eliminating the remaining waste inventory at facility closure are presented in the CCE. Cost estimates are based on maximum waste inventory, and are broken down by specific inventory elimination scenarios. The types and amounts of wastes handled at the facility are well documented in the annual reporting requirements to the applicable regulatory agencies. The CCE worksheets identify the recent historical mix of waste into the facility to arrive on quantities of specific waste streams. The maximum waste inventory for closure is summarized in Section 1.5 of the Plan.

3.2 Facility Closure Costs

The CCE worksheets include closure costs for decontamination of facility equipment, waste management units, and rinsate management. Tanks and equipment will be salvaged to the maximum extent possible. However, salvage value has not been incorporated into the CCE. Detailed estimates for sampling and analytical costs are included in the CCE, which allows for blanks, duplicates, and other quality control/quality assurance samples.

The CCE includes costs for two scenarios. The Base Case Facility CCE is based on the existing hazardous waste management units in operation as of December 2002. The second CCE worksheet includes the Base Case Facility costs with the additional incremental costs for each proposed future addition to the Facility.

As each additional waste management unit is approved, constructed and placed into operation at the Facility, the Romic Closure Financial Assurance Mechanism will be revised and increased accordingly by the amount of the incremental addition above the Base Case Facility CCE.

4 POST-CLOSURE COST ESTIMATE REQUIREMENTS

40 CFR 270.14(b)(16), 264.144, 264.197(c)(3) and (c)(5)

The Facility does not contain hazardous waste disposal units. The storage tank systems and other treatment processes were provided adequate secondary containment, and are not expected be subject to the contingent Post-Plan requirements of 40 CFR 264.197(c)(2). Soil contamination was inherited by Romic from past practices by others at the site as identified in Section B7.3 of the Part B Permit. Remediation of this impacted soil was completed in 1993 and the Regional Administrator approved the clean up. Therefore, post-closure cost estimates are not provided. If previous Corrective Action measures did not fully address the soil and groundwater contamination at closure, then a post-closure cost estimate will be prepared.

5 NOTICE IN DEED REQUIREMENTS AND SURVEY PLAT REQUIREMENTS

40 CFR 270.14(b)(14), 264.116, 264.117(c), 264.119

The Facility does not contain hazardous waste disposal units. The storage tank systems and other treatment processes were provided adequate secondary containment, and are not expected be subject to the contingent Post-Plan requirements of 40 CFR 264.197(c)(2) and (c)(5).

No regulated units containing hazardous wastes will remain at the site after closure; therefore, a notice in deed regarding restrictions on the use of land used to manage hazardous wastes will not be necessary. Similarly, a survey plat indicating the location of landfill cells or other hazardous waste disposal units remaining on site will not be required.

6 FINANCIAL ASSURANCE MECHANISM

40 CFR 270.14(b)(15) and (16), 264.143, 264.145, 264.197(c)(4) and (c)(5)

Romic will demonstrate continuous compliance with 40 CCR 264.143 by providing documentation of financial assurance in the amount of the current CCE. A copy of the current financial assurance mechanism is provided in the Appendix to Section K of the Permit Application. The owner/operator, chief financial officer, or their designee pursuant to 40 CFR 264.143 must approve changes in the financial assurance mechanism.

The financial assurance mechanism will be adjusted at least 30 days prior to the operation of any planned units. The financial assurance mechanism will be adjusted to satisfy closure requirements as outlined in this permit application.

7 Reporting and Recordkeeping

40 CFR 264.112(a)(2), (c), (d)(1); 264.115

7.1 Closure Notification

Romic will notify the Regional Administrator in writing at least 90 days prior to the date that final closure is expected to begin, and at least 7 days prior to any closure performance sampling.

7.2 Closure Plan Amendment

Changes in facility plans, operations or scheduling may require that the Plan be amended. Additionally, the Regional Administrator may request amendments. An amended Plan will be submitted to the Regional Administrator with a written request for a change to the approved Plan.

7.3 Certification Report Requirements

Romic will submit to the Regional Administrator certification that the final closure of the Facility has been conducted in accordance with the specifications of the approved Plan. This certification will be signed by Romic and by an independent Professional Engineer. The certification will be submitted to the Regional Administrator within 60 days of completion of final closure. The certification report shall include the following:

1. Certification by an independent registered Professional Engineer;
2. Supervisory personnel description;
3. Summary of Closure Activities;
4. Field Engineer Observation Reports;
5. Sampling Data and Analyses (i.e., sampling locations, soil boring logs, chain of custody, analytical results, etc.);
6. Discussion of Analytical Results;
7. Manifests showing disposition of waste inventory;
8. Modifications and Amendments to Plan (if applicable);
9. Photographs.

7.4 Recordkeeping

A copy of the approved Plan, and subsequent authorized amendments, will be maintained at the Facility until closure is complete and certified.

TABLES

TABLE J-1
ESTIMATED BASIS OF MAXIMUM WASTE INVENTORY FOR SITE CLOSURE

Waste Management Unit or Waste Generated During Closure	**Amount**
Existing Hazardous Waste Container Storage Areas	75,000 gallons
Additional Planned Hazardous Waste Container Storage Areas	101,440 gallons
Existing Hazardous Waste Tank Storage Capacity	75,000 gallons
Additional Planned Hazardous Waste Tank Storage capacity	194,700 gallons
Auxiliary Fuel and Lube Oil within Decommissioned Process Equipment	6,335 gallons
Tank Still Bottom Sludges Received	gallons
Rinse Wastewater generated during Closure Activities	gallons
Total Gallons of Waste Liquids	gallons
Roll-Off Bins containing non-hazardous solid waste generated during Closure Activities (refuse, trash, concrete, demolition debris. etc.)	320 cubic yards
Roll-Off Bins containing hazardous solid wastes generated during Closure Activities (e.g., spent activated carbon, used PPE, used sampling gear, etc.)	80 cubic yards
Roll-Off Bins containing Waste Electronic Equipment	cubic yards
Roll-Off Bins containing Hazardous Contaminated Soil	cubic yards
Total Cubic Yards of Waste Solids	cubic yards

TABLE J-2

POTENTIAL TSDFs FOR DISPOSITION OF CLOSURE WASTES

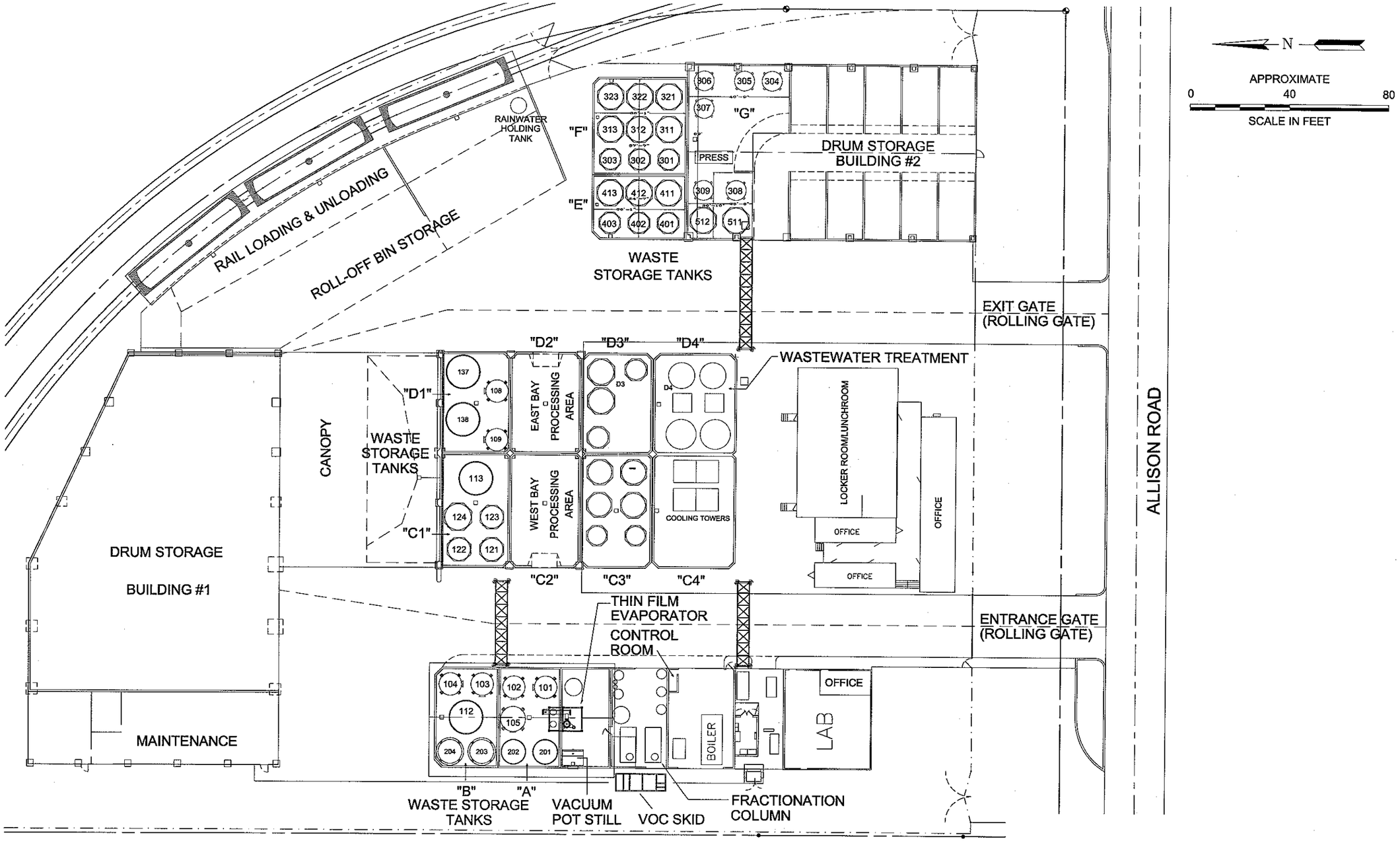
Possible TSDF	Location	Approx. Distance from Facility (miles)	Acceptable Wastes
Continental Cement Company Inc. (Missouri Fuel Recyclers) MOD054018288	10107 HWY 79 South Hannibal, MO 63401	1,580	Solid and Liquid RCRA Fuels, bulk rail and containerized
Teris (Ensco) ARD069748192	309 American Circle El Dorado, AK 71730	1,325	Almost any RCRA or non-RCRA waste for incineration
Systech KSD980633259	1420S. Cement Road Fredonia, KS 66736	1,195	Solid and Liquid RCRA Fuels, bulk rail and containerized
U.S. Filter Recovery Services of California CAD097030993	5375 S. Boyle Avenue Vernon, CA	395	RCRA or non-RCRA Wastewater streams in bulk; any others in containers.
U.S. Ecology NVT330010000	12 M South HWY 95 Beatty NV 89003	425	Almost any RCRA or non-RCRA solid waste for land disposal that meets LDR standards or they can treat to LDRs
Waste Management CAT000646117	35251 Old Skyline Rd. Kettleman City, CA 93239	420	Almost any RCRA or non-RCRA solid waste for land disposal that meets LDR standards or they can treat to LDRs

TABLE J-3
ESTIMATED CLOSURE SCHEDULE

Closure Activity	**Est. Time Required**	**Est. Completion Date**
Notification to Regional Administrator of site closure	1 day	Week 0
Review and update of Closure Plan (including approval of Closure Performance Standards)	12 weeks	Week 12
Last hazardous waste shipment received and begin closure	1 day	Week 12
Inventory of all waste on site	1 week	Week 13
Sampling and profiling of all waste	2 weeks	Week 15
Inventory elimination and offsite shipment of waste	3 weeks	Week 18
Container storage area decontamination	3 weeks	Week 21
Tank systems decontamination	3 weeks	Week 24
Process unit decontamination	3 weeks	Week 27
Ancillary equipment decontamination	2 weeks	Week 29
Soil sampling and analysis	5 weeks	Week 34
Complete profiling of all waste	4 weeks	Week 38
Offsite shipment of all waste	3 weeks	Week 41
Verification sampling	4 weeks	Week 45
Submittal of Closure Report and certification	6 weeks	Week 51

TABLE J-4
BULK STORAGE TANKS TO REMAIN ON SITE AFTER CLOSURE

Tank Number	Description	Amount



REFERENCE: BASEMAP PROVIDED BY:

ROMIC
ENVIRONMENTAL TECHNOLOGIES CORP.
ROMIC SOUTHWEST, CHANDLER, ARIZONA

URS

P:\ROMIC\2005 UPDATES\NEW CADD\A16438.DWG (layout 1) 1-14-2005

Facility Layout - Storage & Treatment Areas

Romic - Southwest
Chandler, Arizona

Figure J-1

ATTACHMENT A

CLOSURE COST ESTIMATE

ASSUMPTIONS

#	Area	Assumption
1	Inventory Elimination	Inventory assumed to reflect incoming mix excluding empty drums.
2	Inventory Elimination	Inventory elimination based on initial Part A submittal of 75,000 gallons in drums and 75,000 gallons in bulk. Additional volume takes into affect that all tanks would be completely filled therefore tankage for closure is greater than 75,000.
3	Inventory Elimination	Unknown containers to be screened in the field, then analyzed if necessary

ATTACHMENT 1 – COST ESTIMATE FOR CLOSURE AT MAXIMUM WASTE INVENTORY

(Existing Facility)

ITEM DESCRIPTION (detailed costs provided in Attached Sheets)	**COST (2004 $)**
A.1 Maximum Waste Inventory Elimination - Containerized Wastes	$205,849
A.2 Maximum Waste Inventory Elimination - Bulk Wastes (Tanks)	$109,241
B1. Concrete Secondary Containment Decontamination	$41,802
B2. Tank and Process Equipment Decontamination	$8,753
B3. Pumps and Piping Decontamination	$2,158
B4. Heavy Equipment Decontamination	$1,295
B5. Yard Truck Decontamination	$1,000
B6. Decontamination Rinsate Treatment and Disposal	$94,019
C. Soil, Concrete, and Wipe Sampling and Analysis	$279,117
D1. Personal Protective Equipment	$6,600
D2. Engineering Certification	$37,140
D3. Other Contractor Costs	$155,000
D4. Other Consultant Costs (Toxicologist)	$35,000
SUBTOTAL	$976,974
Project Management, Engineering, Planning (10%)	$97,697
SUBTOTAL	$1,074,671
Contingency (15%)	$161,201
TOTAL CLOSURE COST ESTIMATE (2004 $) (existing facility)	**$1,235,872**

MAXIMUM CONTAINER INVENTORY

Storage Area	Reasonable Maximum Cost Case[1]		
	Totes	Portable Tanks	Drums
Storage Building #1	-	-	1,364
Storage Building #2	-	-	-
Sampling Area	-	-	-
West Processing Area	-	-	-
East Processing Area	-	-	-
Rail Spur Area	-	-	-
Roll-Off Containers	8	-	-
Total Containers of Waste (excluding roll-offs)	-	-	1,364
	1,364		
Permitted Volume (excluding Roll-off bins)	75,000 Gallons		

[1] Reasonable maximum cost case developed using 55-gallon drums. Even though the facility accepts various sizes including totes, costs have been calculated with the assumption that drum sizes for capacity are equivalent to 55 gallon drums.

Drum Receipts	2003 Avg. Percentage	Excluding Empty Drums
Alternative fuels		
Grindable	5.5%	6.3%
Liquefaction	5.0%	5.7%
Pumpable	20.0%	22.8%
Reclaim Chemical	19.5%	22.3%
Aqueous		
Pumpable	15.0%	17.1%
Disposal		
Incineration	13.5%	15.4%
Landfill	8.5%	9.7%
Recycle		
Aerosols	2.0%	2.3%
Batteries	1.0%	1.1%
Empty Drums	12.4%	
Neutralization	10.0%	11.4%
Return	0.0%	0.0%

CCE-Design Information for Existing Tanks, Process Units, Ancillary Equipment, and Structures

	Tank, Equipment, or Structure ID	Capacity/Dimensions (in gallons unless otherwise noted)	Surface Area (square feet)	Piping (feet)	Waste Handled	Decontam-ination Methods	Equipment Used
	101	5,800	594	46	ORG, AQ	Hydroblasting	Hydroblaster
	102	5,800	594	18	"	"	"
	103	5,800	594	68	"	"	"
Tankfarms A & B	104	5,800	594	121	"	"	"
	105	5,900	572	37	"	"	"
	112	15,000	960	148	"	"	"
	Secondary Containment	47.92' x 38.67' x 1.9'	2182.11	N/A	"	"	"
	Sump	17" x17" x10.5"	6.96				
	Sump	21" x 21" x 12"	10.06				
	pumps	1	N/A	N/A	"	Rinsing	Pressure washer
	121	6,500	503	34	ORG, AQ	Hydroblasting	Hydroblaster
	122	6,500	503	30	"	"	"
Tankfarm C	123	6,500	503	16	"	"	"
	124	9,000	644	12	"	"	"
	113	15,000	960	12	"	"	"
	Secondary Containment	45.25' x 25.83' x 2.5'	1524.21	N/A	"	"	"
	Sump	21" x 21" x 12"	10.06				
	Pumps	1	N/A	N/A	"	Rinsing	Pressure washer
	132	4,100	580	5	ACID, ALK	Hydroblasting	Hydroblaster
Tankfarm D	136	4,100	580	5	"	"	"
	Secondary Containment	39.67' x 25.83' x 2.5'	1,352	N/A	"	"	"
	Sump	21" x 21" x 12"	10				
	Pumps	1	N/A	N/A	"	Rinsing	Pressure washer
	TF	N/A	86	82	ORG, AQ	Hydroblasting	Hydroblaster
	receivers	450	200	42	"	"	"
	Vac Pot	1,700	452	244	"	"	"
Processing Area	receivers	1,200	226	55	"	"	"
	Column reboiler	2,900	603	158	"	"	"
	receiver	85	27	50	"	"	"
	Secondary Containment		1569		"	"	"
	Sump	5.33' x 4' x 0.75'	35.32		"	"	"
	Sump	1.5' x 1.33' x 0.67'	5.79		"	"	"
	Pumps	6	N/A		"	Rinsing	Pressure washer
	S-1	318	42.5	491	ORG, AQ	Hydroblasting	Hydroblaster
	S-2	80	10.6	10	"	"	"
VOC System	S-3	8	1.36	30	"	"	"
	Secondary Containment	22' x 10' x 0.42'	246.88		"	"	"
	Sump	1' x 1' x 1'	5.00		"	"	"
	Pumps	4			"	Rinsing	Pressure washer
Building #1	Secondary Containment		11,143	35	ORG, AQ	Hydroblasting	Hydroblaster
	Sump	39.5' x 1.33 x 0.5	93				
Canopy	Secondary Containment		3,041.58	105	ORG, AQ, ACID, ALK	Hydroblasting	Hydroblaster
	Sump	21" x 21" x 12"	10.06				
Railspur Area	Secondary Containment		8,704	154	ORG, AQ, ACID, ALK	Hydroblasting	Hydroblaster
	Sumps	18" x 18" x 12"	8.25				
West Bay Processing Area	Secondary Containment		1,152	38	ORG, AQ, ACID, ALK	Hydroblasting	Hydroblaster
	Sump	18" x 18" x 12"	8.25				
East Bay Processing Area	Secondary Containment		1,039	0	ORG, AQ, ACID, ALK	Hydroblasting	Hydroblaster
	Sump	18" x 18" x 12"	8.25				
West Driveway	Secondary Containment		8,930.53	75	ORG, AQ, ACID, ALK	Hydroblasting	Hydroblaster

CCE-Design Information for Existing Tanks, Process Units, Ancillary Equipment, and Structures

	Tank, Equipment, or Structure ID	Capacity/Dimensions (in gallons unless otherwise noted)	Surface Area (square feet)	Piping (feet)	Waste Handled	Decontam-ination Methods	Equipment Used
East Driveway	Secondary Containment		5,688.00	0	ORG, AQ, ACID, ALK	Hydroblasting	Hydroblaster
	Tanks	95,800	8,181	552			
	Process Units including VOC System	6,741	1,648	1,162			
	Containment Areas		46,572	407			
	Sumps	7	211				
	Pumps	9					
	Tanks and Process Units	102,541					

CCE- Removal of Waste Inventory

A.1 Maximum Waste Inventory Elimination - Containerized Wastes (Drums, based on 55 gallons)

	Basis	75,000 gallons		1364 Drums		
Drum Receipts	2003 Avg. Percentage		Unit	Cost	No. of Drums or **Gallons**	Total Cost	Notes
Alternative fuels							
Grindable	5.5%	Debris shred/fuels	drum	$ 96.67	75	$ 7,250.25	Assumed in 55-gallon Container
Liquefaction	5.0%		drum	$ 85.00	68	$ 5,780.00	Assumed in 55-gallon Container
Pumpable	20.0%		gal	$ 0.70	**15,000**	$ 10,500.00	Transported in bulk
Reclaim Chemical	19.5%	Solvent Reclaim	drum	$ 181.00	266	$ 48,146.00	for incin
Aqueous							
Pumpable	15.0%	Aqueous	gal	$ 1.01	**11,250**	$ 11,362.50	Transported in bulk
Disposal							
Incineration	13.5%		drum	$ 181.00	184	$ 33,304.00	Assumed in 55-gallon Container
Landfill	8.5%		drum	$ 75.00	116	$ 8,700.00	Assumed in 55-gallon Container
Recycle							
Aerosols	2.0%		drum	$ 115.00	27	$ 3,105.00	Assumed in 55-gallon Container
Batteries	1.0%		drum	$ 245.00	14	$ 3,430.00	Assumed in 55-gallon Container
Empty Drums	0.0%		drum	$ 3.00	0	$ -	Assumed not in inventory
Neutralization	10.0%		gal	$ 1.65	**7,500**	$ 12,375.00	at US Filter or Phibro-Tech,Transported in Bulk
Return	0.0%		gal	$ 0.70	**0**	$ -	Transported in bulk
				Subtotal Containerized		$ 143,952.75	

CCE- Removal of Waste Inventory

Gallons sent as Bulk 33,750

Drum Receipts	2003 Avg. Percentage	Unit Cost	No. of Drums or **Gallons**	Total Cost	Notes
Number of totes and portable tanks onsite			0		Everything based on 55-gallon Containers
Number of Drums onsite (based on 55-gallons each) -			1,364		
Drums inadequately labeled at	2.5%		34		
Cost for HazCat inadequately labeled containers		$100 ea.		$ 3,400	
Sample 2.5% of containers for Lab analysis (unusual material		2.5%	34		
Cost to sample drums at 4 drums per hour for Chemist at		$38		$ 323	
Cost per Sample Analysed (VOCs, SVOCs, Metals, & Pesticides)			$619	$ 21,046	
Allowance for lab QA/QC samples, blanks, etc.		15%		$ 3,157	
Disposal of empty drums (for those managed as bulk)					
Number of empty drums	614				
Cost per empty drum	$5	(including disposal)		$ 3,070	
Roll-off Bin Disposal Cost					
Volume in rolloffs (cu. Yds.)	160				
Cost per cubic yard	$90			$ 14,400	
Roll-off Bin Disposal from Onsite Wastes (closure wastes)					
Total Volume (yd^3)	220				
Cost per Cubic Yd. (as rolloff)	$75			$ 16,500	
A1 Total Containerized Waste Inventory Elimination				$205,849	

A.2 Maximum Waste Inventory Elimination - Bulk Wastes (Tanks and Process Units)

Basis 95,800 Gallons Based on the maximum capacity of existing Hazardous Waste Tankage

	2003 Avg. Percentage		Unit	Cost	No. of Gallons	Total Cost	Notes
Bulk Receipts							
Antifreeze	13.0%	Ethylene glycol	gal	$ 0.55	12,454	$6,850	See Note 1
Fuels	22.5%		gal	$ 0.70	21,555	$15,089	
H2O	38.0%		gal	$ 1.01	36,404	$36,768	
Neutralization	8.5%		gal	$ 1.65	8,143	$13,436	
Reclaim	12.0%		gal	$ 0.66	11,496	$7,587	bulk fuel
Transfer	6.0%		gal	$ 2.10	5,748	$12,071	Incin-worst case
	100.0%						
		Costs to Load Trucks for Transportation			($0.08/gallon)	$7,664	
Subtotal Direct Costs for Bulk Inventory Elimination -						$99,465	
Average Cost per Gallon at		95,800 gallons				$1.04	See Note 3
		Number of tanks to be sampled				13	
		Cost for sample				$752	See Note 2
Net cost for Sampling and analysis of wastes in tanks and process units						$9,776	
		Subtotal for Bulk Waste Inventory Elimination				$109,241	

Total for Waste Inventory Elimination	**$315,090**

Notes: 1. Normally this waste can be sold.
2. Laboratory analytical costs are $711.85 (see Section C.1 of CCE) and sampling costs at 2 samples per hour are $40
3. Average cost used for planned storage to account for waste stream mix.

B. Facility Decontamination Costs (existing)

B1. Concrete Secondary Containment Decontamination (hydroblast)

Unit Costs
Assume all hydroblasting to be in Level C
100 square feet per hour-Level C hydroblasting

$72.65/hour operation of hydroblaster, including water, electricity and labor-Level C

4 gal/sq.ft. of rinsate generated during hydroblasting

$16.67 per hour hydroblaster rental ($4000 hydroblaster rental per month / 30 days per month / 8 hours per day)

Total
$89.32 per hour for hydroblasting-Level C

Surface Area

From Existing Units Summary - Total Secondary Containment Sq footage equals Include Sump Surface Area	46,783
Total Hours in Level C (at 100 sq. ft per hour)	468

Rinsate Quantity

Total gallons at 4 gallons per Sq. foot (See B.6 for disposal)	187,132

Cost for Hydroblasting

Level C	468 hours x	$89.32	/ hour =	$41,802
				$41,802

CCE-Facility Decontamination Costs

B2. Tanks and Process Equipment Decontamination

Unit Costs
100 square feet per hour-Level C hydroblasting
$72.65/hour operation of hydroblaster, including water, electricity and labor-Level C
4 gallon/sq.ft. of rinsate generated during hydroblasting
$16.67 per hour hydroblaster rental ($4000 rental per month / 30 days per month / 8 hours per day)

Total
$89.32 per hour for hydroblasting-Level C

From Existing Units Summary - Total Tanks and Process Units Square footage equals	9,829
Total Hours in Level C (at 100 sq. ft per hour)	98

Rinsate Quantity

Total gallons at 4 gallons per Sq. foot (See B.6 for disposal)	39,316

Cost

Level C	98 hours x	$89.32 / hour =	$8,753
			$8,753

CCE-Facility Decontamination Costs

B3. Pumps and Piping Decontamination

Unit Costs (pressure washing)
$702 per month pressure washer rental
$69.01/hour operation of pressure washer, including water, electricity and labor-Level C
4 gal/sq.ft. of rinsate generated during pressure washing (based on Means)

$2.925 per hour pressure washer rental ($702 rental per month / 30 days per month / 8 hours per day)
100 gallons rinsate per hour

Total
$71.94 per hour pressure washing-Level C

Unit Cost (pumps)
.5 hours per pump-Level C

Unit Costs (pipes)
300 lineal foot per hour-Level C

Quantity (pumps)	9	
Allowance (Estimated)		45
at .5 hours per pump =		23
Quantity (pipes)		
Approximate Feet=		2,121
Total labor hours for pipe at 300 feet per hour		7
Total Labor Hours (pumps and pipe)		30
Total Labor Cost		$2,158.20
Total Rinsate (gallons) -	3,000	
		$2,158

CCE-Facility Decontamination Costs

B4. Heavy Equipment Decontamination

Unit Costs
$63 /unit - equipment cost for high pressure washing
$29.50 /hr - labor for high pressure wash (1 unit/hr)
400 gallons rinsate per hour

Total cost per Unit $92.50

Quantity
5 forklifts, etc.
3 Manlifts
2 Sampling Systems
4 Misc. Equipment Items

Cost for Decon $1,295.00

Rinseate Quantity
(14 hours)(400 gallons per hour) = 5600 gallons
(see Section B6., Decontamination Rinseate Treatment and Disposal, for rinseate disposal cost)
$1,295

B5. Yard Truck Decontamination

Unit Costs
Cost for rinsing each Yard truck (including rinsate disposal) is $500 per vehicle including disposal

Quantity
2 Yard Tankers

$1,000.00

$1,000

CCE-Facility Decontamination Costs

B6. Decontamination Rinseate Treatment and Disposal

Unit Costs

$0.08	/gal-liquid loading into bulk
$0.32	/gal - off-site wastewater transportation and disposal
$0.40	Total Cost

Quantity (gallons)

B1. Concrete Secondary Containment Decontamination rinsate volume	187,132
B2. Tanks and Process Equipment Decontamination rinsate volume	39,316
B3. Pumps and Piping Decontamination rinsate volume	3,000
B4. Heavy Equipment Decontamination rinsate volume	5600
B5. Yard Tanker Decontamination (disposal included in cost above)	0
Total Rinsate (gallons)	235,048

Cost

235,048 gal x	$0.40 / gal =		$94,019
			$94,019

TOTAL FACILITY DECONTAMINATION COSTS (existing facility) **$148,027**

C. Sampling and Analytical Costs (existing)

C1. Soil Sampling and Analysis

Analytical costs from Lab Price Sheet

Unit Costs(analysis)

VOC analysis	$248
SVOC analysis	$151
Metals analysis	$155
Pesticide analysis	$65
Subtotal (analysis) per sample	$619
(Add 15% to Analytical Costs for Lab duplicates, field blanks, etc.)	$711.85

Unit Cost (soil sampling) $95

Includes core drilling, Geoprobe, Geologist, and labor

Total (sampling + analysis) $807 per sample for soil and concrete

C2. Wipe Sample Costs

Sample Collection at 5 per hour = $75/5 =	15
Allowance for support services, other expenses)	15
Total costs to collect wipe samples	$30
Analytical costs for wipe samples (excludes VOCs) (excludes VOCs but includes duplicates, blanks, etc.)	$426.65
Total Wipe Sample Costs	$457

CCE-Sampling Costs

C3. Number of Samples

Unit	Square Footage	Subsurface Sample Locations	Containment Chip Samples	Wipe Samples
Building #1	11,143	5	3	0
Canopy	3,042	5	3	0
Railspur Area	8,704	5	3	0
West Bay Processing Area	1,152	5	3	0
East Bay Processing Area	1,039	5	3	0
West Driveway	8,931	0	0	0
East Driveway	5,688	0	0	0
Tank Farm A & B	2,182	10	6	18
Tank Farm C	1,524	5	3	15
Tank Farm D	1,352	5	3	18
Production Area	1,816	23	9	0
Remaining Area	85,604	20	0	0
		88	36	51

Total Sampling Costs

	#Samples	$/Sample	Total $
soil samples	264	$807	$213,048
building wipe samples	51	$457	$23,307
equipment wipe samples	30	$457	$13,710
containment chip samples	36	$807	$29,052

Total Costs for Sampling $279,117

D. Miscellaneous Costs (existing)

D1. Personal Protective Equipment (PPE)

Assume workers will need one set of PPE including body overalls, gloves, goggles, respirator cartridges, and hard hat at a cost of $140 per worker for each area decontaminated. plus replacement coveralls gloves, Tyvek, etc, at $60 per worker ($200 Total cost)

3 workers (Building #1)
3 workers (Canopy)
3 workers (Railspur Area)
3 workers (West Bay Processing Area)
3 workers (East Bay Processing Area)
3 workers (West Driveway)
3 workers (East Driveway)
3 workers (Tankfarm A & B)
3 workers (Tankfarm C)
3 workers (Tankfarm D)
3 workers (Processing and Voc System)

33 workers for total

33 workers x $200 / worker = $6,600

CCE- Miscellaneous Closure Costs

D2. Closure (Engineering) Certification

Unit Costs
$165 /hr - labor for professional engineer
$100 /hr - for Junior Engineer
Quantity
4 hr/site visit - one site visit each week of closure
25 weeks to complete closure = 100 hours; 16 hours to review final documentation
total of 116 hours for Professional Engineer
Junior Engineer (Same field time 100 hrs plus 80 hours for report preparation
for total of 180 hours
Cost

116 hours	x	$165 / hour	=	$19,140
180 hours	x	$100 / hour	=	$18,000

Total Closure Certification Costs	**$37,140**

D3. Other Contractor Costs

Mobilization/Demobilization	$5,000
Pipe Fitting/Electrical Disconnect (for safety)	$25,000
Contractor Supervisory Costs (25 weeks x 40 hrs/week x $50/hr)	$50,000
Additional Heavy Equipment -Primary use will be Romic Equipment -Includes compressor, manlifts, cranes	$75,000
Subtotal Other Contractor Costs	$155,000

D4. Other Consultant Costs

Toxicologists to develop Site Specific Cleanup Levels	$35,000
Total Miscellaneous Costs	**$233,740**

ASSUMPTIONS

#	Area	Assumption
1	Inventory Elimination	Inventory assumed to reflect incoming mix excluding empty drums.
2	Inventory Elimination	Inventory elimination based on initial Part A submittal of 75,000 gallons in drums and 75,000 gallons in bulk. Additional volume takes into affect that all tanks would be completely filled therefore tankage for closure is greater than 75,000.
3	Inventory Elimination	Unknown containers to be screened in the field, then analyzed if necessary

ATTACHMENT B

SAMPLING AND ANALYSIS PLAN

Romic Environmental Technologies Corp.

AZD 009015389

Chandler, Arizona
TSD Facility

Attachment B

Sampling and Analysis Plan

Revision 2A

December 2004

TABLE OF CONTENTS

ATTACHMENT B – SAMPLING AND ANALYSIS PLAN

The Tables and Figures are presented
as separate sections following the main body of the text.

TABLES

FIGURES

1. INTRODUCTION

This Sampling and Analysis Plan (SAP) presents the procedures that Romic Environmental Technologies Corp. (Romic) will use for the collection, analysis, and evaluation of environmental media samples for the planned closure of the hazardous waste management units at the Chandler Arizona facility (Facility). The SAP has been prepared as part of the Romic Closure Plan (Plan). The sampling program will include the collection, analysis and evaluation of the following samples:

- Hazardous waste characterization (HAZCAT) for disposition of existing waste inventory;
- Verification sampling to confirm decontamination of concrete pads, tank systems, and equipment;
- Sampling of wastewater and rinse water generated during closure for appropriate disposal;
- Soil sampling, including background samples, for evaluation of closure performance standards; and
- Groundwater sampling and monitoring, if needed, for evaluation of closure performance standards.

1.1. Project Background

Closure activities at the facility will be performed in accordance with 40 CFR 264 Subpart G. An overview of the closure process is shown on Figure B-1. Additional description of the closure activities is provided in the Plan. Major site closure activities include:

- Initial set up;
- Inventory elimination;
- Decontamination;
- Verification sampling;
- Isolate or demolish structures;
- Soil sampling and analysis;
- Groundwater sampling and analysis (if needed);
- Waste disposal (off-site); and
- Closure Certification.

1.2. Project Schedule

A project schedule is presented in Table J-3 in the Plan. Closure of the Facility is estimated to require approximately 51 weeks.

1.3. Program Organization

The responsibilities of key program personnel are as follows:

Closure Project Manager – Responsible for overall project execution and quality. The Closure Project Manager is responsible for management of all site personnel and contractors assigned with the task of closing the Facility, including training of staff, oversight, and supervision. The Closure Project Manager will direct all sampling activities and be responsible for assuring that representative samples are properly collected at the appropriate locations. In addition, the Closure Project manager will oversee that all samples are properly labeled, packaged and delivered to the analytical laboratory using appropriate chain-of-custody procedures.

Quality Assurance (QA) Manager – Responsible for reviewing, monitoring, auditing, and evaluating all sampling activities conducted during site closure. The QA Manager is responsible for the quality of data gathered, confirmation that the sampling was conducted in accordance with the SAP, and maintenance of the program database. In addition, the QA Manager will review and audit the contract analytical laboratory performance

Analytical Department Manager – Responsible for managing all day-to-day analytical activities. The Analytical Department Manager will direct the Closure project process control, environmental and contract laboratories and will be responsible for the timely reporting of data to ensure uninterrupted operation of the closure activities.

All site personnel will be responsible for identifying potential problems that may arise in the collection of environmental samples and the reporting of program data. Personnel will inform the supervisors of any such problems and be provided corrective actions. Problems that cannot be resolved immediately will be reported to the QA Manager, who will track, review, and verify the effectiveness of the corrective actions.

2. CONTAMINANTS OF CONCERN

The Facility receives a broad range of hazardous wastes for treatment and disposal management. The various treatment and disposal processes utilized and planned at the Facility include:

- Solids Consolidation
- Solvent Recycling:
- Ethylene Glycol Recycling
- Fuel Blending
- Wastewater Treatment (Planned)
- Neutralization (Planned)
- Inorganic Treatment (Planned
- “Off-Site” Transfer

The Facility also does the following waste management practices:

- Consolidation of Small Containers
- Can Crushing
- Aerosol Depressurization
- Drum Crush
- Truck Wash

A list of the hazardous wastes accepted by the Facility, including Listed wastes and characteristically hazardous waste, is provided in Item 10, the Hazardous Waste Permit Identificant Form (Part A), of this Part B Application. In general, the hazardous wastes accepted at the Facility include spent petroleum solvents, various liquid wastes, and sludges. The Facility does not accept PCBs. Based on this information, the following COCs are considered for this Facility:

- Volatile organic constituents;
- Semi-volatile organic constituents;
- Petroleum hydrocarbons;
- Corrosive liquids;
- Heavy metals; and
- Organochloride pesticides.

3. DATA QUALITY OBJECTIVES

This section describes the technical approach for the closure sampling and analysis program, including the specific data quality objectives, closure performance standards and the respective sampling requirements for each data quality objective.

3.1. Data Quality Objectives

The objectives of this sampling and analysis program are to confirm that the site meets all closure performance standards at time of closure. This confirmation process will be accomplished by the following:

- Determination that all structures, tank systems, and associated equipment used in the Facility have been adequately decontaminated during closure;
- Verification that there have been no releases of hazardous materials from the Facility to the environment during its years in operation and during closure; and
- Adequately characterize all wastes collected and generated during closure for disposal at an appropriate off-site Treatment Storage and Disposal Facility (TSDF).

3.1.1. Closure Performance Standards

Site closure will be based on a combination of both "clean closure" and "risk-based closure" performance standards depending upon the specific hazardous waste management unit closed at the site. The hazardous waste management unit will be considered clean closed if any detectable metal constituents identified in 40 CFR 261 Appendix VIII are below background levels while detectable organic constituents are below EPA Region 9's Preliminary Remediation Goals (PRGs) or equivalent. A risk-based closure for a hazardous waste management unit will demonstrate through a human health and ecological risk assessment (HHERA) that any detectable hazardous constituents identified in 40 CFR 261 Appendix VIII will not impact any environmental media in excess of Agency-established criteria or equivalent. The risk-based clean-up standards will be developed at time of closure, using current toxicological protocols and site data collected at that time.

Clean closure performance standards may be based on non-detection levels for specific organic hazardous constituents. In this case, a non-detect value will be set at least to the practical quantitation limits ("PQL") as established by Test Methods for Evaluating Solid Waste, SW-846, U.S. Environmental Protection Agency, Third Edition, November 1986 ("SW-846") or equivalent. The use of non-detect for the clean closure performance standards will require that the certified contract laboratory conducting the analysis include the specific concentrations for non-detect based on the analytical instrument used to detect the constituent.

The performance standards for clean closure and risk-based closure will be agreed upon with the Regional Administrator prior to start of site closure. An independent professional engineer registered in the State of Arizona will monitor all closure activities to confirm that they are conducted in accordance with the Plan and that the performance standards are met.

3.1.2. Sampling to Confirm Decontamination of Structures, Systems, and Equipment

Surface sampling will be conducted on all concrete structures, tank systems, and associated equipment that have been decontaminated. Two types of surface samples will be collected at the Facility, wipe samples and chip samples. Wipe sampling will be used for structures, systems, and equipment that have impervious surfaces (e.g. metal, epoxy coated, or vinyl-lined). Chip sampling will be used for structures, systems, and equipment that have porous surfaces (e.g. wood, asphalt, or uncoated concrete).

Rinsate sampling may be also used to confirm that the surfaces of specific process equipment (e.g. piping, pumps, filters, etc.) have been properly decontaminated. All decontaminated equipment will be visually inspected for the presence of process residues. If process residues cannot be removed by repeated washing, then clean water will be poured over and through the affected area, collected and analyzed as an equipment rinsate sample.

The analytical results from the sampling will be compared to the respective closure performance standards for the respective hazardous waste management unit. If the structures, systems, or equipment meet the closure performance standard, then it may be removed from the site and potentially sold for

reuse in another similar service. If the structures, systems, and equipment equipment cannot meet the closure performance standard, then it may be further decontaminated to meet the standard, or removed and disposed of off site at a TSDF as a hazardous waste.

3.1.3. Sampling to Confirm that No Release has Occurred to the Environment

The Plan assumes that all applicable Corrective Action requirements have been satisfied prior the initiation of closure activities. However, additional confirmation sampling and analysis of the site soils will be required prior to site closure. If sufficient documentation is not available at time of closure, groundwater sampling and analysis may also be required to confirm that no residual contamination is present from past activities at the Facility.

Following decontamination of the concrete structures, tank systems, and associated equipment, a comprehensive soil sampling program will be conducted at the site. The soil underlying secondary containment pads, building structures and tank systems will be sampled and analyzed to confirm that no significant residual contamination is present that exceeds the closure performance standards. The investigation will include an evaluation of the surface areas surrounding the buildings within the Facility boundaries. In addition, background soil samples will be collected and analyzed at the time of Facility closure. The analytical results of the background soil samples will be used to determine the closure performance standards for the site soils.

The analytical results of soil sampling will identify potential areas where remediation may be necessary as a result of past practices at the Facility. If confirmation soil samples have concentrations of hazardous constituents above the closure performance standards, then Romic will conclude that a release has occurred at the site. The impacted soil will be excavated and removed until additional confirmation samples indicate that the hazardous constituent concentrations are below the closure performance standards. In the event that significant soil contamination is present and attributed to the site, a Corrective Action may be developed and reviewed with the Regional Administrator.

In addition to soil sampling, sampling of the site groundwater to determine potential impacts from previous Facility operations may be required. A minimum of three groundwater monitoring wells may be installed at the site. The wells would be installed in a triangular arrangement to provide a determination of the groundwater gradient at the site. Additional monitoring wells may be installed at locations within the Facility where significant soil contamination was identified during site closure.

The groundwater in the wells will be purged prior to sampling. The groundwater samples will be collected using a Teflon™ bailer. A stainless steel chain or cable will be used to lower the sampling equipment into each well. Samples will be collected after the water level has recovered to 80% of its static level or 16 hours after completion of purging, whichever comes first.

If no significant contamination is detected in the site groundwater, the monitoring wells will be abandoned and closed. In the event that significant groundwater contamination is present and attributed to the site, a Corrective Action may be developed and reviewed with the Regional Administrator.

3.1.4. Waste Characterization Sampling for Disposal

Waste drums at the facility during closure will be inventoried in accordance with information on the hazardous waste labels and Romic's waste tracking numbers (see Section C of the Part B permit application). It is assumed that a small percentage of the drum inventory during closure will have labels that are illegible or non-existent. These drums will be subject to additional hazard categorization (HAZCAT) to identify the waste type and therefore, the appropriate disposal disposition. In addition, all wastewater generated during closure activities is expected to be collected into 55-gallon drums. The equipment decontamination wash water will require sampling and analysis to determine if it exhibits hazardous characteristics prior to on-site treatment or disposal. In addition, the sampling equipment rinsate samples will be analyzed to verify that the equipment was adequately decontaminated between sample collection locations.

The sampling of waste drums for HAZCAT will be per the standard procedures described under the Waste Analysis Plan included in Section C of the Part B permit. Samples are generally collected with a glass thief or dipper cup using appropriate PPE. The liquid samples are then transferred into an appropriate sample container for submittal to the contract analytical laboratory under strict chain-of – custody procedures.

3.2. Description of Sample Locations and Quantities

This section describes the location of the closure samples and the minimum quantities to be collected for each of hazardous waste management units. A summary of the estimated number, location, type, and matrix of the samples is shown in Table B-1, Summary of Closure Sampling.

3.2.1. Concrete Structures

The Facility has several concrete containment areas that will require verification sampling after the areas have been decontaminated. The concrete containment areas that may be present at the Facility at time of closure may include the following locations and are described in Figure B-3, Romic Facility Containment Areas and Storage Tanks:

- Drum Storage Building No. 1
- Drum Storage Building No. 2
- Rail Loading and Unloading Area
- Canopy Area
- East Bay Processing Area
- West Bay Processing Area
- Tankfarm A
- Tankfarm B

- Tankfarm C
- Tankfarm D
- Tankfarm E
- Tankfarm F
- Tankfarm G

A minimum of three concrete chip samples will be collected from each structure as appropriate and analyzed for the specific Contaminants of Concern (COCs). Samples will be collected from the floor surface of each containment area, with at least one sample collected from a central sump or central drainage point if present. Areas observed with extensive staining or impacted contamination following decontamination will also be sampled. Each sample will be widely spaced with no two samples collected from the same location.

Anaytical results from the concrete chip sampling will be compared to the closure performance standards. If the results are at or below the standards for each COC, then the containment area may be demolished and removed from the site, or marked, isolated and left in place. If the analytical results from the concrete chip sampling are above the closure performance standards, then the subject area may be decontaminated again and resampled, or the structure may be demolished and disposed of as a hazardous waste at an appropriately permitted off-site TSDF.

3.2.2. Tank Systems

Sampling in storage tank locations will be dependant upon whether the storage tank remains in place following decontamination. The following tanks may be present at the Facility at time of closure and are described in Figure B-3, Romic Facility Containment Areas and Storage Tanks:

- Tankfarm A
- Tankfarm B
- Tankfarm C
- Tankfarm D
- Tankfarm F

For tanks removed from the site, chip samples will be collected from the concrete containment area as described above, with an additional chip sample collected directly under the previous foundation of the tank. If the storage tank remains at the site, three concrete chip samples will be collected within the containment area with at least one chip sample loacated near the base of the tank.

Wipe samples will also be collected. At least three wipe samples will be collected from each tank surface and analyzed for the specific COCs. One wipe sample will be collected from each tank exterior wall. An additional wipe sample will be collected from each tank's interior wall. The third wipe sample will be

collected from the interior floor of each tank. It is assumed that the interior of all storage tanks remaining at the site will be fullly decontaminated and purged prior to entry into each tank under confined space requirements. Any tank surface areas observed with extensive staining or impacted contamination following decontamination will also be wipe sampled.

Anaytical results from the wipe sampling will be compared to the closure performance standards. If the results are at or below the standards for each COC, then the storage tank may be demolished and removed from the site, or marked, isolated and left in place. If the analytical results from the wipe sampling are above the closure performance standards, then the storage tank may be decontaminated again and resampled, or the storage tank may be demolished and disposed of as a hazardous waste at an appropriately permitted off-site TSDF.

3.2.3. Miscellaneous Process Equipment

The Facility has several pieces of process equipment that handle hazardous wastes. The location of this equipment that may be present at the Facility at time of closure includes:

- Production Areas (process unit equipment)
- Tankfarm A (process unit equipment)
- Tankfarm E (process unit equipment
- Tankfarm G (process unit equipment)

Following decontamination, at least one wipe sample will be collected from each process unit and analyzed for the specific COCs. The wipe sample will be collected from the exterior surface of the process unit. Any equipment surface areas observed with extensive staining or impacted contamination following decontamination will also be wipe sampled.

Rinsate sampling may be also used to confirm that the surfaces of specific process equipment (e.g. piping, pumps, filters, etc.) have been properly decontaminated. All decontaminated equipment will be visually inspected for the presence of process residues. If process residues cannot be removed by repeated washing, then clean water will be poured over and through the affected area, collected and analyzed as an equipment rinsate sample.

Analytical results from the wipe and rinsate sampling will be compared to the closure performance standards. If the results are at or below the standards for each COC, then the process equipment may be demolished and removed from the site, or marked, isolated and left in place. If the analytical results from the wipe and rinsate sampling are above the closure performance standards, then the equipment may be decontaminated again and resampled, or the equipment may be demolished and disposed of as a hazardous waste at an appropriately permitted off-site TSDF.

3.2.4. Site Soil

A schematic overview of the soil sampling and analysis program during site closure is shown on Figure B-2. The soil sampling during site closure will consist of both confirmation sampling and background level sampling. Confirmatory soil samples will be collected at the Facility where there has been suspected or confirmed loss of secondary containment, or where there is other evidence that a release to underlying or adjacent soils may have occurred. The background level soil samples will be collected to develop the baseline concentrations of the inorganic COCs as part of the closure performance standards for site soil.

Confirmation soil samples will be collected from beneath each of the secondary containment areas. A minimum of five locations will be collected in a five-point arrangement, with four samples collected near the corners of the structure and one sample near the center of the structure. Additional sample locations within each concrete containment structure will be based on the most likely collection point of any contaminants, such as in floor sumps or under the previous location of storage tanks or process equipment. The locations of significant cracks or stains in the secondary containment systems will also be selected for additional soil sampling. Records of past repairs from the Facility's operating log will be reviewed during closure to select the sample locations.

Each sample location within the concrete containment structure will be initially prepared by first coring and removing a section of the concrete pad to allow access to the subsurface soils. Coring will not be required if the structure has been demolished and removed from the site prior to initiation of soil sampling. Sampling of storage tank locations will be dependant upon whether the tank remains in place. For containment areas where the tank remains at the site, one soil sample may be collected from under the tank foundation using horizontal drilling techniques if access is possible.

Additional confirmation samples will be collected across the general open operational areas of the Facility. These areas would include the open spaces between the various buildings and tankfarms, and the truck and trailer parking area with the roll-off bins on the eastern portion of the property. Sampling will be based upon a fixed square grid with 30-foot interval spacing. Additional soil sampling will be conducted in those areas observed to have ground surface staining and where past spills had been documented from the Facility's operating log. The conformational open operational area soil sampling grid will be based on Figure B-4, Guide to Establishing Sampling Grid.

Background level soil samples will also be collected from three separate locations at the Facility. The locations will be selected outside the Facilities' operational boundaries and will represent potential areas that have not been impacted by previous site operations. The analytical results of the background level soil samples will be used in the development of closure performance standards for the site soil. The background level soil samples will be collected from the locations shown in Figure B-5, Romic Background Level Soil Sampling Locations.

The background level will be determined by calculating the mean of the three background level samples collected plus two standard deviations. If confirmatory soil samples have concentrations of hazardous constituents that exceed the 99^{th} percentile of the background level concentration distribution, then Romic

will conclude a release has occurred. The impacted soil will be excavated, if required, to meet the specified closure performance standard.

Excavation of impacted site soil will extend horizontally to approximately 1.5 meters (5 feet) and vertically to an elevation of approximately 1.5 meters (5 feet) below the elevation of the samples exceeding cleanup levels. Additional confirmation soil samples will then be collected from each of the excavation sidewalls and from the bottom of the over-excavation. This process will be repeated, as practical, until all soil areas meet the closure performance standards. Alternative remedial measures may also be used in lieu of excavation with approval. If soil contamination is determined to be relatively extensive at the time of site closure, then a Corrective Action may be developed and reviewed with the Regional Administrator.

Each soil sample will be collected at a depth just below surface grade, or the interface of the concrete containment system and the soil interface in native soils. Two additional soil samples will be collected at approximately 1 meter (3 feet) and 2 meters (6 feet) below surface grade at locations which are suspected to have a high probability of contamination present, such as those directly under storage tanks, concrete drainage sumps, and any stained areas. The soil samples will be collected using a hand auger or by a direct push technology (DPT) drilling rig (i.e., Geoprobe). Field duplicate soil samples and equipment decontamination final rinsate samples will be collected in conjunction with each sampling event.

3.2.5. Site Groundwater

If necessary, groundwater samples will be collected from three monitoring wells installed at the site. The location of the groundwater monitoring wells will be determined at time of closure, however they will generally be configured in a triangular pattern across the site to determine the groundwater gradient. Groundwater samples will be collected following purging of the monitoring wells. Analytical results from the groundwater sampling will be compared to the closure performance standards. If the results are at or below the standards for each COC, then the monitoring wells may be abandoned and properly closed. If the analytical results from the groundwater sampling are above the closure performance standards, then a Corrective Action for the site groundwater may be developed and reviewed with the Regional Administrator.

3.3. Data Quality Indicators

Data quality indicators for the program include “PARCC” (precision, accuracy, representativeness, completeness, and comparability) goals, and level of confidence requirements, as described in the following subsections. Additional information is provided in the Romic Laboratory Quality Assurance Procedure Manual (QAPM). The QAPM can be found in Appendix C-1 to Section C of this Part B Application.

3.3.1. Precision

Precision refers to the degree of agreement between duplicates expressed as relative percent difference (RPD). RPD is calculated by the following equation:

$$\text{RPD} = \frac{|D_2 - D_1|}{\left[\frac{(D_1 + D_2)}{2}\right]} \text{ x } 100\%$$

Where: D_1 is the value of the first sample result

D_2 is the value of the second sample result

Precision criteria are based on an evaluation of potential field and laboratory performance on samples of similar matrices.

3.3.2. Accuracy

Accuracy refers to the agreement between the amount of the analyte measured by the test method and the amount actually present expressed as percent recovery (%R) of surrogates and matrix spikes. Percent recoveries are calculated by the following equations:

Where: Q_a is the quantity added to the sample

Q_d is the quantity recovered during analysis

$$\text{Surrogate \%R} = \frac{Q_d}{Q_a} \text{ x } 100\%$$

Where: SA is the amount of spike added

SR is the sample result

SSR is the spiked sample result

$$\text{Matrix Spike \%R} = \frac{SS - SR}{SA} \text{ x } 100\%$$

Like precision, accuracy criteria are based on an evaluation of potential laboratory performance on samples of similar matrices.

3.3.3. Representativeness

Representativeness is the degree to which the sample data represent a characteristic of the measured population. It is a qualitative parameter most influenced by the design and effectiveness of the sampling program and the proficiency of the sampling personnel. The procedures specified in this plan are designed to assure representative samples are collected and handled in a manner that assures the results from analysis of the samples correctly characterize the media sampled.

3.3.4. Completeness

Completeness is expressed as the percentage determined from the number of acceptable results compared to number of expected results. Where necessary, samples will be reanalyzed, or if insufficient sample material remains, additional samples will be collected and analyzed to meet this requirement.

The precision, accuracy, representativeness, and completeness objectives for this sampling program are shown in Table B-2. For this sampling program, laboratory precision will be ensured through the analysis of laboratory duplicate samples and the total precision of the sampling and analysis process will be assessed by the collection and analysis of field duplicate samples. Analytical accuracy will be ensured through the use of matrix spike samples. Representativeness of the soil samples will be ensured through the use of a sample grid or pattern, a statistical assessment of the adequacy of the number of samples, and the use of consistent sampling procedures. Collecting a statistically significant number of samples will also ensure completeness.

3.4. Analytical Methods and Detection Limits

Based on a review of the previous hazardous wastes accepted at the Facility, Romic has selected the following analytical methods to determine the potential COCs that may be present during site closure:

- EPA Method 8260B for volatile organic constituents (VOCs);
- EPA Method 8270C for semi-volatile organic constituents (SVOCs);
- EPA Method 8440 for total recoverable petroleum hydrocarbons (TRPH);
- EPA Method 9045C for pH level;
- EPA Method 6010B for metals; and
- EPA 8081A for organochloride pesticides.

The analytical methods will be based on the Test Methods for Evaluating Solid Waste, SW-846, U.S. Environmental Protection Agency, Third Edition, November 1986 ("SW-846") or equivalent to evaluate the samples collected during closure. The detection limits for these methods will be set to at least the PQLs specified in SW-846.

3.5. Data Evaluation Procedures

Site closure may be based on a combination of both "clean closure" and "risk-based closure" performance standards depending upon the specific hazardous waste management unit closed at the site. The hazardous waste management unit will be considered clean closed if any detectable metal constituents identified in 40 CFR 261 Appendix VIII are below background levels while detectable organic constituents are below EPA Region 9's Preliminary Remediation Goals (PRGs) or equivalent.

Metals are reported as concentrations, so the cleanup levels for these analytes will be based on the 99th percentile of their concentration distribution in background soil samples. Procedures for evaluation of the data for clean closure is as follows:

- Determine Cleanup Levels
  - Collect and analyze background level soil samples (metals only).
  - Determine degree of data censoring (metals only).
  - Determine distribution of data (metals only).
  - Calculate mean and standard deviation of sample set (metals only).
  - Calculate required number of samples. Collect additional background samples as needed.
  - Calculate Cleanup Levels for each analyte (metals only).
- Compare Confirmatory Samples to Cleanup Levels
  - Collect and analyze confirmation sample.
  - If Cleanup Levels are exceeded, conduct additional decontamination/excavation and re-sample.
  - If Cleanup Levels are met, document results in area acceptance package.
  - Project Manager reviews sample results and statistical calculations and signs acceptance package for submittal to Professional Engineer.

A risk-based closure for a hazardous waste management unit will demonstrate through a HHERA that any detectable hazardous constituents identified in 40 CFR 261 Appendix VIII will not impact any environmental media in excess of Agency-established criteria or equivalent. If necessary, the risk-based clean-up standards will be developed at time of closure, using current toxicological protocols and site data collected at that time.

3.6. Measurement/Data Acquisition

This section provides the sampling and analysis procedures, including sample collection, documentation and custody, and analytical method requirements. These requirements ensure that appropriate methods are employed and documented.

3.6.1. Sampling Collection Requirements

This section describes the methodology for sampling each medium, the sampling equipment, decontamination procedures, sample container and preservation requirements, and sample handling and packaging procedures.

Chip Samples

Chip sampling will be performed on areas with porous surfaces such as asphalt, concrete, or wood. Chip samples will be obtained by chiseling out the top the top 2 cm of a 10 cm x 10 cm area and will represent an area of no more that 100 m^2. The chip samples will be transferred into appropriate laboratory-precleaned sample containers. All sampling equipment will be decontaminated before and after each use.

Wipe Samples

Wipe sampling will be performed on areas with smooth and impervious surfaces such as metal tanks, metal buildings, and epoxy coated concrete. Wipe samples will be obtained by using filter paper or gauze pads that are moistened with an appropriate solvent. The sampling material will be held in place by a pair of stainless steel forceps and is used to swab an area that is marked with a template. Wipe samples size will typically be 100 cm^2 and will represent an area of no more than 100 m^2. The wipe samples will be transferred into appropriate laboratory-supplied clean sample containers. All sampling equipment will be decontaminated before and after each use.

Soil Samples

Samples will be collected using either hand augers, shallow test pits, or direct push sampler (for example, Geoprobe). The borings will be continuously cored and boring logs generated. The field geologist will screen extracted soil cores for physical evidence of contamination (e.g., odors, chemical sheen, or discoloration). After the samples are collected, each boring will be backfilled with grout.

For direct push sampling, the soil samples will be removed from the sampling device, sealed with Teflon tape, capped, labeled, and placed in a pre-chilled ice chest. The soil samples from other sampling techniques will be transferred into appropriate laboratory-precleaned sample containers, and placed in a pre-chilled ice chest. If a sample of soil cannot be obtained at the exact location required because of boulders, loose sands, or other unfavorable conditions, a sample will be collected at a location adjacent to the prescribed location. Duplicate soil samples may be collected by dividing the sample. If the sample is too loose or otherwise not divisible, the sample will be homogenized and then divided into the duplicate pair. All sampling equipment will be decontaminated before and after each use.

Wastewater and Rinse Water Samples

Samples of liquids will consist of the sampling equipment rinsate fluids from the soil sampling program, decontamination confirmation rinsate samples, and the equipment decontamination wastewater samples. The equipment rinsate samples will be collected by pouring reagent-grade water over, or through, the equipment or item to be sampled. Where possible, the samples will be collected by pouring the rinsate directly into the final sample container. The sample container should be filled completely, excluding any headspace, and with a minimum of aeration. If transfers between containers, such as beakers or flasks, are required, these will be minimized to the extent possible. Disposable or laboratory-supplied clean containers will be used for the transfers if possible. Each time a rinsate sample is collected, it should be from a different equipment item that has been decontaminated for that specific day. Samples of

wastewater will be collected from within the 55-gallon drums using a glass thief or dipping cup per the standard procedures described under the Waste Analysis Plan included in Section C of the Part B permit.

Groundwater Samples

The groundwater monitoring wells at the site will be developed and purged prior to sampling. The monitoring wells will be developed and purged using a combination of bailing, surging, and pumping. The fine-grained materials that may have accumulated in each well casing will be bailed from the well with a bailer until the bottom of the well casing can be probed. After bailing, the wells will be surged using a surge block to flush any fine-grained materials from the filter pack. The monitoring wells will then be bailed again to remove fine-grained materials until the bottom of the well casing can be probed.

After the second bailing, a submersible pump will be lowered down into each well and set in the lower portion of the submerged well screen. The pump will be started and the flow rate will be monitored using an in-line flow meter. The flow rates will be periodically checked and recorded. If the well is capable of yielding three well volumes, samples will be collected at regular intervals during the purging and tested for pH, electrical conductivity (EC), temperature, and turbidity. If sufficient recovery takes more than two hours, a groundwater sample will be collected separately for testing each parameter. Parameters will be measured quickly to minimize sample contact with the atmosphere. When parameters have stabilized within three well volumes (pH ± 0.1 pH units, EC ± 5% of previous reading, turbidity ± 10 NTUs, and temperature ±1ºC), then a groundwater sample will be collected for laboratory analysis. If all of the parameters have not stabilized, then pumping will continue until six well volumes have been purged, or parameters have stabilized, whichever comes first.

Water purged from the monitoring wells during well development will be temporarily placed in 55-gallon drums. The drums will be transported to a holding area where the contents will be sampled for laboratory analysis. Samples will be collected from the drums using a glass thief or dipping cup per the standard procedures described under the Waste Analysis Plan included in Section C of the Part B permit

After the monitoring wells have been developed and purged, groundwater samples will be collected. Groundwater sampling will follow the techniques described in the *RCRA Ground Water Monitoring Technical Enforcement Guidance Document* (U.S. EPA, 1986) or equivalent. The groundwater samples will be collected using a Teflon™ bailer. A stainless steel chain or cable will be used to lower the sampling equipment into each monitoring well. Samples will be collected after the water level has recovered to 80% of its static level or 16 hours after completion of purging, whichever comes first.

Samples for VOCs will be collected by placing the Teflon™ sampling nipple into the bottom of the bailer and allowing the sample to flow directly into the sample container. Samples for VOCs will be collected in 40-mL glass bottles allowing no headspace. This will be accomplished by filling each bottle until a meniscus is over the top, and fitting the cap securely. Headspace will be checked by inverting the bottle and tapping the lid to see if any air bubbles are visible in the bottle. If an air bubble appears, the sample will be collected again in a new vial. VOC bottles will contain a hydrochloric acid (HCl) preservative to extend the holding time.

Samples collected for inorganic analysis will be collected by pouring from the top of the bailer, but will be placed in plastic or glass containers filled to the top. If preservatives are in the containers, they will not be allowed to overflow while filling. The samples will be collected in order of decreasing volatilization as VOCs, SVOCs, metals and other inorganics.

Temperature, pH, EC, and turbidity will be measured before and after sampling to document the stability of the water over the sampling period. Water levels will be measured after samples are collected and after monitoring well conditions have stabilized.

3.6.2. Monitoring Well Installation

The following section describes the procedures for installation of groundwater monitoring wells at the site. Monitoring Wells will be installed according to *Standard Practice for Design and Installation of Ground Water Monitoring Wells in Aquifers* (ASTM, 1990) and the *Handbook of Suggested Practices for the Design and Installation of Groundwater Monitoring Wells* (U.S. EPA, 1991a).

Based on the anticipated depth to groundwater of approximately 100 feet bgs, three or more monitoring wells may be installed at the Facility using Air Rotary Casing Hammer Drilling (ARCH) drilling techniques. If site conditions vary greatly from anticipated conditions, then changes will be made and will be documented. A registered geologist, engineering geologist or professional engineer certified by the state of Arizona will supervise all drilling activities.

Soil samples will not be submitted for laboratory analysis of potential contaminants of concern during drilling activities due to the nature of sample collection from the ARCH rig cyclone. However, grab samples of soil will be collected for determining the lithologic structure approximately every 5 feet and at each change in lithology to the depth of first water. Ambient air will also be monitored during all drilling and sampling activities.

The wells will be completed using flush-threaded 4-inch-diameter well casing and screen. The well construction materials will consist of a lower 20-foot section of 0.020-inch slotted Schedule 5 Type 304 stainless steel wirewrap screen equipped with a stainless steel bottom cap, a middle 10-foot section of blank Schedule 5 Type 304 stainless steel casing, and an upper Schedule 80 polyvinyl chloride (PVC) blank casing extending to ground surface. The well screen will be installed such that it extends approximately 5 feet above and 15 feet below the measured static groundwater level.

All downhole drilling equipment will be decontaminated before it is used at the site and after completion at each monitoring well location. Screen and casing sections will be steam cleaned and wrapped in plastic for transportation to each well location. The casing will be kept covered with plastic sheeting to avoid contamination until it is assembled and lowered down into the borehole.

The well casing will be plumb, true, and centered in the borehole to ensure that it is straight. Two stainless steel centralizers will be placed at the bottom and the top of the well screen. No centralizers will be located along the blank casing to prevent possible bridging of bentonite pellets during their installation.

Once the casing is installed, a filter pack, consisting of acid-resistant, washed and graded Lonestar No. 3 Monterey silica sand, will be placed in the annulus between each well casing and the borehole wall. The sand will be furnished in sacks and will be clean and free of oil, acid, organic or other deleterious material. The filter pack will be placed from the total borehole depth to approximately 3 feet above the top of the respective well screen. The filter pack material will be slowly introduced into each borehole through a tremmie pipe extending down between the casing and the borehole. The filter pack will be periodically sounded to monitor the depth and to locate any points of bridging between the well casing and the borehole or auger wall. The filter pack may be consolidated with a tight-fitting transition tool to break any bridges if they are encountered.

An approximate 1-foot layer of fine transition sand will be installed above the filter pack. A 5-foot transition layer of bentonite pellets will then be installed above the filter pack and hydrated with potable water. The bentonite pellets will be allowed to hydrate for approximately one hour prior to installation of the surface seal. After the bentonite seal has hydrated, the surface seal will be installed to ground surface using a neat Type I Portland cement containing 3 to 5 % powdered bentonite added by weight. The bentonite will be free of any additives that may impact water quality. The surface seal will be pumped from the bottom of the borehole to the ground surface by using a temporary tremie pipe to maintain a continuous seal while periodically raising the drive casing.

The monitoring wells will be completed above surface grade. The casing at each well will be extended 2 to 3 feet above the ground surface. An 8-inch-diameter steel guard pipe will be placed over the well casing and seated in a 2-foot square by 4-inch thick concrete surface pad. The pad will be sloped away from the well casing. A lockable cap or lid will be installed on the guard pipe. A PVC slip cap will be placed on the inside well casing. The inside casing will be notched on the northern side for use as a water level measurement datum point. Each well will be clearly marked using paint or impact lettering. Figure 9-3 shows a typical monitoring well design for the above-grade completion. All monitoring wells will be secured with corrosion-resistant locks as soon as possible after drilling has been completed. The locks will either have identical keys or be keyed to a master key.

Following installation, the water levels in all monitoring wells at the will be measured using the procedures described in the *RCRA Ground Water Technical Enforcement Guidance Document* (U.S. EPA, 1986). Measurements will be taken after the wells have stabilized prior to any well development or purging activities. Each measurement event will occur within as short a time period as practical so that water levels are representative of a given period (estimated to be one day or less). The electric sounder will be used to measure the static water level depth if no immiscible layers are present. Measurements will be recorded as feet below the measuring point elevation (top of casing) to the nearest 0.01 foot, and recorded as mean sea level (msl).

Following purging and sampling, the groundwater monitoring wells may be closed and abandoned. Wells will be abandoned in accordance with procedures outlined by the the *Manual of Water Well Construction Practices* (U.S. EPA, 1975).

3.6.3. Decontamination Procedures

Proper decontamination of sampling equipment is essential to prevent accidental cross-contamination of samples. Sample collection equipment items that will require decontamination include reusable collection containers and trowels. A decontamination area will be designated and equipped with the necessary equipment (pressure-washer, wash buckets, brushes, spray bottles, potable water, distilled water, towels, etc.).

The following procedures will be used for the decontamination of nondisposable soil and liquid sampling equipment.

For small equipment items such as trowels or spoons:

- Scrub with a brush and potable water to remove visible contamination.
- Rinse with clean potable water.
- Dry with disposable towels.

Process equipment decontamination procedures are described in Section J 1.8.2 of the Closure Plan.

3.6.4. Sample Preservation and Storage

Following collection, the samples will be properly stored to prevent degradation of their integrity. Table B-4, Summary of Sample Container, Preservation, and Holding Time Requirements, summarizes the preservation and holding time requirements for analyses of the soil and liquid samples.

3.6.5. Sample Packaging and Shipping Procedures

This section describes the procedures for packaging and transporting the samples from the point of collection to delivery to the laboratory. Samples will be sealed in the appropriate sampling container using plastic tape or an equivalent. A chain-of-custody seal will be placed over the tape. The samples will be packed securely in an ice chest containing ice sealed in double plastic bags. All samples will be cooled to 4°C during storage and prior to transfer to the laboratory.

3.7. Sample Documentation and Custody Requirements

Each sample will be properly documented to facilitate timely, correct, and complete analysis of data. The documentation system is used to identify, track, and monitor each sample from the point of collection through final data reporting. Chain-of-custody is necessary if there is any possibility that the analytical data or conclusions based upon analytical data will be used in litigation. A sample is considered to be in a person's custody if it is: 1) in a person's physical possession, 2) in view of the person after taking possession, or 3) secured by that person so that no one can tamper with it.

3.7.1. Field Sample Custody and Documentation

Sample custody and documentation are necessary to demonstrate the integrity of the sample from time of collection until delivery to the process or offsite analytical laboratory. The documentation required includes logbooks, sample labels, custody seals (for offsite samples), and chain-of-custody forms.

Logbooks. Logbooks will document where, when, how, and from whom any vital program information was obtained. Logbook entries will be complete and accurate enough to permit reconstruction of field activities. At a minimum, the following sampling information will be recorded:

- Sample location, station location, and description;
- Sample number;
- Sampler's name(s);
- Date and time of sample collection;
- Designation of sample as composite or grab;
- Type of sample (i.e., matrix);
- Type of sampling equipment used;
- Type of preservation used (if any);
- Shipping arrangements and airbill number (as applicable); and
- Recipient laboratory(ies).

Logbooks will be bound, ruled, and each page prenumbered. All entries in logbooks will be in indelible ink, and corrections will be made by striking out erroneous information and initializing the change. "White out" will not be used.

Labeling. All samples collected will be labeled in a clear, precise way for proper identification in the field and for tracking in the laboratory. The samples will have preassigned, identifiable, and unique numbers. At a minimum, the sample labels will contain the following information:

- Facility name;
- Sample number;
- Date of collection;
- Time of collection;
- Analytical parameter; and
- Method of preservation.

Custody Seals. Custody seals will be used to preserve the integrity of each sample container and cooler from the time it is collected until it is opened by the offsite laboratory. A custody seal will be placed on each sample container after collection such that it must be broken to open the container. Two or more custody seals will be signed, dated, and placed on the front and back of the sample cooler prior to transport. If samples are to be transported to the onsite laboratory, and analysis will be immediately performed, custody seals on the individual sample containers are not necessary.

Chain-of-Custody Records. Chain-of-custody forms will be used for all samples delivered to the process laboratory and offsite laboratories to ensure that the integrity of the samples is maintained. Each form will include the following information:

- Sample number;
- Date of collection;
- Time of collection;
- Analytical parameter;
- Method of preservative;
- Number of sample containers;
- Shipping arrangements and airbill number, if applicable;
- Recipient laboratory; and
- Signatures of parties relinquishing and receiving the sample at each transfer point.

A coding system will be used to identify each sample and is described in Table B-4, Description of Sample Designation. The system will allow for quick data retrieval and tracking to account for all samples. The sample designation will be assigned at the time of sample collection and recorded on the sample label, and logbook, and will comprise three parts or fields:

- Part 1 of the sample designation consists of a field (two digits) indicating the sampling event (i.e., "BL" will be used for the background level soil sampling event);
- Part 2 is a four-digit field corresponding to the sample location (i.e, "TANKA" for Tankfarm A); and
- Part 3 is a three-digit field that corresponds to the sequential number of sample collection.

Duplicate sample will be given the next number in the sampling sequence.

3.7.2. Laboratory Custody

The laboratory is to document all transfers of each sample within the laboratory system (e.g., the transfer of the sample from the sample custodian to the analyst for obtaining a sample aliquot and then the transfer of the sample back to the sample custodian). Additionally, all transfers of all sample extracts and digests

will be recorded. This may be accomplished through the use of a sample preparation sheet with a signature block for documenting the transfer of the samples or by using a separate digest/extract custody transfer form.

3.8. Analytical Methods Requirements

The contract analytical laboratory selected must be a State-certified laboratory for the specific test methods used during closure sampling.

3.9. Laboratory Quality Assurance/Quality Control Samples

Laboratory quality assurance requirements are specified in Section C, Appendix C-1, Quality Assurance Procedure Manual.

3.10. Field Quality Control Samples

QC samples will consist of field duplicate samples and equipment rinsates.

3.10.1. Field Duplicate Samples

Duplicate samples will be collected for use as a measure of the precision of the sample collection and analysis process. The duplicate will be submitted with minimal indication of the site it was taken from. Duplicates will be prepared following standard sampling and preparation techniques as described in this section. Duplicates will be collected and submitted to the laboratory at a frequency of one per day or 5 percent (i.e., 1 per 20) of routine samples, whichever is more frequent. The relative percent difference (RPD) between field duplicate pairs will be evaluated against the precision criteria to determine data acceptability.

3.11. Special Training Requirements/Certification

All personnel directly involved in sample collection, handling, analysis, and data evaluation will be provided with a copy of this SAP. The management of the participating field or laboratory organization will establish personnel qualifications and training requirements for the project. The Romic Project Manager will ensure each person participating in the project has the education, training, technical knowledge, and experience, or a combination thereof, to enable that individual to perform assigned functions. Training will be provided for each staff member as necessary to perform his or her functions properly. Personnel qualifications will be documented in terms of education, experience, and training, and periodically reviewed to ensure adequacy to current responsibilities. Examples of topics for which training is required, as applicable to the position, include:

- Safety;
- Quality Assurance Project Plan;
- Standard Operating Procedures (SOPs);

- General field sampling techniques;
- Specific sampling protocols;
- Equipment calibration and maintenance;
- Corrective actions;
- Data reduction and validation;
- Reporting;
- Records management;
- Demonstration of proficiency; and
- Project-specific requirements.

3.12. Documentation and Records

The following sections describe required documentation and records for training, field, and laboratory activities.

3.12.1. Training Activities

Training will be documented and records kept on file and readily available for review. Documentation of training may be accomplished by including a summary of the training and the topics or items covered at the top of the attendance sheet, and/or including a copy of the slides, handouts, etc. used in the training session.

3.12.2. Facility and Laboratory Activities

Records provide the direct evidence and support for the necessary technical interpretations, judgments, and discussions concerning program activities. These records, particularly those that are anticipated to be used in permitting documents, will directly support current or ongoing technical studies and activities and provide the historical basis for later reviews and analyses. Records will be legible, identifiable, and retrievable and protected against damage, deterioration, or loss. The discussion in this section outlines procedures for record keeping. Organizations that conduct sampling and analyses will develop appropriate record-keeping procedures that satisfy relevant technical and legal requirements.

Records will consist of bound notebooks with prenumbered pages, sample collection forms, personnel qualification and training forms, sample location figures/drawings, equipment maintenance and calibration forms, chain-of-custody forms, sample analysis request forms, and change request forms. All records will be written in indelible ink.

Procedures for reviewing, approving, and revising records will be clearly defined, with the lines of authority included. All documentation errors will be corrected by drawing a single line through the error so it remains legible and will be initialed by the responsible individual, along with the date of change. If

appropriate, the reason for the change will also be indicated. The correction will be written adjacent to the error.

Records will include but will not be limited to the following:

Sample Collection

To ensure maximum utility of the sampling effort and resulting data, documentation of the sampling protocol, as performed, is essential. Sample collection records will contain, at a minimum, the names of persons conducting the activity, sample number, sample location, equipment used, ambient conditions, documentation of adherence to protocol, and unusual observations. The actual sample collection record will be one of the following: a bound field notebook with prenumbered pages, a preprinted form, or digitized information on a computer tape or disc.

Chain-of-Custody Records

The chain-of-custody, which involves the possession of samples from the time they are obtained until they are disposed of or shipped off site, will be documented.

QC Samples

Documentation for identification of QC samples, such as equipment rinsate blanks and duplicate samples, will be maintained.

Deviations

All deviations from procedural documents and the SAP will be maintained in the operating record. A nonconformance record will be generated for each and every deviation.

Reports

A copy of all reports issued and any supporting documentation will be retained.

4. ASSESSMENT AND OVERSIGHT

This section describes the data assessment and oversight program, including procedures for response actions, nonconformance correction actions, and reports to management.

4.1. Nonconformance and Corrective Action

Nonconformance and corrective action requirements are specified in Section C4.5 Incoming Waste Accepting Evaluation of the Part B Permit

4.2. Assessments and Response Actions

Assessments and response requirements are specified in Section C4.5 Incoming Waste Acceptance Evaluation of the Part B Permit.

4.3. Reports to Management

Reports to the Closure Project Manager will include the program progress, a summary of key performance indicators, a summary of the nonconformance and corrective actions, surveillance and audit findings, and data validation reports. Each report, as appropriate, will include a section that provides an overall assessment of the sampling and laboratory programs.

5. DATA VALIDATION AND USABILITY

This section describes the data assessment and oversight program, including procedures for data review, validation, and verification and reconciliation with data quality objectives.

5.1. Data Review, Validation, and Verification Requirements

Data review, validation, and verification requirements are specified in Section C, Appendix C-1, Quality Assurance Procedure Manual.

5.2. Reconciliation with Data Quality Objectives

Reconciliation with data quality objective requirements are specified Section C, Appendix C-1, Quality Assurance Procedure Manual.

TABLES

Table B-1
Summary of Closure Sampling

Sample Type	Matrix	Location	Estimated Minimum Quantity	Sample Designation	Analysis					
					SW-846 8260B	SW-846 8270C	SW-846 8440	SW-846 9045C	SW-846 6010B	SW-846 8081A
Concrete Containment Structures										
Decon Confirmation	Chip	Drum Storage Building No. 1	3	CODRM1 (001-003)	Yes	Yes	Yes	Yes	Yes	Yes
Decon Confirmation	Chip	Drum Storage Building No. 2	3	CODRM2 (001-003)	Yes	Yes	Yes	Yes	Yes	Yes
Decon Confirmation	Chip	Rail Loading and Unloading	3	CORAIL (001-003)	Yes	Yes	Yes	Yes	Yes	Yes
Decon Confirmation	Chip	Canopy Area	3	COCNPY (001-003)	Yes	Yes	Yes	Yes	Yes	Yes
Decon Confirmation	Chip	East Bay Processing Area	3	COEAST (001-003)	Yes	Yes	Yes	Yes	Yes	Yes
Decon Confirmation	Chip	West Bay Processing Area	3	COWEST (001-003)	Yes	Yes	Yes	Yes	Yes	Yes
Decon Confirmation	Chip	Tankfarm A	3	COTANKA (001-003)	Yes	Yes	Yes	Yes	Yes	Yes
Decon Confirmation	Chip	Tankfarm B	3	COTANKB (001-003)	Yes	Yes	Yes	Yes	Yes	Yes
Decon Confirmation	Chip	Tankfarm C	3	COTANKC (001-003)	Yes	Yes	Yes	Yes	Yes	Yes
Decon Confirmation	Chip	Tankfarm D	3	COTANKD (001-003)	Yes	Yes	Yes	Yes	Yes	Yes
Decon Confirmation	Chip	Tankfarm E	3	COTANKE (001-003)	Yes	Yes	Yes	Yes	Yes	Yes
Decon Confirmation	Chip	Tankfarm F	3	COTANKF (001-003)	Yes	Yes	Yes	Yes	Yes	Yes
Decon Confirmation	Chip	Tankfarm G	3	COTANKG (001-003)	Yes	Yes	Yes	Yes	Yes	Yes

Estimated quantity does not include additional duplicate samples required.

Table B-1
Summary of Closure Sampling (cont.)

Sample Type	Matrix	Location	Estimated Minimum Quantity	Sample Designation	Analysis					
					SW-846 8260B	SW-846 8270C	SW-846 8440	SW-846 9045C	SW-846 6010B	SW-846 8081A
Tank Systems										
Decon Confirmation	Wipe	Tankfarm A (3 tanks)	9	DVTANKA (001-009)	Yes	Yes	Yes	Yes	Yes	Yes
Decon Confirmation	Wipe	Tankfarm B (3 tanks)	9	DVTANKB (001-009)	Yes	Yes	Yes	Yes	Yes	Yes
Decon Confirmation	Wipe	Tankfarm C (5 tanks)	15	DVTANKC (001-015)	Yes	Yes	Yes	Yes	Yes	Yes
Decon Confirmation	Wipe	Tankfarm D (2 tanks, 4 tanks proposed)	18	DVTANKD (001-018)	Yes	Yes	Yes	Yes	Yes	Yes
Decon Confirmation	Wipe	Tankfarm F (9 tanks proposed)	27	DVTANKF (001 -027)	Yes	Yes	Yes	Yes	Yes	Yes

Estimated quantity does not include additional duplicate samples required.

Tankfarm D currently has 2 tanks, those tanks will be moved to Tankfarms E and F and 4 new tanks installed under the proposed Part B Permit application.

Table B-1
Summary of Closure Sampling (cont.)

Sample Type	Matrix	Location	Estimated Minimum Quantity	Sample Designation	Analysis					
					SW-846 8260B	SW-846 8270C	SW-846 8440	SW-846 9045C	SW-846 6010B	SW-846 8081A
Miscellaneous Process Equipment										
Decon Confirmation	Wipe	Production Area (3 process units)	3	EQPROD (001-003)	Yes	Yes	Yes	Yes	Yes	Yes
Decon Confirmation	Wipe	Tankfarm A (1 process unit)	1	EQTANKA (001)	Yes	Yes	Yes	Yes	Yes	Yes
Decon Confirmation	Wipe	Tankfarm C (5 tanks)	5	EQTANKC (001-005)	Yes	Yes	Yes	Yes	Yes	Yes
Decon Confirmation	Wipe	Tankfarm E (6 proposed process units)	6	EQTANKE (001-006)	Yes	Yes	Yes	Yes	Yes	Yes
Decon Confirmation	Wipe	Tankfarm G (2 proposed process units)	2	EQTANKF (001 -002)	Yes	Yes	Yes	Yes	Yes	Yes

Estimated quantity does not include additional duplicate samples required.

Table B-1
Summary of Closure Sampling (cont.)

Sample Type	Matrix	Location	Estimated Minimum Quantity	Sample Designation	Analysis					
					SW-846 8260B	SW-846 8270C	SW-846 8440	SW-846 9045C	SW-846 6010B	SW-846 8081A
Confirmation	Soil	Drum Storage Building No. 1	5	SODRM1 (001-005)	Yes	Yes	Yes	Yes	Yes	Yes
Confirmation	Soil	Drum Storage Building No. 2	5	SODRM2 (001-005)	Yes	Yes	Yes	Yes	Yes	Yes
Confirmation	Soil	Rail Loading and Unloading	5	SORAIL (001-005)	Yes	Yes	Yes	Yes	Yes	Yes
Confirmation	Soil	Canopy Area	5	SOCNPY (001-005)	Yes	Yes	Yes	Yes	Yes	Yes
Confirmation	Soil	East Bay Processing Area	5	SOEAST (001-005)	Yes	Yes	Yes	Yes	Yes	Yes
Confirmation	Soil	West Bay Processing Area	5	SOWEST (001-005)	Yes	Yes	Yes	Yes	Yes	Yes
Confirmation	Soil	Tankfarm A	5	SOTANKA (001-005)	Yes	Yes	Yes	Yes	Yes	Yes
Confirmation	Soil	Tankfarm B	5	SOTANKB (001-005)	Yes	Yes	Yes	Yes	Yes	Yes
Confirmation	Soil	Tankfarm C	5	SOTANKC (001-005)	Yes	Yes	Yes	Yes	Yes	Yes
Confirmation	Soil	Tankfarm D	5	SOTANKD (001-005)	Yes	Yes	Yes	Yes	Yes	Yes
Confirmation	Soil	Tankfarm E	5	SOTANKE (001-005)	Yes	Yes	Yes	Yes	Yes	Yes
Confirmation	Soil	Tankfarm F	5	SOTANKF (001-005)	Yes	Yes	Yes	Yes	Yes	Yes
Confirmation	Soil	Tankfarm G	5	SOTANKG (001-005)	Yes	Yes	Yes	Yes	Yes	Yes
Background	Soil	Non-Impacted Areas	3	BLSOIL (001-003)	Yes	Yes	Yes	Yes	Yes	Yes
Confirmation	Soil	Open Area Grid	40	SOGRID (001-040)	Yes	Yes	Yes	Yes	Yes	Yes

Estimated quantity does not include additional duplicate samples required.

Table B-2
Data Quality Indicators for Site Closure

Data Quality Indicator	Goal
Precision	±50% RPD for Field Duplicates ±35% RPD for Laboratory Duplicates
Accuracy	70 – 130% Recovery
Representativeness	NA
Completeness	95%

Table B-3
Summary of Sample Container, Preservation,
and Holding Time Requirements

Analyte and Method	Sample Matrix	Sample Container	Preservation	Maximum Holding Time
Volatile Organic Constituents (SW-846 Method 8260)	Solid	4-ounce clear wide mouth glass bottle	Cool to 4°C	14 days
Volatile Organic Constituents (SW-846 Method 8260)	Liquid	40 mL glass vial	$Na_2S_2O_3$, HCl to pH < 2, Cool to 4°C	14 days
Semi-Volatile Organic Constituents (SW-846 Method 8270)	Solid	8-ounce clear wide mouth glass bottle	Cool to 4°C	7 days to extraction; 40 days for analysis
Semi-Volatile Organic Constituents (SW-846 Method 8270)	Liquid	1-liter amber Boston Round glass bottle	008% $Na_2S_2O_3$, Cool to 4°C	7 days to extraction; 40 days for analysis
Total Recoverable Petroleum Hydrocarbons (SW-846 Method 8440)	Solid	4-ounce clear wide mouth glass bottle	N/A	Analyze ASAP
Soil and Waste pH (SW-846 Method 9045C)	Solid	4-ounce clear wide mouth glass bottle	N/A	Analyze ASAP
Soil and Waste pH (SW-846 Method 9045C)	Liquid	60-mL high density polyethylene bottle	N/A	Analyze ASAP
Metals (SW-846 Method 6010)	Solid	8-ounce clear wide mouth glass bottle	HNO_3 to pH < 2	6 months
Metals (SW-846 Method 6010)	Liquid	1-liter high density polyethylene bottle	HNO_3 to pH < 2	6 months
Organochloride Pesticides (SW-846 Method 8081A)	Solid	8-ounce clear wide mouth glass bottle	008% $Na_2S_2O_3$, Cool to 4°C	7 days to extraction; 40 days for analysis
Organochloride Pesticides (SW-846 Method 8081A)	Liquid	1-liter amber Boston Round glass bottle	008% $Na_2S_2O_3$, Cool to 4°C	7 days to extraction; 40 days for analysis

Table B-4
Description of Sample Designation

Sample Designation	Description
CODRM1001	The 1st confirmation sample for Drum Storage Building No. 1 containment structure
DVTANKA002	The 2nd confirmation sample for a Storage Tank in Tank Farm A
EQPROD001	The 1st confirmation sample for process equipment in the Production Area
SOCNPY003	The third confirmation soil sample collected in the Canopy Area.
BLSOIL001	The 1st background level soil sample collected.
CORINS004	The 4th confirmatory rinsate sample collected.
CORINS005	Duplicate of sample CORINS004, above.

Figures

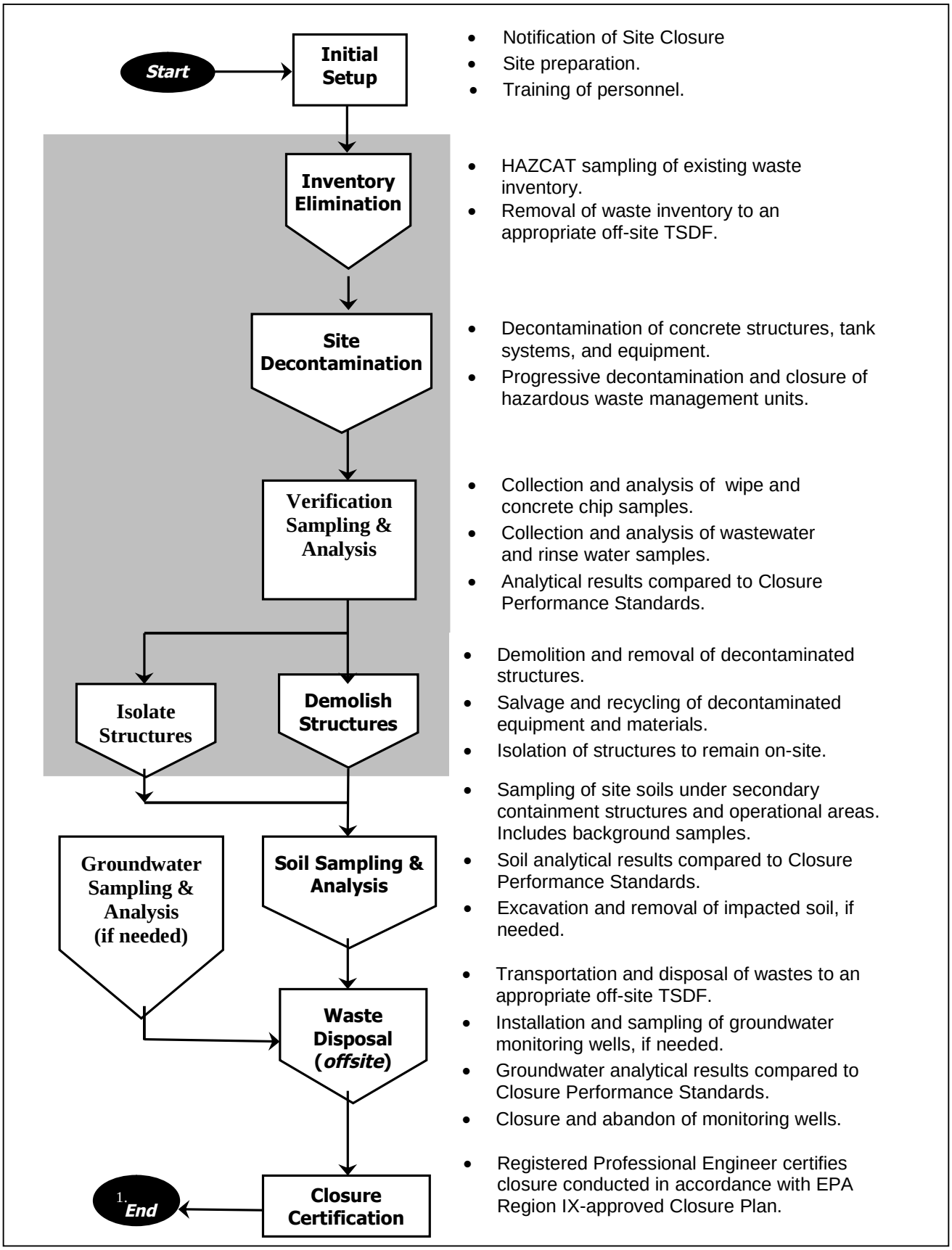


Figure B-1
Overview of Closure Process for Romic Facility

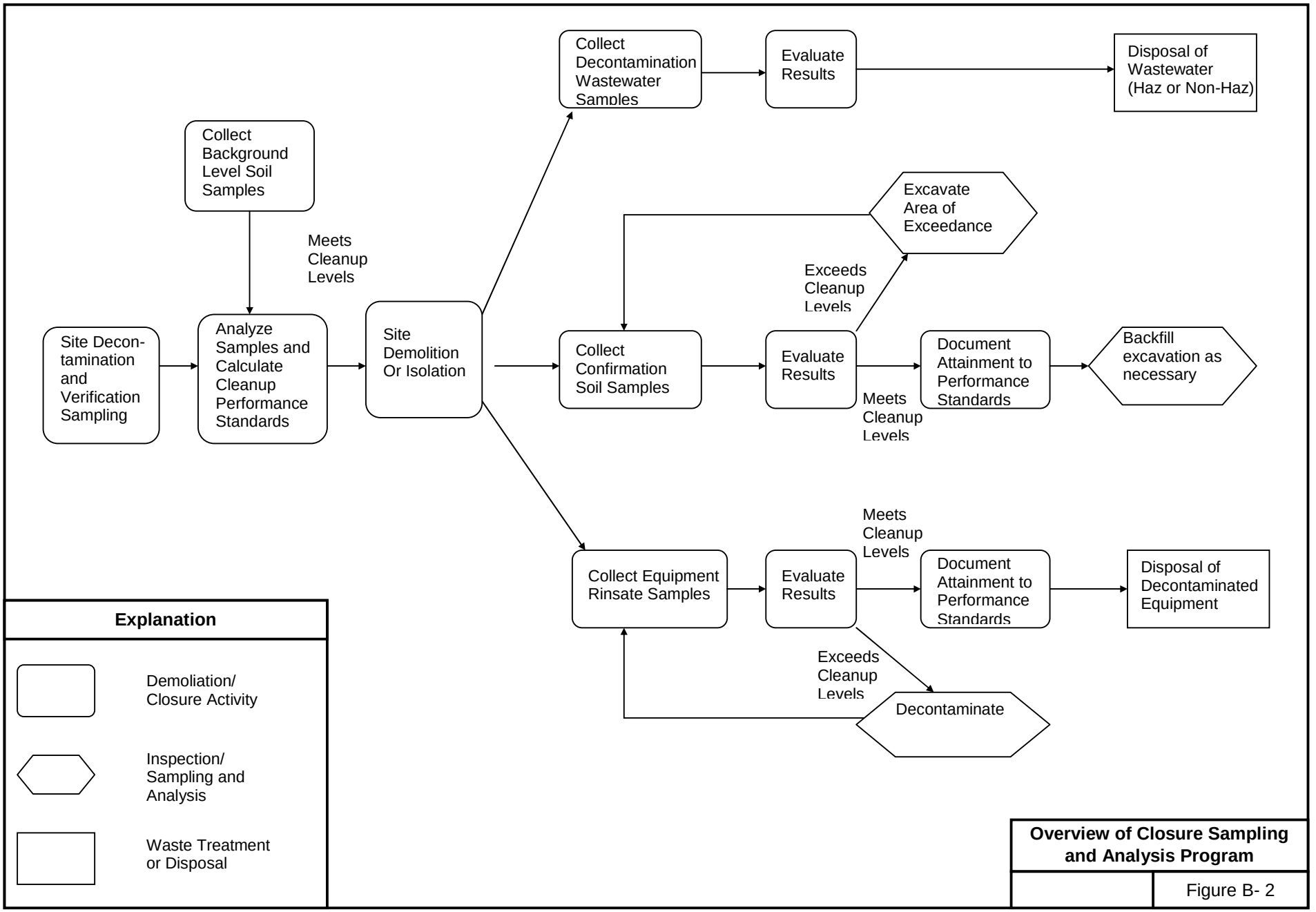
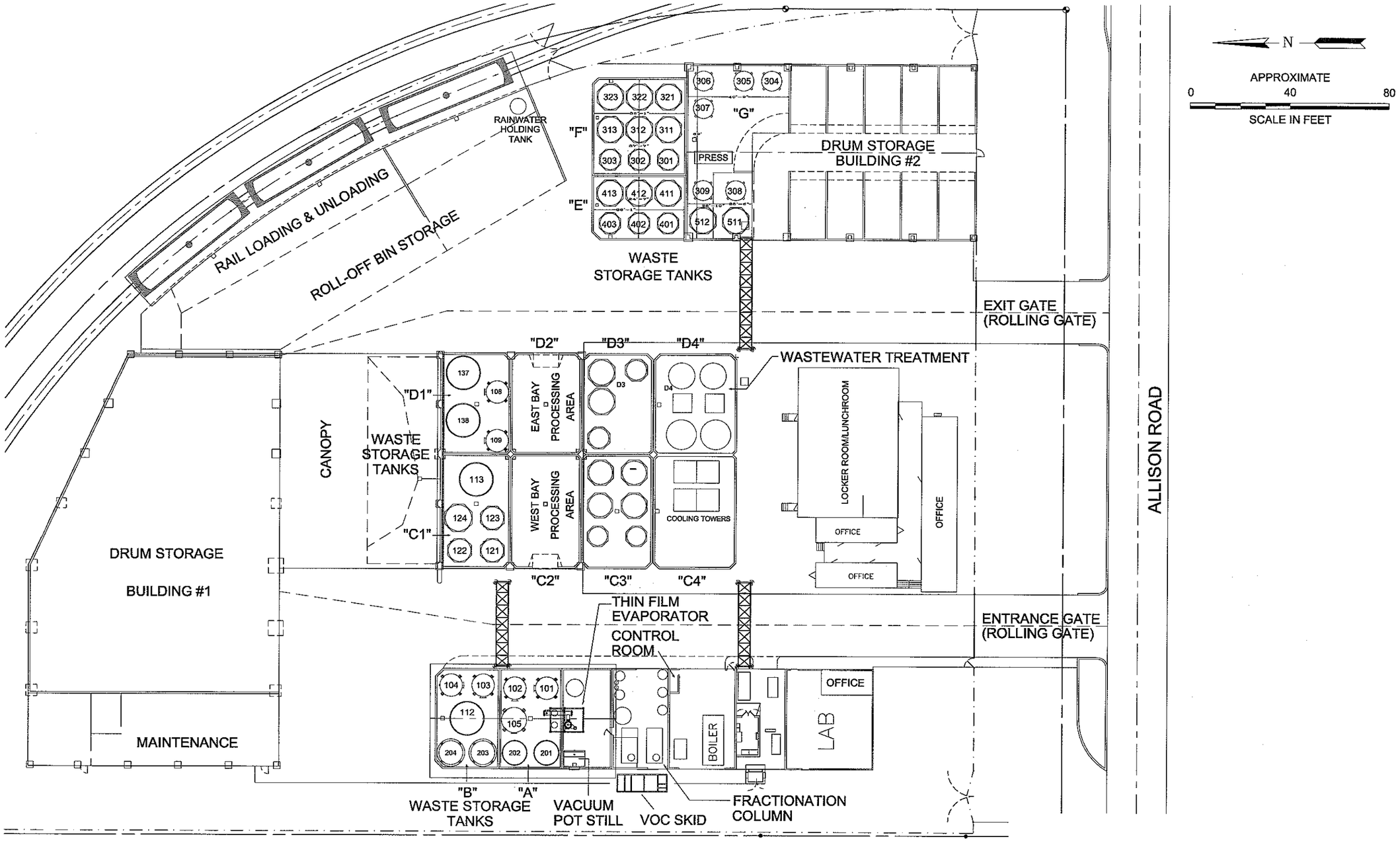


Figure B-3
Romic Facility Containment Areas



REFERENCE: BASEMAP PROVIDED BY:
ROMIC
ENVIRONMENTAL TECHNOLOGIES CORP.
ROMIC SOUTHWEST, CHANDLER, ARIZONA

Facility Layout - Storage & Treatment Areas

Romic - Southwest
Chandler, Arizona

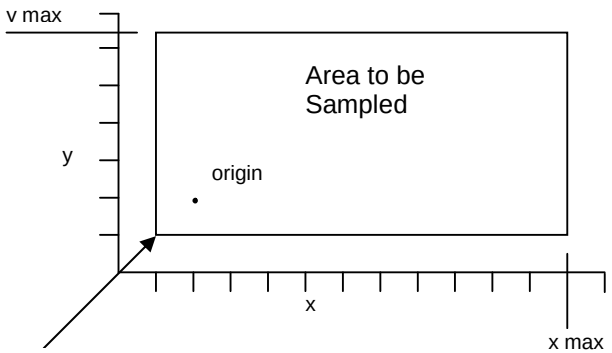
URS

Figure 3 of SAP

P:\ROMIC\2005 UPDATES\NEW CADD\A16438.DWG (layout FIG 3 OF SAP) 1-14-2005

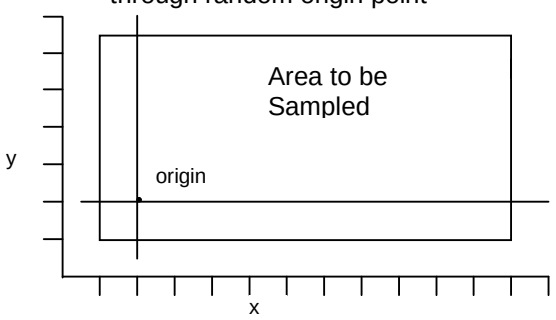
Figure B-4
Guide to Establishing Sample Grid

1. Select random origin point (see Table 2)

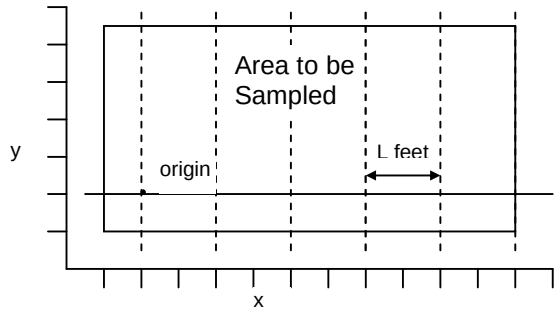


Reference Point (y_{min} and x_{min})

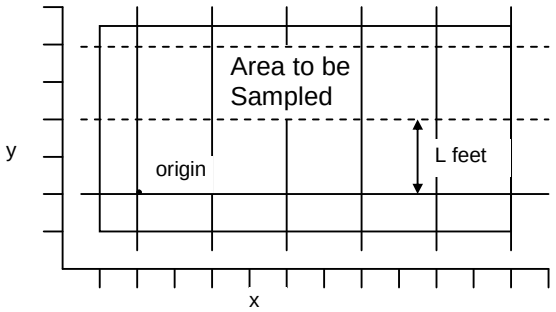
2. Construct coordinate axes going through random origin point



3. Construct lines parallel to vertical axis separated by L feet



4. Construct lines parallel to the horizontal axi separated by L feet



NOTE:

Grid spacing (L) will be 30 feet for Romic open areas.

Guide to Establishing Sampling Grid	
	Figure B-4

ATTACHMENT C

PARTIAL CLOSURE ACTIVITIES

Partial Closure Activities

Storage Tanks

- Drain the tank of all liquids.
- Open the tank and purge the interior. Visually inspect the tank bottom for sludges. If sludges are present, go to next step; if not, skip next step and proceed with steam cleaning.
- Conduct a confined space entry, following procedures set forth in Romic's Health and Safety Plan, and pump sludge from tank. The addition of solvents may be employed to facilitate the dissolving of solids to allow the vacuum removal of sludges.
- Steam clean or pressure wash the tank interior.
- Disconnect piping and any other associated ancillary equipment from the tank.
- Remove the tank from the secondary containment system.
- Visually inspect the secondary containment system and foundation that supported the tank for any cracks or deterioration in the concrete and protective coatings.
- A registered Professional Engineer, or their agent, will inspect and certify that the tank meets the closure performance standard.
- If the tank still contains residue that could not be removed, the tank will be managed as a hazardous waste and shipped off-site to an approved TSDF for further management. It may be necessary to cut the tank into sections for shipment off-site.

Piping:

- Steam clean or pressure wash the pipe collecting all rinse water and contaminants.
- Disconnect piping from tank.
- Triple rinse with caustic solution, collecting the rinse water for further management as a hazardous waste.
- Visually inspect to ensure "clean debris surface" standards have been met on the inside and outside of piping walls. If necessary, dismantle or cut piping. If unable to visually inspect, Romic may dispose of contaminated piping as hazardous waste/contaminated debris.
- A professional registered engineer, or their agent, will inspect and certify that the piping meets the closure performance standard.
- Manage the residues as a hazardous waste unless analytical results indicate that the waste is not hazardous.
- Romic may elect to skip decontamination procedures for piping and manage the piping as a hazardous waste for disposal at an off-site authorized facility.

Pumps

- If possible, use the pump associated with the ancillary equipment to pump the caustic wash solution during the triple rinsing operation.

- If the pump is not operational, or the capacity is not appropriate for the triple rinsing operation, disassemble the pump and submerge all areas that have contacted hazardous waste in cleaning solvent (e.g., n-Methyl Pyrolidine) for 1-3 hours. Follow the solvent decontamination step with a caustic wash.
- A registered Professional Engineer, or their agent, will inspect and certify that the pump meets the closure performance standard.
- Manage the residues as a hazardous waste unless analytical results indicate that the waste is not hazardous.
- Romic may elect to skip the decontamination procedures describe above and ship the contaminated pump off-site as a hazardous waste.