Romic Environmental Technologies Corp.

CAD 009 452 657

East Palo Alto, California

Section A

Certification Statement

November 2001
Revised 4/05

A CERTIFICATION STATEMENT

A1 OWNER/OPERATOR

The legal owner of the Facility is:

Romic Environmental Technologies Corp.
2081 Bay Road
East Palo Alto, CA 94303

The legal operator of the Facility is:

Romic Environmental Technologies Corp.
2081 Bay Road
East Palo Alto, Ca 94303

A2 REVISED APPLICATION

The date of the last approved Part B permit application was 1986. Using the December 28, 2000 Notice of Deficiency (NOD), prepared by DTSC (pertaining to the October 16, 2000 Part B permit application), in conjunction with the applicable sections of the CCR updated through October 15, 2000, this revised application was prepared by:

Clayton Group Services 6920 Koll Center Parkway Pleasanton, CA 94566 (925) 426-2600	Romic Environmental Technologies Corp. 2081 Bay Road East Palo Alto, CA 94303 (650) 324-1638 or (800) 766-4248

A3 CERTIFICATION

"I certify under penalty of law that this document and all attachments were prepared under the direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those directly responsible for gathering the information, the information is, to the best of my knowledge and belief, true accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Signature: /s/ Date: 4/28/05

Namki Yi
General Manager
Officer signing on behalf of Romic Environmental Technologies Corp.

Romic Environmental Technologies Corp.

CAD 009 452 657

East Palo Alto, California

Section B

Introduction and Facility Description

November 2001
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in separate sections following the main body of the text.

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B INTRODUCTION AND FACILITY DESCRIPTION

B1 INTRODUCTION

This Part B hazardous waste permit application is being submitted to the Department of Toxic Substances Control (DTSC) of the California Environmental Protection Agency (Cal-EPA) on behalf of Romic Environmental Technologies Corp. The purpose of the application is to obtain a hazardous waste facility permit for the Romic Environmental Technologies Corp. facility located at 2081 Bay Road in East Palo Alto, San Mateo County, California (herein referred to as the Facility and/or Romic). The Facility is an existing permitted facility and has been continuously operating under the Part B permit issued by the DTSC in 1986.

This application was prepared and submitted in compliance with Chapter 6.5 of Division 20 of California Health and Safety Code (commencing with Section 25100) and Chapter 20 of Title 22 of the California Code of Regulations (commencing with 22 CCR 66270.1). The information presented in the application is organized in a manner similar to the outline of the DTSC Permit Completeness Checklist and Instructions.

The Facility is a commercial hazardous waste treatment and storage facility that is primarily engaged in resource recovery. The Facility is permitted to treat, store, and transfer both EPA and California hazardous wastes. Industrial wastes are currently shipped to the Facility for recycling and treatment from various industries including, but not limited to:

- Drycleaning
- Printing
- Electronics
- Aerospace
- Paint
- Automotive

In addition, the Facility receives household hazardous waste (e.g., motor oil, paints, cleaners, etc.) from household waste collection events, for example, from San Mateo County and the City and County of San Francisco.

Specific examples of wastes-types managed at the Facility include industrial and household wastes, including halogenated and non-halogenated solvents, freon and freon substitutes, waste oils, sludges, oxidizers, corrosive wastes, resins/adhesives, debris/solids, soils, wastewaters, resin bed media, paints, aerosols, batteries, fluorescent tubes, and labpacks. Detailed information regarding both current and proposed incoming waste streams and waste acceptance procedures at the Facility is presented in Section C-Waste Characterization.

The Facility does not accept the following types of hazardous waste for treatment or processing:

- Radioactive wastes
- Explosives
- Wastes containing polychlorinated biphenyls (PCBs) in excess of 50 parts per million (ppm)
- Etiological wastes
- Pathogenic wastes

The facility can receive, store and process wastes in either bulk loads (e.g., tanker trucks, roll-off boxes, etc.) or containers (e.g., 55-gallon drums, totes, etc.). The wastes are transported to the Facility by properly licensed transporters. Wastes received at the Facility are sampled and analyzed to evaluate the chemical and physical properties of each waste stream, and the conformity of the load with the original paperwork. All containers manifested to the facility are inspected and assigned a unique tracking number, which is marked on the container using a bar code label. The containers may be stored within a designated storage area prior to transfer to the assigned process area. The storage areas are equipped with secondary containment and designed so that incompatible waste (e.g., strong acids with strong bases) are segregated. Section D-Process Equipment and Section E-Process Operations, provide detailed descriptions of both current and proposed onsite hazardous waste operations.

The Facility reclaims, recycles, treats, and stores hazardous waste using the following management options:

Primary Management Processes (Planned processes in *italics*)

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

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

- **Fuel Blending**: The mixing of impure waste materials of a sufficiently high heat content to produce a consistent alternative fuel (e.g., > 5,000 BTU) for use in off-site cement kilns.

- **Liquefaction**: Blending of solid and semi-solid materials with liquid material (e.g., diesel fuel, waste solvent) to achieve a liquid consistency for use in the fuel blending process (see above).

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

- **Neutralization**: 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**: Treatment of inorganic wastes using methods including: neutralization/pH adjustment, chemical precipitation, oxidation/reduction, de-watering, filtration, and stabilization. Note – planned activities are shown in italicized text throughout this permit application.*

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

- ***Debris Shredding**: Processing contaminated solid materials through an industrial shredder to facilitate transportation for off-site disposal.*

- **Off-Site Transfer**: Waste shipped off-site for treatment/disposal without on-site treatment.

Miscellaneous Management Processes (Planned processes in *italics*)

- **Small Container Management**: Romic receives, re-packs, and/or consolidates small quantity chemicals (e.g., outdated chemicals, labpacks) for onsite management using one or more Facility-approved processes.

- ***Aerosol Depressurization**: Puncturing of commercial aerosol containers to remove flammable propellant and contents. Propellant is released to an air emission control unit. The hazardous material is collected and transferred to the fuel blending operation.*

- ***Drum Crush:*** Cleaning and crushing of "California-empty" drums (non-hazardous), or rinsed drums that no longer exhibit a characteristic. *Additionally, drums that will be crushed may still contain residual amounts of waste material and therefore do not meet the definition of a California-empty container. These drums can carry almost any of the non-RCRA waste codes received at the facility.*

- ***Truck Wash:** Washout of tanker trucks. Rinse water is treated in the onsite Aqueous Treatment system, or neutralization system, as appropriate.*

Exempt Hazardous Waste Activities

- **Ten-Day Transfer**: Waste manifested to other facilities is staged in original containers (for less than ten days) during the course of transportation. This activity is exempt from permitting requirements under 22 CCR 66263.18.

- **Universal Waste Handling*:** Universal wastes as defined by 22 CCR 66273.9 and HSC 25201.16 (e.g. fluorescent light bulbs, thermostats, batteries, aerosol cans, cathode ray tubes) are accepted at the Facility for handling on a bill of lading for management under 22 CCR sections 66273.30 through 66273.40. This activity is exempt from Part B permitting requirements under 22 CCR 66270.1(c)(2)(E). Note that aerosol cans, although received as Universal Waste, may also be treated by the Facility as hazardous waste under Part B permit conditions discussed in other applicable sections of this permit.

- **Household Hazardous Waste Collection Events:** The Facility currently receives household hazardous waste from collection events held at various locations throughout the bay area. Should the Facility receive authorization pursuant to California Health and Safety Code, Section 25218.3, household hazardous waste collection activities may be conducted as authorized through the permit-by-rule (PBR) process.

* Romic notified the Department of Toxic Substances Control in July 2004 of its intent to be a universal waste handler.

B2 GENERAL INFORMATION

Name and Address:	Romic Environmental Technologies Corp. 2081 Bay Road East Palo Alto, CA 94303
Standard Industrial Classification (SIC) Codes:	4953 and 2819
North American Industry Classification System (NAICS):	Primary: 562211 Secondary: 325998
EPA ID No.	**CAD009452657**
Location Information:	**Section 30, Township 5S, Range 2W** **Longitude: 122 degrees: 07 minutes: 43 seconds** **Latitude: 37 degrees: 28 minutes: 36 seconds**

B2.1 FACILITY CONTACTS

Mr. Nick Castro	Operations Manager	(650) 462-2492 (telephone) (650) 462-2411 (facsimile)
Mr. Namki Yi	General Manager	(650) 462-2346 (telephone) (650) 462-2305 (facsimile)
Mr. Eric Fuller	Environmental Health & Safety Manager	(650) 462-2310 (telephone) (650) 462-2377 (facsimile)

The Operations Manager is responsible for day-to-day operations at the Facility. The Operations Manager's duties include: managing personnel requirements, scheduling and coordinating plant production and material flow, developing job safety practices, ensuring day-to-day compliance with all applicable regulations and permits, maintaining all required documents and records, and implementing and coordinating Contingency Plan procedures. The Operations Manager reports to the General Manager who is responsible for managing all aspects of the Facility. The Environmental Health & Safety Manager's position includes developing and implementing management systems and programs to support operations at the site; duties include developing policies and procedures, conducting compliance audits and inspections, preparing and presenting training programs, consulting to the company's sale personnel, consult and support project management projects on design, construction and modifications in reference to environmental requirements, and ensuring environmental compliance at facility.

B3 OVERVIEW OF FACILITY

B3.1 FACILITY SETTING

The Facility is located at 2081 Bay Road in East Palo Alto, San Mateo County, California, approximately 1/2-mile west of San Francisco Bay. The facility consists of an irregularly shaped parcel, which contains approximately 14 acres. Current hazardous waste operations at the Facility occur on approximately 1.8 acres of the 14 acres. Planned hazardous waste activities will increase the active area to approximately 2 acres of the 14 acres.

Hazardous waste operations are conducted primarily on the central portion of the Facility, which includes warehouses for storing and handling waste, tank farms, and distillation processing equipment, a fuel blending operations area, and a field services chemical warehouse. The wastewater treatment plant is located on the south-central portion of the property. The administration, laboratory, maintenance buildings, and parking lots are also located on the southern portion of the property. The site is paved with concrete with a narrow strip of unpaved area along the perimeter.

The Facility and adjacent properties are zoned by the city of East Palo Alto for both Light and Heavy Industrial activities. The Facility is bordered to the north by a salvage yard; to the east by vacant land owned by the Mid-Peninsula Regional Open Space District; to the southeast and southwest by a salvage yard; to the south by Bay Road and beyond Bay Road an electrical substation and a former chemical manufacturer (facility now vacant). The land use beyond these industrial areas is mixed commercial and residential. The residences are located primarily to the south and west, approximately 1/4-mile from the Facility.

The facility topography is relatively flat with downward slope to the east and southeast toward the saltwater marshes and wetlands. Engineered tidal sloughs are located on the east and north property boundaries. These sloughs drain into the San Francisco Bay. The elevation of the eastern portion of the Facility, including the adjacent land that was purchased in 1983, the driveway area, and the neighboring property have been raised approximately 2 feet above the historical 100-year floodplain level.

Figure B-1 depicts the Facility location, area topography, and relative proximity to surface water bodies on a United States Geological Survey (USGS) topographic map. Figure B-2 shows the Facility layout, including the location of treatment and storage areas, each building and its use, perimeter access controls (e.g., fences, gates), and the location of the Facility's wastewater discharge points.

B3.2 ACCESS CONTROL

The Facility is completely surrounded by six- to eight-foot-high chain link fence and block walls. The fence and walls are topped with three strand barbed wire. Access to the Facility is strictly controlled by a locking, electronic gate. Access through the gate is controlled by the receptionist and obtained by calling the front desk using the telephone panel located outside the gate. All visitors are required to sign in. Visitors to the administrative offices and laboratory sign in at the front desk and are issued visitor passes. If it is necessary for the visitor to enter the operations area, the visitor is given appropriate personal protective equipment (i.e., safety glasses, hardhat) and escorted by appropriate Facility personnel. Visitors to the truck receiving area sign in at the Receiving Office after contacting the receptionist for initial entry to the Facility.

The Facility currently maintains a 24-hour video surveillance system onsite to monitor the access gate and outside yard. The Facility operates 365 days per year, 7 days per week, 24 hours per day.

B3.3 FACILITY HISTORY

The Hird Chemical Corporation began operations at the site in 1954. Romic Chemical Corporation began operation at the site in 1964. Romic Chemical Corporation was privately owned by Messrs. Mike Schneider and Roger Lewis. Mr. Schneider assumed sole ownership of the property and equipment in 1972. Romic Chemical Corporation changed its name to Romic Environmental Technologies Corp. in 1993. Romic Environmental Technologies was purchased by US Liquids Inc. in 1999. Romic was subsequently purchased by ERP Environmental, Inc., in 2003.

DTSC granted Romic Chemical Corporation an Interim Status Document (ISD) in April 1981 and issued a hazardous waste facility permit in May 1986. Romic submitted a state permit modification and initial federal permit application in May 1989. The United States Environmental Protection Agency (USEPA) and DTSC issued the federal permit and modified the state permit in July 1990. The federal permit was appealed and then reissued in July 1992. The state permit, which was originally issued in 1986 and later modified, came up for renewal in May 1991. Under the USEPA Resource Conservation and Recovery Act's (RCRA) Part B permitting procedures, a Part B permit is required to be renewed periodically. In accordance with the Part B procedure for renewal, the Facility is allowed to continue to operate under the terms of its 1986 permit pending the renewal of the Part B permit.

The Facility has submitted an application for the Part B permit renewal and modifications to continue operating the hazardous waste treatment and storage operations. Along with renewal of the existing operations, the Facility has proposed the following modifications to Facility operations:

- Change in status of currently existing tanks to be regulated under the Part B
- Addition of tanks for organic liquid and wastewater treatment
- Addition of tanks for fuel blending operations
- Addition of wastewater treatment units for inorganic treatment
- Change in status of current drum sampling area to be regulated under Part B permit as a storage area

- Addition of solids consolidation, debris shredding, can crushing, aerosol depressurization, and truck wash as treatment processes

B4 FACILITY DESCRIPTION

The purpose of this section is to provide detailed information regarding the Facility location, seismicity and geology, and site access and traffic patterns. The Facility's physical location, history, and operations are generally described in Sections B1 through B3.

B4.1 LEGAL PROPERTY INFORMATION

The current APN map for the Facility and surrounding area is included as Figure B-3, and depicts the legal property boundaries. The legal description of the Facility, obtained from the San Mateo planning department, is included as Appendix B-3. The San Mateo County Assessor's Parcel Numbers (APN) for the Facility are:

063-121-070-5	063-121-110-9
063-121-390-7	063-121-160-4
063-121-510-1	063-121-170-3
063-121-500-1	

The majority of the Facility is zoned M-1, Light Industrial; a portion of the Facility (parcel number 063-121-390-7) is zoned M-2, Heavy Industrial. Figure B-4 depicts the current zoning of the Facility and surrounding areas, and surrounding land uses.

B5 DETAILED FACILITY LOCATION INFORMATION

A USGS topographic map showing a distance of 2,000 feet around the Facility, at a scale of 1 inch equals 200 feet, is presented as Figure B-5. The map depicts surface waters, surrounding land uses, and the boundaries of the Facility. Wells within 1/4-mile of the Facility are depicted on Figure B-6. Detailed information regarding geological and hydrogeological conditions at the Facility is discussed in Section B5.6. Figure D-1 depicts a detailed site plan, including each existing and proposed hazardous waste transfer, treatment, and storage operational unit.

B5.1 FLOOD PLAIN

The Facility is located within the boundaries of the 100-year floodplain, as indicated in the Flood Insurance Rate Map of the Federal Emergency Management Agency (FEMA), County Panel No. 060708 0001 B, dated August 23, 1999 (see Figure B-7, Flood Plain Designation Map). According to the FEMA map, the 100-year flood level at the Facility is 8.0 feet above mean sea level (amsl).

A surveyors loop study was conducted by Romic to determine compliance with the location standards for hazardous waste facilities related to floodplains specified in 22 CCR 66264.18(b) and

66270.14(b)(11)(B), (C), (D). Portions of the Facility perimeter and the Facility were found to be below the 8.0-foot floodplain elevation (see Figure B-8). However, as the Romic facility is located outside of ZONE VE (defined by FEMA as coastal flood with velocity hazard (wave action); base flood elevation determined), the floodwaters will have low velocities, and a 100-year flood would not result in rapid incursion of flood waters onto the facility.

Due to their elevations, limited areas of the waste management portions of the Facility would possibly be impacted by flood waters. Generally, the Facility's waste management units and structures would withstand a 100-year flood without any danger of washout or release. One tank farm, Tank Farm I, would experience incursion of rain water, but the tanks in the tank farm are all elevated and would not be in danger of washing out. Areas of the Facility that would be affected by a 100-year flood include:

- The 2,100 square-foot West Storage Area #1, with an average height of 7.38 feet amsl, may be impacted by flood waters. The 55-gallon containers stored in this area can be easily moved by forklift to higher ground within a short time, if necessary. As such, neither the hydrostatic nor the hydrodynamic forces are a concern because of the mobility of these containers. The emergency procedures for a flood scenario in this area are outlined in the Facility's Contingency Plan located in Section G of this application.

- Tank Farm Q, where flood waters would have the potential to apply buoyant force to some tanks in excess of their empty weight. In order to avoid this, the Facility plans to adhere to a compliance schedule as indicated in Appendix 1 (Volume II of this application) to increase the height of the containment wall of Tank Farm Q to a level higher than 8 feet amsl.

The results of the Facility surveyors loop, tank buoyancy and bolt-strength calculations, certified by a professional engineer, are provided in Appendix B-1.

B5.2 DRAINAGE

Storm water that falls on active areas of the Facility drains towards sumps located at various points within the fenceline. The storm water is collected from these sumps, pumped into rain water storage tanks, and tested prior to discharge to the sanitary sewer system. The locations of these storm water catch basins, secondary containment areas, parking lot and driveway drainage, drainage to the facility low point, roof drainage to the sloughs, covered areas that discharge to the conveyance system, and storm water discharge points are shown on Figure B-9.

Industrial wastewater is discharged under permit No. 01107 to the East Palo Alto Sewer Service Department. The Facility does not maintain any intake piping as all materials are transported to the site by vehicle. Additionally, there are no known injection or withdrawal wells onsite.

B5.3 RAIN DATA

Average rainfall data was obtained from the National Oceanic and Atmospheric Administration's 1973 *Precipitation-Frequency Atlas of the Western United States*. The maximum 25-year, 24-hour storm event was determined to be approximately 3.5 inches.

B5.4 WIND ROSE

The prevailing wind direction in the vicinity of the Facility is primarily from west and northwesterly directions. The data were obtained from the National Climactic Data Center's Moffett Field Naval Air Station in Mountain View, California and the Bay Area Air Quality Management District's meteorological station in San Carlos, California. These stations are 5.7 miles to the southeast and 7.3 miles to the northwest, respectively (see Figure B-10a). The wind direction data are presented as two annual wind roses in Figure B-10(b and c). The wind direction data are representative of the Facility location; however, wind speeds may be higher at the Facility under certain conditions due to the Bay.

B5.5 GEOLOGY AND HYDROGEOLOGY

The following description of site geology and hydrogeology were obtained from The *Corrective Measures Study Report* (Conor Pacific/EFW, December 17, 1999) and to the *Draft Pilot Study Work Plan* (ARCADIS Geraghty & Miller, September 2000). These documents were prepared to address soil and groundwater contamination that occurred onsite through historical releases of solvent waste materials and recycled product. Section B5.6.3 below provides additional details regarding the groundwater remediation activities at the Facility.

B5.5.1. Geology

The Facility is located between 5 and 12 feet above mean sea level (amsl), approximately ½ mile west of the San Francisco Bay. The Facility borders tidal sloughs that flow into the Bay and groundwater flow trends eastward toward the Bay. The site is capped by up to 8 feet of heterogeneous fill material, which is underlain by an estimated 500 to 1,000 feet of alluvial and estuarine sediments. A clay layer up to 10 feet thick underlies the surficial fill to approximately 1 to 11 feet MSL (5 to 10 feet below ground surface [bgs]). Underlying this clay is a sand and gravel unit up to 9 feet thick in the interval between 5 and 10 feet MSL. The fill material is underlain by three discontinuous, water-bearing zones (the A-, B-, and C-zones) and is vertically separated by silt and clay units that are generally continuous laterally. A thick clay unit underlies the C-zone and separates it from a fourth water-bearing zone identified as the D-zone. Figures B-14(a-d) depict cross section views of site geology.

B5.5.2. Hydrogeology

Groundwater gradients in the A-, B-, and C- zones are relatively flat, at approximately 0.001, 0.001 and 0.002 ft/ft, respectively. A sand and gravel unit and the overlying sediment have been designated as the

A-aquifer zone. A 9 to 21-foot thick clay layer underlies the A aquifer in the interval between –2 and –27 feet MSL. This clay separates the A and B aquifers and is known as the A/B aquitard.

The B aquifer underlies the A/B aquitard and consists of 5 to 13 feet of sands and silts in the interval between –17 and –30 feet MSL. The B aquifer is underlain by up to 19 feet of clay with minor interbedded silt in the interval between –30 and –49 feet MSL. This low-permeability zone is known as the B/C aquitard.

Beneath the B/C aquitard lays the C aquifer. This aquifer zone consists of up to 14 feet of poorly graded sands, silty sands, and minor amounts of clay in the interval between –49 and –63 feet MSL at the location of well RW-7. At well RW-18C, the C aquifer consists of approximately 15 feet of poorly graded sands, silty sands and clayey sands in the interval between –60 and –80 feet MSL. An 84-foot thick clay zone with minor interbedded fine sands stringers (cumulative thickness of sands is approximately 5 feet) underlies the C aquifer. This low permeability zone is known as the C/D aquitard.

The D aquifer underlies the C/D aquitard and consists of approximately 8 to 10 feet of sand and gravel interbedded with clay in the interval between approximately –156 and –176 feet MSL at well RW-16D. The D-aquifer zone is underlain by approximately 13 feet of clay and sandy clay in the interval between –176 and –192 feet MSL. Figures B-15 (a-c) depict ground water elevations of the A, B, and C aquifers.

B5.5.3. Groundwater Remediation Activities

Several groundwater monitoring wells are located at the Facility. These wells are associated with the groundwater investigation and corrective actions being conducted at the Facility under a USEPA-administered RCRA Section 3008(h) Consent Order.

Previous investigations at the Facility identified chemicals of concern (COCs) in the soil and groundwater from three primary source areas: the central processing area, the former pond area beneath the drum storage warehouse, and an off-site area southwest of the Facility. Soil and groundwater contamination occurred through past releases of solvent waste materials and recycled pure phase product. The releases resulted from discontinued historical practices resulting in spills, tank and container overfills, flooding events, breaks in transfer pipes and waste materials leaching through the former wastewater receiving ponds.

The A-, B-, and C- groundwater zones are contaminated with volatile and semi-volatile organic compounds (VOCs and SVOCs). The extent of site groundwater contamination is depicted on Figures B-16(a-e). Elevated concentrations of VOCs, SVOCs, and metals are present in soil within the central processing area and former pond area. Chlorinated VOCs (CVOCs) are the primary COCs based on concentration, extent of contamination, and mobility in groundwater and soil gas.

Groundwater remediation measures have been conducted at the Facility involving the onsite treatment of contaminated shallow groundwater and stormwater. The treatment of these waters is conducted under the oversight of the USEPA, the Regional Water Quality Control Board (RWQCB), and the State Water Resources Control Board (SWRCB), as permitted under two national Pollutant Discharge Elimination System (NPDES) permits. Under a USEPA RCRA Consent Order # 09880015, over 3.5 million gallons of water have been extracted from the ground and treated since the remediation measures began in 1993. Additional final remediation treatment methods of theses waters is currently being evaluated. Remediation methods may include continued extraction and treatment of groundwater from the impacted zones beneath the site, or may involve in-situ bioremediation to reduce groundwater contamination. The latter technology does not require removal of water from the ground to achieve contaminant reduction, and may be implemented if a pilot study currently underway at the Facility proves successful.

B5.6 SEISMICITY

The 1993 USGS report *Geologic Map of the Palo Alto and Part of the Redwood Point 7-1/2 Quadrangles, San Mateo and Santa Clara Counties, California* was reviewed to identify faults and lineations mapped in the vicinity of the Romic Facility (See Figure B-11). No surface faults indicating Holocene movement are mapped within a 3,000 feet radius of the subject facility.

The USGS report does indicate that the subject facility is located within 200 feet of the eastern edge of the buried Redwood City Fault Zone (RCFZ). The location of the RCFZ is based on aeromagnetic and gravity geophysical anomalies and from subsurface drilling performed by others. The USGS have interpreted the fault to be basement related (of Mesozoic age) that is overlain by approximately 400 feet of Pleistocene and Holocene alluvial, estuarine and possible marine sediments. The USGS interpreted that the buried RCFZ has ceased movement prior to Holocene time. Therefore, from available published reports, the subject facility is in compliance with the seismic guidelines of 22 CCR 66270.14(b)(11)(A).

B5.7 OTHER ENVIRONMENTAL PERMITS

Several agencies in addition to the DTSC have jurisdiction over the activities conducted by the Facility as they relate to the environmental activities. These following agencies require permits or approvals for the activities conducted onsite. A listing of all environmental permits held by the Facility is included as Appendix B-2.

Other Federal Laws

The issuance of a RCRA Part B Permit to the Facility will not fall under the jurisdiction or require consideration of any of the following Federal Laws:

- The Wildlife and Scenic Rivers Act;
- The National Historic Preservation Act of 1966;

- The Endangered Species Act;
- The Coastal Zone Management Act; or
- The Fish and Wildlife Coordination Act.

Further, the Clean Air Act Risk Management Program requirements (40 CFR Part 68) do not apply because Romic does not have threshold quantities of regulated substances on-site.

B5.8 TRAFFIC

B5.8.1. Onsite Traffic

The average weekly traffic volumes onsite are summarized below:

Traffic Volumes

Weekdays		
Passenger Cars		
From 7:00 a.m. to 8:00 a.m.	100 cars arriving	10 cars leaving
From 3:30 p.m. to 4:00 p.m.	15 cars arriving	85 cars leaving
From 5:00 p.m. to 6:30 p.m.	10 cars	30 cars leaving
From 11:30 p.m. to 12:00 a.m.	10 cars arriving	10 cars leaving
10 - 15 passenger cars containing visitors, vendors, etc. visit the facility each day. Their times of arrival are random between 8:00 a.m. and 5:00 p.m.		
Trucks		
15 – 35 trucks arrive and leave the facility each working day. The times of arrival are random between 7:00 a.m. and 3:30 p.m.		
Weekends		
Passenger Cars		
During the weekend up to 10 people may be on duty during each shift. Therefore, approximately 10 vehicles leave and arrive at the beginning of each shift. The shifts begin at 12:00 midnight, 8:30 a.m. and 4:00 p.m.		
Trucks		
2-5 trucks are accepted on weekends		

The data presented in the table was calculated from historical records (waste receipts and manifests), the capacities of the hazardous waste management units, and the anticipated volume of waste coming into the facility. Peak periods of incoming and outgoing transportation activity currently occur during the hours of 7:00 to 9:00 am and 3:00 to 5:00 pm.

The traffic patterns for waste transportation vehicles and intra-facility operational equipment are described in this Section and depicted in Figure B-12. Waste transportation vehicles enter the facility through the main gate in the southeast side of the facility, which is accessed from Bay Road. Vehicles will follow the directions of facility personnel and adhere to traffic control signs at all times. If the vehicle's load/unload destination is occupied, the vehicle will pull up next to the load/unload area and wait for the next available opportunity to be loaded/unloaded. Vehicles leaving load/unload pads will exit the facility through the nearest exit gate, or as directed.

On-site traffic is controlled by scheduling waste shipments, controlling access to waste management areas, using established traffic routes, and traffic control signs. These measures and procedures are described in the following paragraphs.

To avoid backups and delays, waste transportation vehicles are pre-scheduled for arrival or pickup when possible, and the vehicles are directed to the proper loading/unloading or operational area by facility personnel.

Access to the facility is regulated at the main gate for waste transporters and at the office building for visitors. Visitors are required to sign-in at the office before entering the waste management area of the facility and are either escorted or under observation by Facility personnel while in these areas.

Traffic control signs are posted throughout the facility. These signs include "Stop", "No Parking", "Approach With Caution", "Speed Limit 10 MPH", and signs designating employee, visitor, and truck entrances and parking areas (see Figure B-12).

The roadways and parking areas within the facility are composed of concrete and asphalt. The roadways are constructed (with subgrade and compacted base) to handle the maximum load limits of waste transportation vehicles (80,000 pounds gross). Internal roadways consist of the main access drive that is constructed of asphalt. The active areas of the facility are constructed of 6" reinforced concrete that is designed to support loads in excess of 80,000 pounds. The concrete and asphalt roadways and surfaces are maintained to ensure adequate access for emergency equipment. Maintenance, including grading and filling holes, is performed on an as-needed basis. The speed limit on facility roads is 10 miles per hour.

B5.8.2. Traffic To/From Facility

Access to the Facility is depicted on Figure B-13. No traffic signals or stacking lanes are present on Bay Road because of the light traffic use on the roadway. The light traffic is due the fact that Bay Road dead ends just beyond the Facility entrance, and there are no through streets beyond the intersection of Bay Road and Pulgas Avenue (approximately 1/2 mile from the entrance). The routes that trucks use travel to and from the Facility are designated truck routes through East Palo Alto.

Vehicles traveling to or departing from the Facility primarily use US-101 (the Bayshore Freeway) and CA-84 (Willow Road/Dumbarton Bridge). Vehicle access routes to the Facility are described below.

From Bayshore Freeway (US-101) Northbound

University Ave. Exit to Donohoe St. to University Ave. (CA-109) to Bay Road to facility.

From Bayshore Freeway (US-101) Southbound

University Avenue exit, east onto University Ave. (CA-109). Right onto Bay Road to facility.

From CA-84 Westbound

Dumbarton Bridge (CA-84) to University Ave. (CA-109) to Bay Road to facility.

From CA-84 Eastbound

Willow Road (CA-84) to University Ave. (CA-109) to Bay Road to facility.

Surrounding public roadways are constructed of asphalt and are under the jurisdiction of the City of East Palo Alto. The maximum gross vehicle weight allowed is 80,000 pounds as specified by DOT and CHP. The maximum gross weight of all loaded vehicles leaving the facility does not exceed the 80,000-pound limit.

Romic Environmental Technologies Corp.

CAD 009 452 657

East Palo Alto, California

Section C

Waste Characteristics

November 2001
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Tables, Figures, and Appendices are presented
in separate sections following the main body of the text.

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C WASTE CHARACTERISTICS

C1 INTRODUCTION

Romic Environmental Technologies Corp. has developed this Waste Analysis Plan (WAP) for the facility located in East Palo Alto, San Mateo County, California (herein referred to as the Facility). The purpose of the WAP is to facilitate safe and effective treatment of each waste managed by the Facility and minimize the potential for adverse chemical reactions resulting from mixing and handling potentially incompatible wastes. The WAP provides procedures and controls that ensure that chemical and physical analysis is completed on a representative sample of each hazardous waste stream managed by the Facility. The WAP describes the sampling methodologies, analytical parameters and methods, hazardous waste acceptance procedures, and hazardous waste tracking system utilized for safe hazardous waste management at the Facility. Additionally, the WAP identifies specific methods for:

- The verification of off-site waste profiles
- The identification of waste compatibility and final disposition
- Process control (with respect to waste analysis)
- Ensuring compliance with Land Disposal Restriction (LDR) requirements for on-site generated wastes.

Refer to Figure C-1 (Facility Waste Receiving) for locations of existing and planned hazardous waste management areas at the Facility; sampling locations for incoming waste streams are also depicted this figure. Process waste compatibility and waste location information are described in detail in Section D.

C2 FACILITY PROCESSES AND ACTIVITIES

As discussed in Section B of this application, the Facility reclaims, recycles, treats, and stores hazardous waste using one or a combination of the following management options:

PRIMARY PROCESSES
Solvent Recycling
Ethylene Glycol Recycling
Fuel Blending
Liquefaction
Wastewater Treatment
Neutralization
Inorganic Treatment
Solids Consolidation
Debris Shredding
Off-Site Transfer

MISCELLANEOUS MANAGMENT PROCESSES
Consolidation of Small Containers
Aerosol Depressurization
Drum Crush
Truck Wash

As depicted on Figure C-2 (Process Overview), and Figure C-3 (Miscellaneous Management Processes), many of the primary and miscellaneous management waste treatment/handling processes listed above are comprised of several steps, and often cross over to one or more of the other waste management options. The analyses for each management option are presented in Section C5; the specific operating parameters and procedures for each management option are described in detail in Sections D (Process Equipment) and E (Process Operations).

References are made within this plan regarding decisions that may be necessary regarding sampling, waste acceptance, and waste disposition. Unless specifically noted, personnel authorized to make these determinations shall be limited to the Operations Manager, Laboratory Manager, Environmental Health and Safety Manager, or the Technical Services Manager.

C3 WASTE IDENTIFICATION AND CLASSIFICATION

C3.1 OFF-SITE WASTES ACCEPTED

The RCRA and California (non-RCRA) hazardous waste codes listed in Tables C-1 and C-2 may be accepted at the Facility for the indicated waste management options. These tables also list the hazardous properties associated with each waste code. In summary, the Facility accepts non-hazardous wastes as well as the following hazardous wastes for storage, treatment, or transfer:

- All RCRA ignitable (D001), corrosive (D002), and toxic (D004 through D043) wastes
- Some RCRA reactive (D003) wastes (for off-site transfer or lab pack repack), i.e. wastes which are classified as "dangerous when wet," or "cyanide or sulfide bearing" as described in 22 CCR 66261.23(a)(1) through (a)(5)
- Most RCRA listed F, K, P, and U wastes
- Most California wastes (except those listed in Section C3.2)

C3.2 RESTRICTED OFF-SITE WASTES

Any hazardous wastes not listed in Tables C-1 and C-2 are not accepted at the facility. Information on acceptable and non-acceptable waste types is communicated to customers by sales people, customer service, and in the facility customer information ("audit") package. In addition, the following materials are restricted from storage or treatment at the facility:

- Infectious wastes (DOT Hazard Class 6.2)
- Radioactive wastes (DOT Hazard Class 7)
- Some reactive wastes (explosives as described in 22 CCR 66261.23(a)(6), (a)(7), or (a)(8) or DOT Hazard Class 1, Divisions 1.1, 1.2, or 1.3)
- Polychlorinated biphenyls that are regulated for disposal under the Toxic Substances Control Act (TSCA) (i.e., generally, wastes containing PCB > 50 ppm)
- The following California waste codes:
  - 321 (sewage sludge)
  - 322 (biological waste other than sewage sludge)

- 731 (Liquids with PCB > 50 ppm)

C3.3 TYPICAL WASTE CHARACTERISTICS

For each management process listed in Section C2 above, and based on the Facility's experience handling the wastes, detailed chemical and physical analysis on representative samples of the wastes, generator supplied information, and existing published or documented data on hazardous wastes generated from similar processes, Table C-3(A-L) lists the following:

- Typical waste names
- Typical processes/activities generating the wastes
- Typical state and federal waste codes
- Typical physical, chemical, and hazardous characteristics

These tables are provided for illustration purposes only. Wastes may be received from other process or with different waste names and/or permit-acceptable waste codes. See Tables C-1 and C-2 for a complete listing of wastes that may be managed by the Facility. Records of chemical and physical analysis and other information for each waste managed by the Facility are maintained on-site. See Section C4 for a description of methods used to obtain waste characteristic data.

C3.4 WASTES GENERATED ON-SITE

See Table C-1 and C-2 for a listing of typical wastes codes managed and generated by the Facility. Hazardous wastes generated at the Facility are treated on-site whenever possible. Prior to shipment off-site for further management, hazardous wastes are sampled, analyzed, and/or characterized in accordance with 22 CCR 66262.11.

Further, hazardous wastes will be characterized to determine applicable land disposal restrictions (LDR). The Facility will prepare appropriate LDR notifications and certifications for on-site-generated hazardous waste streams to be managed off-site. Generally, hazardous waste streams derived from received wastes and destined for off-site management will be subject to the same LDR standards as the incoming hazardous wastes.

C4 PROCEDURES FOR RECEIVING OFF-SITE WASTES

The Facility has developed a series of control procedures to determine the acceptability of specific wastes for management at the facility. Pre-acceptance procedures dictate the types of information the Facility must obtain to determine the acceptability of the hazardous waste for management. At a minimum, the Facility must obtain all the information required by 22 CCR 66264.13(a)(1), as well as any other information necessary to manage a hazardous waste.

C4.1 PRE-ACCEPTANCE PROFILE PROCEDURE

The generator completes (or provides sufficient information to allow the Facility to complete) a waste characterization form (profile) and submits it to the Facility (see Figure C-4 for sample form). The waste profile describes the waste stream and its pertinent physical and chemical characteristics, the process generating the hazardous waste, and also identifies all applicable state and federal hazardous waste codes. This information shall be representative of the waste stream and may be based on: 1) existing published or documented data on the hazardous waste; 2) waste generated from similar processes; 3) data obtained by analytical testing (by an independent laboratory or by the Facility); or 4) generator knowledge. It is the generator's ultimate responsibility to provide accurate information.

Before a material is accepted at the facility for treatment or storage, the generator must certify the accuracy and completeness of information on the waste profile form. The generator will have determined that the waste is either:

- a listed hazardous waste in Article 4 of 22 CCR 66261;
- a characteristic waste as defined in Article 3 of 22 CCR 66261;
- a non-RCRA hazardous waste as defined in 22 CCR 66261.101; or
- a non-hazardous waste.

Further information will be requested, if required by the waste's ultimate management method, to determine the status of the hazardous waste stream under the Land Disposal Restrictions of 22 CCR 66268. Additionally, the generator will certify whether the waste stream contains greater than 500 parts per million (ppm) volatile organic compounds (VOCs) as defined by Article 28.5 of Chapter 14 of 22 CCR (Subpart CC).

The profile information will assist the Facility in determining whether the waste is acceptable and if so, the appropriate waste management process. No wastes will be accepted into the Facility without a completed profile form. The profile will become part of the permanent record in the Facility's file.

C4.2 PRE-ACCEPTANCE SAMPLING REQUIREMENTS

Typically, a representative sample will be obtained from the generator and analyzed prior to the waste arriving at the Facility. Specific analyses are dependent upon the nature of the waste and the management process to be used to handle the waste. The analyses and acceptance limits for wastes managed by the Facility are summarized in Tables C-4, C-5, and C-6. In addition to conducting the analyses to determine whether a particular waste meets Facility acceptance limits, a bench-scale test may be performed by the laboratory to determine which treatment option would be appropriate to manage the waste (described further in Section C5.3.2). This is most commonly performed on new waste streams destined for solvent recycling.

Prior to submitting a sample, generators are advised to obtain the sample of their wastes in accordance with 22 CCR 66261. The generator must certify on the waste profile form that the sample submitted is representative of the waste stream.

The Facility may waive pre-acceptance sampling requirements for certain waste streams, if a.) sufficient information is presented in the waste profile form, b.) the generator has identified the waste constituents based upon the knowledge of the process generating the hazardous waste or his own analysis, or c.) the waste is included in the following list (unless such analysis is needed to properly manage the waste and/or the land disposal restrictions in 22 CCR 66268):

1.) Laboratory chemicals packaged in accordance with 22 CCR 66264.316. An inventory sheet describing the contents of the lab pack will be required in lieu of analytical data for this waste stream.

2.) Unused commercial products (i.e., off-specification or outdated materials) that have material safety data sheet (MSDS) sufficient to ensure safe and effective management of the wastes in compliance with this permit;

3.) Residue and debris from the clean up of spills or releases of:

a.) a single known substance;

b.) a commercial product; or

c.) other material for which a MSDS or waste profile can be provided.

4.) Equipment removed from service (i.e., ballasts, batteries, cathode ray tubes, fluorescent light bulbs, hydraulic equipment, switches, transformers, and electrical equipment) that contains hazardous waste which can be adequately identified for proper characterization and management;

5.) Debris from the demolition and/or dismantling of equipment from known processes and which is contaminated with hazardous waste which can be adequately identified for proper characterization and management;

6.) Chemical waste from laboratories. This includes the following materials from chemical laboratories or medical facilities: discarded containers of laboratory chemicals, lab equipment, lab clothing, debris from lab spills or cleanups, and lab packs.

7.) Empty containers of waste commercial products or chemicals. This applies to portable containers which have been emptied, but which may hold residuals of the product or chemical. Examples of containers are: portable tanks, totes, barrels, cans, bags, and liners.

8.) Closed Cartridge Filters (such filters being used to filter used dry-cleaning fluids or solids).

9.) Waste for which the past incoming waste shipment analyses have been consistent with the original paperwork submitted by the generator.

10.) Transfer Wastes (wastes which are accepted and stored on-site for transfer to another facility).

However, as outlined in Section C4.5, the Facility has strict receipt verification analysis procedures in place in order to screen out non-conforming waste streams.

C4.3 FINAL PRE-ACCEPTANCE EVALUATION

The pre-acceptance evaluation is concluded with documentation of the decision regarding the acceptability of the hazardous waste and the proposed method of management. Facility management's technical waste management decisions are based on the following:

- Profile description of the process generating the hazardous waste;
- Results of any analyses;
- Profile description of the chemical and physical properties of the waste;
- Any additional documentation, including information that the hazardous waste is subject to Land Disposal Restriction standards of 22 CCR 66268, if appropriate;
- Capability to manage the hazardous waste in a safe and environmentally sound manner;
- Hazardous waste management methods available; and
- Conditions or limitations of existing permits and regulations.

If the waste is found to be acceptable at the Facility, a profile number will be assigned. The profile numbering system includes an indication (one digit of the profile number) which designates which waste management option is most likely to be used for the waste. The Facility may opt to utilize a different waste management option upon receipt of the waste based on the results of the receipt analysis of the waste, market conditions, or other factors.

If the waste is found to be unacceptable, the Facility will notify the generator that it is unable to accept the waste. A hazardous waste may be rejected during the pre-acceptance process for any of the following reasons:

- Incomplete or outdated information provided by the hazardous waste generator;
- The hazardous waste category is specifically excluded from acceptance at the Facility; or
- The hazardous waste cannot be treated, processed, stored, or disposed of at the Facility.

As outlined in Section C4.5, the waste is subject to additional analytical testing and/or other type of profile verification upon arrival at the facility to ensure that the profile information is still appropriate for the waste stream.

C4.4 PROFILE AMENDMENT/RENEWAL PROCESS

At a minimum the pre-acceptance evaluation will be repeated or amended by the Facility as follows:

- when a generator notifies the Facility that the process generating the hazardous waste has changed;
- when results of inspections or analyses indicate that the hazardous waste received at the facility is significantly different from and does not match the hazardous waste designated on the accompanying manifest or pre-acceptance documentation; or
- every other year.

Material that is being re-evaluated for re-qualification, must be accompanied by a signed, updated waste profile form. The Facility may waive the sample requirements for re-certification of a hazardous waste if the past incoming hazardous waste shipment analyses for that particular waste have been consistent with the original paperwork submitted by the generator, or the waste stream is a solid and the generator has supplied sufficient profile information.

C4.5 INCOMING WASTE ACCEPTANCE EVALUATION

The purpose of the incoming waste acceptance evaluation procedure is to verify that the contents of each hazardous waste shipment match the identity (e.g. proper shipping name, hazard class, and waste code) of the hazardous waste as specified on the manifest and determined under the pre-acceptance process described above. This section pertains to waste shipments arriving at the Facility with an approved profile in place. If a shipment arrives at the Facility without an approved profile in place (excluding ten-day transfer wastes), the process described in Sections C4.1 through C4.3 will be followed before the waste is accepted into the Facility. In some cases, the waste shipment itself will provide the pre-acceptance sample, referred to as "Load-as-Sample" at the Facility. However, with the exception of ten-day transfer waste, a completed and approved profile form is necessary for all wastes to be treated or stored at the Facility. Containers arriving as Load-as-Sample will remain in the Sampling Area until preacceptance and acceptance analysis is complete, and the waste dispositioned. Bulk shipments arriving under the Load-as-Sample program remain on the incoming vehicle, which will be parked within the facility boundaries, until analysis is complete and the waste dispositioned.

The analyses for the primary waste streams managed by the Facility are listed on Table C-4, the Waste Acceptance Analysis Summary table. The analyses listed in these tables pertains to both pre-acceptance and incoming waste acceptance/verification requirements for the waste stream. Tables C-5 and C-6 list storage and process limitations for each waste stream managed by the Facility.

The following steps, illustrated in Figure C-5, describe the incoming hazardous waste procedures:

C4.5.1. Incoming Container Loads (Liquids and Solids)

Incoming container loads (e.g., pails, buckets, drums, tote bins, tri-wall boxes, supersacks, or any other DOT-compliant containers) are handled according to the following steps:

C4.5.1.1. Document Inspection

When trucks with containers arrive at the facility, the truck driver brings the hazardous waste manifest(s) into the hazardous waste tracking office where the documents are inspected. This inspection includes checking that:

- the manifest(s) are properly completed
- Romic is the designated facility,
- a current and valid profile number is written on the manifest,
- the manifest has the necessary signatures, and
- the Facility is permitted to handle the hazardous waste codes listed on the manifest.

Any discrepancies noted on the manifest by the Facility are resolved before the vehicle is allowed to be sampled or offloaded. This may involve contacting the generator or an authorized representative of the generator.

If the waste arrives without a profile number (excluding ten-day transfer wastes), or the number is invalid or expired, the waste will not be received by the Facility until a completed and/or updated profile form has been obtained from the generator.

C4.5.1.2. Container Unloading

If the manifest and profile information of the waste shipment is approved, containers are unloaded from the truck primarily at the container loading/unloading dock east of the South Storage Building or in front of the West Storage Building #2 (see Figure C-1). Containers may also be unloaded near/into any other authorized container storage unit. These activities are managed in accordance with California Health and Safety Code Section 25200.19. All containers are checked for proper labeling, integrity, and designation listed on the manifest. Any discrepancies are noted. All discrepancies involving piece count, labeling, and/or container integrity are resolved with the generator, transporter, or an authorized representative of the generator prior to the transporter leaving the site. Containers are then moved to a designated sampling area.

All acceptable waste containers are then labeled with a unique label that links the container to the manifest and its individual line item for tracking and identification purposes. A code may also be present on the container label (*e.g.* "S") indicating that the particular container is to be sampled. Any wastes designated as either oxidizers or concentrated mineral acids on the shipping papers or label will be placed on secondary containment pallets in the sampling areas if needed to segregate this type of waste from any incompatible wastes in the area.

C4.5.1.3. Sampling and Analysis

For safety reasons, the laboratory will not sample any wastes without a properly and fully completed profile. For wastes arriving without a profile number (and therefore no pre-acceptance sample, if required), the waste shipment itself may also function as a pre-acceptance sample, after a completed profile form has been obtained.

The waste in containers is sampled (if required) in accordance with the frequency and methods specified in Section C5. The analyses for the primary waste streams managed by the Facility are listed on Table C-4, the Waste Acceptance Analysis Summary table. The analyses listed in these tables pertains to both pre-acceptance and incoming waste acceptance/verification requirements for the waste stream. Tables C-5 and C-6 list storage and process limitations for each waste stream managed by the Facility.

If the sample analysis results indicate that the waste conforms to its profile and the Facility's permitted waste acceptance parameters, the waste will be assigned a disposition code by the laboratory. The disposition code is a system used to indicate which treatment, storage, or disposal process will be utilized to handle the waste, and to address waste compatibility concerns. Example disposition codes used by the Facility for waste streams managed are listed on Table C-7. The laboratory then returns the analytical results, along with the disposition code for the waste to the Operations Manager or his/her designee. Romic employees then place a label indicating the waste disposition code (management option) on the container.

If the sample analysis results indicate that the waste does not conform to the Facility's permitted waste acceptance parameters, the waste will not be accepted into the Facility. If the sample analysis results indicate that the waste does not conform to its profile (but does conform to the Facility's permitted waste acceptance parameters), the generator may be contacted at the discretion of Facility management. At this point, the generator will be given the option to update the profile form and/or to obtain approval for any waste change in management option to be used to handle the waste.

Discrepancies involving the analysis of the containers are typically resolved after the transporter leaves the site. Potential resolutions of discrepancies may include but are not limited to:

1.) Affixing proper labels on containers
2.) Placing a drum into an 85 gallon overpack
3.) Rejecting a container and returning it to the generator, and/or
4.) Correcting the manifest to correspond to container label and/or determined waste type

When analysis or examination indicates a compatibility problem, unacceptable wastes are segregated from incompatibles by placement in an isolation area (Row 80 in Sampling Area or Isolation Row in South Storage Building) or placement on a spill pallet. These wastes may be re-sampled and analyzed to confirm the initial test results. If the confirmation analysis indicates that the waste is still unacceptable, the generator is contacted to resolve the disposition of the unacceptable material.

C4.5.1.4. Waste Disposition

Based on the assigned disposition codes, the accepted containers are transferred to the appropriate storage buildings for storage prior to processing, or are transferred directly into the appropriate treatment process. Table C-7 includes a listing of example container storage locations by disposition codes. Section E includes detailed descriptions of waste handling methods for containerized waste; Section D includes descriptions of storage buildings and processing equipment.

C4.5.2. Incoming Bulk Loads

All incoming bulk loads (*e.g*., tanker trucks) are handled according to the following steps:

C4.5.2.1. Document Inspection

When bulk trucks arrive at the facility, the truck driver brings the hazardous waste manifest(s) into the hazardous waste tracking office where the documents are inspected. This inspection includes checking that:

- the manifest(s) are properly completed
- Romic is the designated facility,
- a current and valid profile number is written on the manifest,
- the manifest has the necessary signatures, and
- the Facility is permitted to handle the hazardous waste codes listed on the manifest.

Any discrepancies noted on the manifest by the Facility are resolved before the vehicle is allowed to be sampled or offloaded. This may involve contacting the generator or an authorized representative of the generator.

If the waste arrives without a profile number, or the number is invalid or expired, the waste will not be allowed into the Facility until a completed and/or updated profile form has been obtained from the generator.

C4.5.2.2. Sampling and Analysis

For safety reasons, the laboratory will not sample waste until a profile has been fully and properly filled out by the generator. For wastes arriving without a profile number (and therefore no pre-acceptance sample, if required), the waste shipment itself may also function as a pre-acceptance sample. If the manifest and profile information on the waste shipment is approved, the truck will be instructed to move to a sampling area (if required). The locations of the bulk sampling areas are shown on Figure C-1.

The bulk waste is sampled (if required) in accordance with the frequency and methods specified in Section C5. The analyses for the primary waste streams managed by the Facility are listed on Table C-4, the Waste Acceptance Analysis Summary table. The analyses listed in these tables pertains to both pre-acceptance and incoming waste acceptance/verification requirements for the waste stream. Tables C-5 and C-6 list storage and process limitations for each waste stream managed by the Facility.

After the bulk waste sample is obtained, the truck will be instructed to move to the designated truck staging area immediately south of the West Storage Building #1 (See Figure C-1) until the sample analysis results are released from the Laboratory.

C4.5.2.3. Waste Disposition

If the sample analysis results indicate that the waste conforms to its profile and the Facility's permitted waste acceptance parameters, the waste will be assigned a disposition code by the laboratory (see Table C-7 for example disposition codes). The laboratory will then provide the analytical results along with the waste's disposition code to the Facility's operations manager or designee. The operations manager (or designee) will then instruct the truck driver to proceed to the appropriate off-loading area for the particular waste stream. See Section E10 for a description of the Facility's bulk truck off-loading procedures.

If the sample analysis results indicate that the waste does not conform to the Facility's permitted waste acceptance parameters, the waste will not be accepted into the Facility. If the sample analysis results indicate that the waste does not conform to its profile (but does conform to the Facility's permitted waste acceptance parameters), the generator may be contacted at the discretion of Facility management. At this point, the generator will be given the option to update the profile form and/or to obtain approval for any waste change in management option to be used to handle the waste.

Discrepancies involving the analysis of bulk wastes are resolved before the transporter leaves the site. Potential resolutions of discrepancies may include but are not limited to:

- Rejecting the bulk load and returning it to the generator, and/or
- Correcting the manifest and updating the profile (if instructed by the generator) to correspond to waste type received

If initial analytical results of the hazardous waste identify the hazardous waste as unacceptable, the hazardous wastes may be re-sampled and analyzed to confirm the initial test results. If the confirmation analysis indicates that the hazardous waste is still unacceptable, the generator is contacted to resolve the disposition of the unacceptable material. Hazardous wastes will not be offloaded from bulk containers until the matter is resolved.

C4.5.3. Incoming Wastes Designated for Miscellaneous Management Processes

Wastes destined for the Consolidation of Small Containers, Can Crushing, Aerosol Depressurization, and Drum Crush Facility management options are visually inspected upon arrival at the Facility. If the physical appearance, label/inventory sheet information, color, and/or other physical properties do not conform to the profile information, the generator will be contacted to attempt to resolve the discrepancy. These wastes may be sampled by the Facility, rejected, or routed to an alternate treatment option or off-site Facility.

Incoming tanker trucks received solely for the purpose of removing residual in the Truck Wash management option are visually inspected, and sampled and analyzed for radiation screen, solvent composition, cyanide screen, oxidizer screen, sulfide screen, compatibility testing, and PCBs if an oil layer is present (and enough oil is present to obtain a sample – typically > one milliliter).

C4.5.4. Universal Waste

Universal wastes as defined by 22 CCR 66273.9, HSC 25201.16, or any other regulation or statute adopted/enacted subsequent to this permit application, received at the Facility will not be sampled for analysis. If the universal wastes are received by the Facility under a hazardous waste manifest, the Facility may re-characterize the waste (to universal waste) based on a visual observation of the waste and/or through contacting the generator of the waste to update the profile information.

C4.5.5. Wastes Discovered to Be Hazardous

The facility may, from time to time, receive waste shipments that are represented as being unregulated nonhazardous waste. The facility may, upon inspection or analysis, determine that these wastes are indeed hazardous wastes. The facility will, upon making such a discovery, strive to determine the acceptability of those wastes. If the wastes are found to be acceptable, they will be moved immediately to an authorized storage unit. If the wastes are determined not to be acceptable, the facility will initiate the rejection process.

If the facility does determine that a waste shipments received as nonhazardous and subsequently discovered to be hazardous, it may be required to file an unmanifested waste report, if the waste was not manifested.

C5 SAMPLING AND ANALYSIS

The Facility's sampling and analysis procedures are designed to obtain representative information used to evaluate a hazardous waste. A representative sample of a material is analyzed to:

1.) Verify generator supplied hazardous waste stream information on manifests and/or waste profile sheets,

2.) Determine safe and appropriate treatment or disposal processes based on waste characteristics, and

3.) Determine treatment process control information.

C5.1 SAMPLING METHODS AND EQUIPMENT

The Facility uses sampling methods presented in SW-846 (*Test Methods for Evaluating Solid Waste, 3rd edition, 1986* and subsequent updates and revisions) and ASTM (American Society for Testing Materials) methods. Romic-developed analytical methods are included in the Facility's Quality Assurance Program Plan, included as Appendix 2, Volume II of this application.

Sampling is performed by Facility personnel who are properly trained in representative sampling methodology and in accordance with established Standard Operating Procedures (SOPs). Personnel training is outlined in Section H, Training Plan.

During the sampling process, employees make visual observations of the physical nature of the wastes, and note these observations. Employee observations will typically include physical state, whether the waste exhibits multiple phases, whether the waste is comprised of a variety of different types of materials (e.g., rags, wipes, grease, pieces of wood) or is homogeneous, and other physical aspects of the waste.

The sampling devices are selected according to size and type of container and the specific material matrix involved. The sampling methods and equipment used for the various materials and types of containment vessels are presented in Table C-8, Sampling Methods and Equipment. Since the type of containers are variable, such as drums and various transport units (i.e. tanker trucks, roll-off boxes), the sampling devices selected are dependent on the size and type of container and the specific hazardous waste involved.

Samples are stored in containers that are compatible with the sampled material. All samples are stored in glass or plastic containers, except chlorinated solvents or chlorinated solvent-contaminated materials which are stored in glass or metal containers only; hydrofluoric acid is stored in plastic only. Solid samples and oils can be stored in plastic, glass, or metal containers. Containers are liquid-tight and range in size from 40 milliliters (ml) to 1,000 ml. Sample/container compatibility is summarized in Table C-9.

Once analysis is complete, samples are stored according to DOT hazard classification and segregated/consolidated into compatible groups. Final disposition of the consolidated samples is determined by the most suitable treatment process or off-site disposal option for the waste. For example, hazardous waste acid samples analyzed at the facility would typically be returned to the waste acid storage tank.

C5.2 FREQUENCY OF SAMPLING AND ANALYSIS

The frequency for sampling and analysis for both waste streams in containers and bulk waste shipments are outlined in this Section. For management processes that have unique sampling requirements, the sampling frequencies for these wastes are also described here.

C5.2.1. Containers

A minimum of 10 percent of all containers of each hazardous waste manifest line item received from off-site shall be randomly sampled. Exceptions include readily identifiable, common waste streams such as household hazardous wastes, paint and paint-related materials, aerosol cans, spray cleaners and lubricants. However, as described in Section E8.1.4, these materials are sampled and evaluated for the appropriate management method after consolidation. Containers are randomly selected for sampling by the employee who checks the containers into the facility. As the containers are unloaded, each receives a waste receipt number. The employee chooses at least one out of every ten containers (lot) for sampling, based on the waste receipt number. When less than ten containers of a hazardous waste stream are received, at least one container is randomly selected for sampling by the employee assigning the waste receipt numbers. The Facility may also choose to composite samples from a maximum of ten containers from one manifest line item for analysis.

C5.2.2. Incoming Bulk, In-Process, and Outgoing Wastes

Each incoming bulk hazardous waste shipment (e.g., tanker, vacuum trucks), is sampled and analyzed before off-loading. At least one sample is collected for receipt analysis from each bulk shipment. If a bulk shipment arrives at the Facility in a multi-compartment tanker/vacuum truck with the same material in each compartment, and the shipment is indicated as one material from the same generator on the shipping papers (e.g. manifest), one discreet sample will be collected from each compartment and may be composited into one sample for analysis. If the compartments contain different types of wastes, both compartments will be sampled and analyzed individually. No separate tankers/vacuum trucks are composited together.

Storage and treatment tanks are sampled as needed before and/or during treatment, consolidation, transfer of materials, and permitted discharge to the sewer. Prior to treatment, consolidation, blending, and/or transfer, a representative sample may be obtained using an appropriate sampling device, or samples may be obtained from the circulating lines or sampling ports on each tank. During treatment, consolidation or transfer, representative samples are obtained from the circulating lines or sampling ports as needed.

Hazardous wastes sent off-site for treatment and/or disposal are sampled as required by the receiving facility, and as necessary to comply with the land disposal restrictions in 22 CCR 66268.

C5.2.3. Incoming Lab-Pack Wastes

Incoming lab-pack wastes are not normally sampled, and are primarily placed in front of the West Storage Building #2 after shipment paperwork is approved. As with other containerized waste, a waste tracking number is assigned to the container, which links the container to its manifest, profile, and lab-pack inventory sheet. Additionally, as no sampling of lab-pack wastes is normally performed prior to managing this waste stream, the assigned tracking number also links the waste in the over-pack container immediately to the lab-pack disposition code. Therefore, a process-specific disposition code label is not required for lab-pack wastes.

After a thorough review of all profile, manifest, lab-pack inventory sheet, and container labeling information, lab-pack wastes are removed from the container for consolidation (bulking) and/or re-packaging. The consolidation (bulking) activity occurs in the Lab Pack Consolidation Unit within West Storage Building #2, and is further described in Section E8.1. The repackaging activity may occur in West Storage Building #2 or the North Storage Building. If the information on the label of any lab-packed waste does not appear to conform to the information on the inventory sheet, or the waste is otherwise questionable (e.g. missing label, additional containers not identified on the inventory sheet), the Facility will contact the generator to attempt to resolve the discrepancy. Some analysis (e.g. pH, cyanide screen, radiation screen) may be performed at the discretion of the Laboratory Manager to confirm information given by the generator; the lab-pack waste in question may also be subject to rejection or re-routing to an alternate facility.

Prior to transferring any consolidated lab-pack wastes to the final on- or off-site waste management method to be used, the wastes will be sampled for laboratory analysis. For on-site management processes, the analyses specified in Table C-4 will be conducted. For off-site shipment, a sample is analyzed to ensure that the waste conforms to the acceptance parameters of the ultimate management method. The laboratory will then assign a disposition code to the consolidated wastes based on the sample analysis results.

C5.2.4. Wastes Destined for Solids Consolidation or Debris Shredding

Non-homogenous wastes such as mixed debris, PPE, or other solid materials will be visually examined to the maximum extent practical. Samples may also be collected for analysis, at the discretion of the Laboratory Manager or designee. If a representative sample can be obtained from the full depth of the container, and the waste considered homogenous, the waste material will be sampled in accordance with Section C5.1 and C5.2.1 prior to consolidation/debris shredding. If not, the contents of the container will be dumped onto the sorting table (described in Section E6.3 of this application) and inspected as part of the acceptance evaluation.. These procedures enable Facility personnel to properly determine the contents of the container. Wastes determined to be unacceptable at the facility will undergo the waste rejection procedures outlined in Section I1.5 of this application. Wastes determined to be unacceptable for the designated treatment process may be dispositioned for a different process.

C5.2.5. Truck Wash

Residue remaining in tankers that contained waste that had previously been accepted at the Facility will not require additional sampling. Each tanker arriving at the Facility solely for the purpose of removing residues will be sampled and analyzed in accordance with Section C4.5.3.

C5.3 ANALYTICAL PARAMETERS AND RATIONALE

The usage and applicability of waste analyses are described herein. The analytical procedures and methods described or referred to in this text, whether standard procedures or procedures developed by the Facility through its operating experience, were selected to provide hazardous waste identification and provide the information required to properly and safely manage hazardous wastes. In each case, Facility management selects the appropriate parameters from those listed below according to the needs and requirements specified for profile analyses, incoming shipment identification analyses, and process analytical testing. The analytical parameters, methods, and rationale are identified in Table C-10. Additional parameters not listed may be added as required (by changes in regulations, processes, hazardous waste streams).

All incoming hazardous waste samples collected in accordance with C5.2 are subjected to waste receipt verification analyses, except as excluded in C4.2. Facility management may select additional supplemental analyses and/or bench-scale testing of the waste to obtain information required for efficient process control or to further evaluate a positive result from a mandatory screening test.

C5.3.1. Waste Verification Analyses

Waste verification analyses include basic screening procedures or "fingerprints" that provide a general identification of the hazardous waste, verify that the hazardous waste received is as described in pre-acceptance paperwork, and determine the management scenario that is most suitable. The results of the analyses also provide facility management with a level of confidence concerning the proper means of treatment, storage, and disposal.

The waste verification analyses for the primary waste streams managed by the Facility are listed on Table C-4; waste storage/process limits are listed on Tables C-5 and C-6.

The parameters and associated rationale for both waste acceptance and any supplemental analyses are described below (also refer to Table C-10, Analytical Parameters, Methods, and Rationale). Supplemental analyses provide additional information to assist Facility operations in determining the appropriate management option for a particular waste shipment, and are not required for waste acceptance purposes.

The rationale for performing all of the following analyses is first and foremost to determine conformance with the approved waste profile for the waste to provide for safe and compliant waste handling purposes.

Waste Acceptance Analysis

1.) Physical Description is used for wastes received destined for each of the waste management options to determine the general properties of the hazardous waste (color, physical state, layering, odor). This facilitates subjective comparison of the sampled waste with prior waste descriptions or samples. It applies to all incoming hazardous wastes and is used to identify any obvious change in the waste's physical properties.

2.) pH is used to indicate the pH and, in general, the corrosive nature of the hazardous waste. Results will be used to ensure that corrosive wastes are handled in areas, containers, and/or tanks suitable for storage and treatment of these types of hazardous wastes, and to assist in determining compatibility of wastes, when necessary.

    The pH test may not apply to certain hazardous wastes, such as organic solvents, waste oil, or insoluble solid wastes, but will be performed on most incoming wastes such as wastes destined for solvent recovery, ethylene glycol recovery, fuel blending, liquefaction, waste water treatment, neutralization, inorganic treatment, and off-site transfer. For miscellaneous management options, a physical pH test will routinely be performed on wastes destined for the tanker truck wash management option only. pH values for wastes destined for the other miscellaneous management options will be based on profile information; physical pH testing may be performed if labeling, shipping papers, or physical observations of the waste deviate from the information on the waste's profile.

3.) Specific Gravity provides information regarding the general chemical composition of a waste and is used to compare and identify differences between the hazardous waste and prior hazardous waste descriptions. Specific gravity is performed on liquids that are to be stored and/or processed in onsite tanks or other process vessels to determine the suitability of the receiving vessel according to its engineering certification limits.

    With the exception of the tanker truck wash miscellaneous management option, the specific gravity analysis is not routinely performed on waste destined for a miscellaneous management option, but is based on profile information. However, the analysis may be performed if labeling, shipping papers, or physical observations of the waste deviate from the information on the waste's profile.

4.) Radiation Screen is used to detect the presence of radioactive constituents in a waste. This screen applies to all incoming solid and liquid hazardous wastes destined for the Facility's primary management options. With the exception of the tanker truck wash miscellaneous management option, the radiation screen is not routinely performed on waste destined for a miscellaneous management option, but is based on profile information. However, the analysis may be performed if labeling, shipping papers, or other physical observations of the waste indicate the possible presence of radiation.

5.) Solvent Composition/Screen determines the solvent composition of materials to be reclaimed or blended for alternate fuels or incineration. In addition, this test can be used to determine whether a liquid hazardous waste contains land disposal restricted organic components. This test also establishes a fingerprint of the hazardous waste that is compared to subsequent hazardous waste shipments to confirm the identity of the waste.

The rationale for performing a solvent composition screen on wastes destined for the following Facility primary management options are as follows:

- Solvent Recovery: to determine solvent recovery suitability/treatment parameters;
- Ethylene Glycol Recovery: to indicate possible presence of solvents, and if present, to determine possible management options for solvents presence (i.e. recovery);
- Fuel Blending: may be performed in lieu of BTU analysis;
- Waste Water Treatment: to set treatment parameters (see Section E4.1.4.2);
- Neutralization: to avoid potential flammability concerns in a unit where we are doing an acid-base neutralization reaction, which may generate heat;
- Inorganic Treatment: to avoid potential interference with the treatment process;
- Off-Site Transfer: to meet off-site facility receiving requirements, and/or to determine presence of land disposal restricted compounds.

For miscellaneous management options, the solvent composition analysis will routinely be performed only on wastes destined for the tanker truck wash management option. The solvent composition analysis is not performed on solid materials or inorganic liquids.

6.) Cyanide Screen is used to indicate the presence of cyanide in a hazardous waste. Should the screen indicate the presence of cyanide, further analysis may be performed to safely handle the waste and to meet regulatory requirements (see Total Cyanide analysis rationale below). This screen is performed on wastes destined for solvent recovery, ethylene glycol recovery, fuel blending, liquefaction, waste water treatment, neutralization, inorganic treatment, and off-site transfer. For miscellaneous management options, the cyanide test will routinely be performed on wastes destined for the tanker truck wash management option only. Cyanide screening for wastes destined for the other miscellaneous management options will be based on profile information; physical cyanide screening may be performed if labeling, shipping papers, or physical observations of the waste deviate from the information on the waste's profile.

7.) Oxidizer Screen is used to determine if water-based hazardous wastes have the potential to exhibit the characteristic of an oxidizer. Wastes with this characteristic are known to be incompatible with ignitable wastes, and are therefore managed separately. This test applies to all water-based hazardous waste streams destined for the Facility primary management options and for the tanker truck wash miscellaneous management option. The presence of oxidizing components for wastes destined for the other miscellaneous management options will be based on profile information; physical oxidizer screening may be performed if labeling, shipping papers, or physical observations of the waste deviate from the information on the waste's profile.

8.) Sulfide Screen is used to determine the presence of sulfide in hazardous waste. Should the screen indicate the presence of sulfides, further analysis may be performed to safely handle the waste and to meet regulatory requirements (see Total Sulfide analysis rationale below). The screen is performed if the wastes profile indicates the possible presence of sulfides on wastes destined for ethylene glycol recycling, waste water treatment, and tanker truck wash.

9.) Heat of Combustion (BTU) may be used for wastes to be blended for use as waste-derived fuel in cement kilns managed under the fuel blending, liquefaction, solids consolidation, debris shredding, off-site transfer, small container consolidation, and can crushing management options.

10.) Total Metals is used to quantify the concentration of specified metals in a hazardous waste in order to determine treatment parameters and/or to meet off-site receiving facility receiving requirements.

The rationale for performing total metals analyses on wastes destined for the following Facility primary management options are as follows:

- Waste Water Treatment: to set treatment parameters (see Section E4.1.4.2),
- Inorganic Treatment: to set treatment parameters;

11.) Total Halogens is used to quantify the concentration of halogens as necessary to comply with off-site receiving facility criteria for wastes managed under the fuel blending, solids consolidation, debris shredding, off-site transfer, and small container consolidation management options.

12.) PCBs is used to determine the concentration of polychlorinated biphenyls in a hazardous waste; the presence of which may have environmental, health, and safety consequences, and also may trigger other regulatory requirements (TSCA). It is performed on any hazardous wastes suspected of containing PCBs, usually those that are oil containing.

13.) Total Cyanides is used to quantify cyanides as necessary to comply with LDRs and off-site receiving facility criteria for the solids consolidation, debris shredding, off-site transfer, and small container consolidation management options. Total cyanides is performed for wastes destined for the wastewater treatment and neutralization management options in order to determine acceptability of the waste and treatment parameters.

14.) Total Sulfides is used to quantify sulfides as necessary to comply with LDRs and off-site receiving facility criteria for the solids consolidation, debris shredding, off-site transfer, and small container consolidation management options. Total cyanides is performed for wastes destined for the wastewater treatment and neutralization management options in order to determine acceptability of the waste and treatment parameters.

15.) Flash Point is performed as necessary on wastes destined for neutralization, and off-site transfer management options to further characterize ignitable liquid hazardous wastes to establish proper storage modes and conformance with permit conditions.

16.) Compatibility Screen is used to determine the compatibility and potential reactivity of bulk shipments to be consolidated with other hazardous wastes in a tank.

17.) Ammonia is used to determine and quantify the presence of ammonia in a hazardous waste. This analysis is performed as necessary on wastes destined for ethylene glycol recycling, wastewater treatment, neutralization, and tanker truck management options in order to assist the Facility to meet POTW discharge requirements. This analysis may be performed on off-site transfer wastes in order to meet off-site facility receiving requirements.

Supplemental Analysis

1.) Water Content provides information that the facility uses to determine blending requirements.

2.) Solids Content provides information that the facility uses to grade aqueous streams to be managed in the wastewater treatment process. Solids content also affects material handling (e.g., whether to place material in agitated tank).

3.) Viscosity provides material handling information (e.g., ability to pump material).

4.) Total Organic Constituents provides information that the facility uses to determine blending requirements and treatability.

5.) Volatile Organic Concentration provides information on applicability of air emission requirements. Primarily evaluated through review of profiles/chemical composition.

6.) Vapor Pressure provides information on applicability of air emission requirements. Primarily evaluated through process knowledge and review of profiles/chemical composition.

7.) Dioxins/Vinyl Chloride Screen provides information relating to status under land disposal restriction standards.

C5.3.2. Bench Scale Testing

The Facility's laboratory may perform bench-scale testing on a sample of an incoming waste in order to determine the appropriate waste management option. For example, the bench-scale test would assist the Facility in determining the feasibility of recycling a particular waste through a thin film evaporator, fractionation column, or vacuum distillation unit, or a combination of these processes (described in Section E). Small pilot units are used to represent the operating conditions of these process equipment devices are used inside the Facility laboratory. The sample is "processed" through the pilot unit, and the treatment efficiency of the particular method is assessed through analytical testing of the waste, waste residuals, effluents, and/or by-products at various stages of treatment.

Bench-scale testing also allows the Facility to determine optimal treatment chemicals for processes such as wastewater treatment and *inorganic treatment*. Bench-scale testing is an integral and important step taken by the Facility to ensure that the appropriate treatment option is chosen, and the treatment of the waste is effective and safe.

C6 PROCEDURES FOR PRE-, IN-, AND POST-PROCESS OPERATIONAL CONTROLS

Romic will conduct sampling and analysis at various stages of the waste management processes for each waste stream to ensure incoming wastes are acceptable, determine waste compatibility, determine process option, monitor and verify the effectiveness of the management process, and to ensure any treatment effluents/emissions are within permitted discharge limits. A general description of the sampling and analysis operational controls for each waste stream managed by the Facility is presented in this section. Specific sampling points and the respective analyses performed for each of the waste management processes at the Facility are shown on the process flow diagrams in Section E (Figures E-1 through E-22). Examples are listed below outlining the rationale behind performing the analysis at various stages of processing. The specific rationale for each type of physical and chemical analysis is presented in Section C5.3.

Pre-Process Analyses includes the acceptance analyses outlined in Section C4.5, and may also consist of additional analysis conducted on consolidated waste streams to ensure the feedstock to a process can be managed by that process. Appropriate disposition of the waste and the resulting treatment/storage locations (i.e. storage buildings, tanks, etc.) are determined by the pre-process analysis procedures. The pre-process analyses may also include bench-scale testing. Additionally, the pre-process analysis procedures assist in screening out wastes that cannot (by permit conditions) be accepted at the Facility, and assist Facility personnel in determining if there are any compatibility issues for each waste stream. Finally, the pre-process also enables the Facility to set process operational parameters.

- Example: The results of pre-acceptance analytical testing are used to determine the feasibility of solvent recovery versus fuel blending, the compatibility of the waste stream with any wastes that it may be mixed with, the type of equipment to be used, and operating parameters for the distillation/fuel blending equipment.

In-Process Analyses enables the Facility to determine the progress of a treatment process, and whether and when certain changes need to be made during the process. Analyses may also be used during waste management processes to determine when the target product has been made and/or when alternate products are produced so that they can be sent to an appropriate disposition.

- Example: During ethylene glycol recovery, two different types of wastewater are produced that require further treatment, along with the target ethylene glycol product, and a bottoms residual (See Section E2).

Post-Process Analyses confirms successful treatment of a waste, and verifies that the properties of the resulting material are suitable for the next management step. Residuals from a process treating wastes to meet land disposal restriction standards may undergo verification testing to ensure those standards are met. Other residuals are analyzed for appropriate disposition on-site or off-site.

- Example: Post-process analysis is conducted to verify that wastewater resulting from on-site treatment methods does not exceed the Facility's wastewater discharge permit limits.

C7 PROCEDURES FOR IGNITABLE, REACTIVE, AND INCOMPATIBLE WASTES

In addition to the procedures outlined in this section, employees that perform job duties applicable to the management of ignitable, reactive, and incompatible wastes are trained in the proper handling, operational methods, and emergency procedures for the safe management of ignitable, reactive, and incompatible wastes (see Section H, Personnel Training).

Also, tanks and containers are separated, based on compatibility, by secondary containment systems and appropriate distances according to UFC spacing and DOT requirements. Tanks at the facility are labeled according to the National Fire Protection Association (NFPA) placard system and the Hazardous Materials Information System (HMIS). See Sections D2, D3, and E9.6 for a detailed discussion of tank and secondary containment areas at the Facility and some of the physical measures taken to ensure the safe handling of ignitable, reactive, and incompatible wastes.

C7.1 IGNITABLE WASTES

Potential ignitability characteristics will be assessed through the profiling process, or for on-site generated wastes, using process knowledge. The Setaflash closed cup apparatus may be used to determine the flashpoint of a given liquid hazardous waste. Operating procedures and specialized equipment are in place at the Facility to ensure the safe handling of ignitable wastes, such as:

- Fingerprint analysis upon receipt of all wastes to determine conformance with the profile information
- Use of the disposition code system to indicate the waste type and ultimate management option to be used to handle the waste
- Grounding and bonding of transfers of ignitable wastes between containers, trucks, and tanks
- The use of non-sparking tools (bung wrenches, etc.)
- Strict no smoking policies
- Any welding work performed at the Facility requires a "Hot Work" permit and established precautionary procedures

C7.2 REACTIVE WASTES

Potential reactivity characteristics will be assessed through the profiling process for off-site generated wastes, or for on-site generated wastes, using process knowledge. The review of the waste profile (and shipping papers for off-site generated wastes), includes an inspection for the presence of any of the following:

- Wastes dangerous when wet/water reactives
- Organic peroxides
- Vinyl benzyl chloride
- Unreacted monomers, resins, isocyanates (e.g., TDI/Toluene diisocyanate, MDI, epoxy Part A), with the potential to cause exothermic polymerization reactions
- Reactive wastes
- Wastes with reactive constituents

Reactive wastes (22 CCR 66261.23(a)(1) through (a)(5) wastes only) are only handled by the Facility off-site/ten-day transfer management option.

C7.3 INCOMPATIBLE WASTES

The Facility takes many precautions to ensure that incompatible wastes are not mixed together. The adverse consequences of mixing incompatible wastes include heat generation, fires, pressure in closed containers, explosions, generation of toxic or flammable gases, and/or polymerization.

Waste-to-waste and waste-to-vessel compatibility is addressed by the Facility at three separate points, during the pre-acceptance waste profiling stage, during the receipt analysis stage, and at the operations level. During the pre-acceptance profiling stage, a thorough review of the waste profile is conducted specifically for the presence of any possible incompatible wastes, and whether the chemical composition of the waste is appropriate for the management method to be used. During the receipt analysis stage, the laboratory evaluates all wastes for compatibility using physical and chemical analysis information.

Facility compatibility guidelines and references include the following:

- DOT Segregation Table (49 CFR 177.848 Segregation Table for Hazardous Materials)
- Hawley's Condensed Chemical Dictionary
- Sax's Dangerous Properties of Industrial Materials
- Appendix V of Chapter 14 of Title 22 CCR

Disposition codes are then assigned by the laboratory indicating to operations personnel which storage and/or processing options to use, and to ensure incompatible wastes do not mix and cause adverse reactions. See Section C7.3.5 and C7.3.7 for additional information regarding waste disposition codes.

The U.S. Department of Transportation (DOT) hazard class label on hazardous waste shipping containers (e.g., Corrosive, Oxidizer) is an additional method used by Facility Operations to make a preliminary determination of compatibility. For example, materials labeled as DOT corrosives (concentrated acids only) or oxidizers will be placed onto secondary containment pallets by employees upon receipt at the Facility when they might be near otherwise potentially incompatible wastes.

C7.3.1. Methods of Segregation

There are many methods of segregating incompatibles including:

- Separation by wall, berm, spill pallet, or other confinement devices.
- Placing small containers inside larger containers (e.g., overpacks, lab packs, etc.)

<u>Sampling Areas</u>

- Facility personnel will inspect the integrity of the containers as they are being unloaded off the transport vehicle and placed in the container sampling areas.

- If Facility personnel see the following DOT labels on the side of the container, they will place the containers on spill pallets. If the containers are lab packs (chemical inventories will be attached to the containers and the California waste number may be “551”), they are not required to be placed on the spill pallets.

  DOT 4.3 Dangerous When Wet
  DOT 5.1 Oxidizers
  DOT 5.2 Organic Peroxides
  DOT 8 Corrosive

- Once the above containers are sampled and dispositioned by the lab, the warehouse personnel will move the spill pallets and containers to the appropriate storage areas.

C7.3.2. General Container Requirements

Incompatible wastes or incompatible wastes and materials will not be placed in the same container, unless the requirements of 22 CCR 66264.17 (b and c) are complied with. Hazardous waste will not be placed in an unwashed container that previously held an incompatible waste or material.

C7.3.3. General Tank and Tank Systems Requirements

Incompatible waste, or incompatible wastes or materials, will not be placed in the same tank system, unless the requirements of 22 CCR 66264.17 (b and c) are complied with. Similarly, hazardous waste will not be placed in a tank system that has not been decontaminated and that previously held an incompatible waste or material, unless the requirements of 22 CCR 66264.17 (b and c) are complied with (see Section E10.8).

C7.3.4. Sampling and Analysis

Trained employees sample and analyze incoming wastes in accordance with Sections C4, C5, C6, and established Facility SOPs. As outlined in Section C4, sampling and analysis for compatibility purposes may be required or may be conducted if profile information or incidental observations (color, odor, labeling or manifest information) indicate possible presence of incompatible materials. When necessary, laboratory personnel are trained to conduct the specific compatibility reviews listed below.

Liquids

Potentially incompatible liquids (and semi-solid materials, if enough liquid present to conduct tests) that are to be consolidated may undergo the following testing for compatibility purposes:

- pH (either direct measurement using pH paper or measurement of prepared 1:1 mixture of waste and water)
- Oxidizer screen (test strip)
- Cyanide screen (test strip)
- Waste compatibility test (if wastes to be mixed into a tank and the wastes are not known to be compatible). Sample of waste is mixed with sample from target tank; if temperature rise of 10 °C or greater or a violent reaction is observed, material deemed incompatible with material in target tank.

Solids

Although no specific compatibility tests are conducted for solids, a thorough review of the waste profile is conducted for solid wastes to be consolidated specifically for the presence of any of the following:

- Oxidizers
- Wastes dangerous when wet/water reactives
- Organic peroxides
- Mineral acids
- Vinyl benzyl chloride
- Unreacted monomers, resins, isocyanates (e.g., TDI/Toluene diisocyanate, MDI, epoxy Part A), with the potential to cause exothermic polymerization reactions
- Batteries with corrosive liquids
- Reactive wastes
- Wastes with reactive constituents
- DOT Flammable solids (DOT Hazard Class 4.1) other than those with a proper shipping name of "Solids containing flammable liquids"

Facility personnel also perform a physical observation of solid waste samples specifically for the presence of the following:

- Containers suspected of containing any of the chemicals noted above
- Solid wastes with free liquids
- Glass chemical containers (broken or intact)

C7.3.5. Waste Disposition Code Designation

The assignment of disposition codes is another method used at the Facility to ensure that incompatible wastes are not mixed. As outlined in Section C4.5, and based on storage and process limitations (Tables C-5 and C-6), compatibility results, customer preferences, and Facility compatibility guidelines, the Facility assigns a waste disposition code to each waste received. This disposition code will then accompany the waste (via a label for wastes in containers, or via paperwork for bulk waste shipments). Containers making up a single waste shipment may show sufficient variability to require differing management methods. In this case, different containers received under the same profile may be assigned and labeled with different disposition codes. Example disposition codes are shown in Table C-7.

C7.3.6. Waste To Vessel Compatibility

Romic considers waste-to-vessel compatibility when assigning disposition codes. Vessel compatibility corresponds closely to the overall process types individual disposition codes fall under. Waste-to-vessel compatibility by process type is outlined in Section D3.3.

C7.3.7. Operations

Disposition codes provide information to employees regarding general waste compatibility characteristics via the designated management methods, segregation, and appropriate storage areas.

Certain storage areas are designated for the storage of materials posing specific compatibility concerns. The West Storage Building #1 (See Figure C-1) has two storage bays separated by a seven-foot high concrete wall. Both bays of West Storage Building #1 are typically used for storing acids, but if the need arises, and volume permitting, one or both of the bays may be used for storing alkaline materials. See Section D2.2.4 for more details.

Oxidizers are generally segregated from ignitables and organics by placing the drums on plastic containment pallets. These pallets would contain any material that would be released if one of the drums fails.

C8 PROCEDURES TO ENSURE COMPLIANCE WITH LDR REQUIREMENTS

Romic treats hazardous wastes onsite with the primary goal to recover materials for sale (e.g., solvent recovery) or to produce a hazardous waste fuels or incinerable materials. Some wastes are also sent for off-site landfilling. Generally, hazardous waste streams derived from received wastes and destined for off-site management will be subject to the same LDR standards as the incoming hazardous wastes.

When products are made, the materials exit the LDR requirements. When Romic sends other materials off-site as RCRA fuels, incinerable waste, or to be landfilled the waste codes and LDR requirements are passed through the facility to the ultimate disposal location. Incoming RCRA wastewater and wastewater treatment residuals from other processing on-site exit the LDR requirements when they are placed into the discharge to the POTW under a permit. Romic performs testing of the wastewater discharge in accordance with their POTW permit conditions.

Residuals from a process treating wastes for off-site disposal may in some cases undergo verification testing to determine whether the land disposal restriction (LDR) standards of 22 CCR 66268 are met. Testing would be done to certify that no further treatment is required to meet LDRs or that the waste was treated by the prescribed technology.

The Facility will prepare appropriate LDR notifications and certifications for on-site generated hazardous waste streams to be managed off-site. In addition to the LDR notification, any additional data for the waste stream (e.g. waste profile sheets, analytical data), as required by the receiving facility, will be provided to the designated treatment facility.

Special requirements apply to lab packs, F001-F005 waste streams, leachate, and contaminated soils. Romic will prepare a one-time notice to accompany the first shipment of any lab pack streams subject to the alternative treatment standards of 22 CCR 66268.42(c) to any off-site facility. The notice will contain EPA waste codes applying to the lab pack stream, the manifest number of the initial shipment, and the certification language in 22 CCR 66268.7(a)(9)(A). Romic will list constituents of concern on any notices for F001-F005 and F039 wastes, unless the waste will be treated and monitored for all constituents.

Romic will prepare a one-time notice to accompany the first shipment of any contaminated soil waste stream to any off-site facility. The notice, in addition to standard LDR information, will include certification language in accordance with 22 CCR 66268.7(a)(2)(A).

C9 ROMIC ENVIRONMENTAL TECHNOLOGIES, PORT OF REDWOOD CITY

Romic Environmental Technologies Corp. operates a rail transfer facility in Redwood City, California. All shipments of hazardous waste received at the Redwood City facility will either originate at or be shipped to Romic's East Palo Alto facility.

C9.1 WASTES RECEIVED THROUGH ROMIC REDWOOD CITY

Waste streams from other generators to be received in rail (tank) cars at Romic's Redwood City transfer facility will be subject to the pre-acceptance procedures specified in this Waste Analysis Plan.

Rail (tank) car waste shipments received at Romic's Redwood City transfer facility will be sampled upon arrival at Redwood City, and will be subject to the acceptance analysis and procedures specified in this Waste Analysis Plan. Upon completion of the acceptance procedures, Romic will transfer the contents of an incoming rail car into tanker trucks for shipment to Romic East Palo Alto. Romic will not repeat the waste acceptance analysis and procedures when these truck shipments arrive at East Palo Alto.

Each incoming rail shipment will be sampled in accordance with section C5.1. Typically, a steel or plastic tube will be used to collect a sample that spans the entire depth of the rail car. Samples are stored in containers that are compatible with the sampled material. Sample-container compatibility is summarized in Table C-9. Sample containers are marked with the incoming manifest number and/or Romic-assigned waste tracking number, which is used to track the sample through the analytical/acceptance process. The sample will be transported back to the Romic East Palo Alto facility for analysis.

C9.2 WASTES SHIPPED TO ROMIC REDWOOD CITY

Romic's Redwood City rail transfer facility is only authorized for the transfer of liquid wastes between tanker trucks and rail (tank) cars. No treatment is authorized at the rail transfer facility. Wastes shipped to Romic's Redwood City transfer facility from Romic's East Palo Alto facility for transfer into a rail car must meet destination facility specifications as-is; that is, prior to mixing with the other truck shipments transferred into the rail car. Most of the waste currently shipped to the rail transfer facility is alternative fuel destined for cement kilns. Cement kiln specifications may vary somewhat from kiln to kiln and over time. Generally, current specifications are as follows:

PARAMETER	**SPECIFICATION**
BTU Content	> 5,000 BTU/lb
Water content	No limit as long as BTU specification is met; surcharges may apply for water content > 30%
Chloride/Halogen content	No limit, but surcharges apply for chloride/halogen content above 3%
Solids content	No limit, though liquid fuels must be pumpable; surcharges may apply for solids content above 30%

Each outgoing rail car shipment will be sampled in accordance with section C5.1. Typically, a steel or plastic tube will be used to collect a sample that spans the entire depth of the rail car. Samples are stored in containers that are compatible with the sampled material. Sample-container compatibility is summarized in Table C-9. Sample containers are marked with the incoming manifest number, which is used to track the sample through the analytical process. Samples will be transported back to the Romic East Palo Alto facility for analysis. Rail cars will not be released for outbound shipment until analysis is complete.

C10 RECORDKEEPING AND REPORTING

This section describes the recordkeeping procedures for hazardous waste analysis. All records of test results, hazardous waste analyses, or other determinations performed for the purpose of identifying, treating, storing, or disposing of hazardous waste are kept in the operating record until final facility closure. Manifests of on-site generated hazardous waste signed by the initial transporter are kept at least 3 years, or until a signed copy is received from the receiving facility. The signed facility copy is kept at least 5 years. Original copies of waste profiles are filed at the Romic East Palo Alto site, and electronic versions of profiles are available to plant personnel. Records required by this WAP may be kept in either paper or electronic format.

Romic Environmental Technologies Corp.

CAD 009 452 657

East Palo Alto, California

Section D

Process Equipment

November 2001
Rev. 4/05

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Tables

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D PROCESS EQUIPMENT

D1 OVERVIEW

This section along with referenced tables, drawings, and data sheets provides descriptions, designs, and operating information for waste management equipment and devices (tanks, containers, secondary containment areas, and other ancillary equipment) used to store, consolidate, transfer, or treat hazardous wastes at the Facility. The locations of Facility container storage areas, tank systems, and treatment areas are shown on Figure D-1, Facility Layout. Waste management processes and procedures are described in Section E, Process Operations.

D2 CONTAINERS

D2.1 CONTAINER TYPES

The facility receives solid, liquid, or semi-solid hazardous wastes in labeled containers that meet the United Nations performance-oriented packaging standards or that meet the U.S. Department of Transportation (DOT) requirements under 49 CFR 173 – 179. The containers are visually examined as they are unloaded to determine they are structurally sound and not leaking prior to acceptance. Containers received typically include 5-gallon pails, 30-gallon drums, 55-gallon drums, totes (intermediate bulk containers), supersacks, tri-wall boxes, and roll-off bins. These containers may be made of plastic, metal, or fiber (e.g. cardboard). Some waste and container combinations will require that the container have an appropriate liner. This may include a bonded liner (such as a bonded polyethylene or an epoxy/phenolic coating) or a removable liner (such as polyethylene bags inside fiber drums, boxes, or supersacks).

In accordance with DOT regulations under Title 49 of the Code of Federal Regulations, intermediate bulk containers (IBCs) are rigid or flexible portable packagings that may have a capacity of 119 gallons to 793 gallons. Typically Romic receives IBCs with a capacity of about 350 gallons. Such containers must meet the standards specified in Section 178 of 49 CFR. This includes per 49 CFR 178.703(a)(1)(vi) the stacking test load (in kilograms) marked on the IBC. Romic will not double-stack loaded IBCs, nor will containers of greater than 5 gallons in capacity be stacked on IBCs.

Wastes will be stored in the containers in which they are received unless the container is damaged or leaking. The condition of drums is assessed when they are off-loaded and during the routine inspections of the storage areas as described in Section F2.1, General Inspection Requirements. Any containers showing evidence of leakage or damage will be either placed in overpack drums, processed immediately, or the waste will be transferred into a container in acceptable condition as described in Section G4, Emergency Response Procedures. The facility follows the drum condition specifications established by the DOT in 49 CFR Parts 171 and 180.

Containers of waste will remain closed and sealed except when adding to, removing from, or sampling the waste. Additionally, containers subject to the air emission requirements of 22 CCR 66264 Article 28.5 are discussed in Section O of this permit application.

Containers of waste, whether received from an off-site facility or generated or consolidated on-site, are marked and labeled to identify the major risk(s) associated with the contents of the container. A container received at the facility or found in storage without appropriate labeling will be corrected. At a minimum, containers in storage will be properly marked and labeled in accordance with DOT requirements and 22 CCR 66262.32, and will have tracking labels (described below) affixed to them. Prior to being shipped off-site, containers of waste are marked in accordance with 49 CFR 172.

Containerized wastes are also assigned an in-house waste tracking number upon receipt that is printed on a label. The tracking label ties the container to the original shipping paperwork, has the date on which the container was received, and is affixed to the container for identification, recordkeeping, and tracking purposes. An additional label is placed on each container after laboratory receipt analysis/review indicating which management option will be utilized to handle the waste. Container waste receiving and disposition procedures are described in Section C4, and container management practices are described in Section E9.

D2.2 CONTAINER STORAGE AND HANDLING AREAS

This section describes container management facilities while procedures for container management are discussed in Section E9. This section describes the following regarding facilities for container management:

- The facilities for receiving containerized waste,
- The structural design and construction, storage capacity, and waste compatibility information for each of the container storage areas at the facility,
- The areas where containers of waste are staged to be emptied by vacuum truck, pump or other means to transfer the waste contents to process units or into storage tanks prior to processing, and
- The types of coatings used to seal the concrete containment floors.

Containerized non-bulk wastes received from off-site are stored in the North Storage Building, South Storage Building, West Storage Building #1, West Storage Building #2, and the Sampling Area. A new *Drum Pumping Area* will also be added as described in Section D2.2.6 to provide secondary containment for drums that are being emptied. See Figure D-1, Facility Layout for the location of these areas.

Containers of hazardous wastes are received and unloaded at Romic as described in Sections C4.5.1. and E9.1. Bulk loads are received and unloaded as described in Sections C4.5.2. and E10.1. These areas are managed in accordance with California Health & Safety Code Section 25200.19. In addition, Section D5 describes Facility containment features that provide spill and overfill protection during loading/unloading operations.

The Facility container storage areas are used to:

- Store hazardous wastes that will be processed at the Facility, and
- Temporarily store hazardous wastes and materials that will be transferred to other off-site locations for processing.

Drums are stacked in rows with a minimum of 36 inches of aisle space between rows. Each row consists of up to two drums stacked side-by-side. Drums may be double-stacked (except in the Sampling Area and the Drum Pumping Area), typically with the top layer of drums offset in relation to the bottom layer, provided the arrangement is safe and stable. Pallets may also be used.

Containers will be kept in the storage areas until they are to be emptied through use of a yard truck or hand pump, as described in Section D2.2.4 or in Section D2.2.6, or shipped off-site.

The design and construction information presented in the following sections along with the referenced supporting information demonstrates that the container storage areas are capable of adequately containing precipitation and/or leakage from drums. All drum storage areas are roofed and have passive secondary containment systems. Open-air storage areas were viewed to be the safest design in that they provide:

- Shelter from the sun. This reduces the potential of the wastes to experience thermal expansion from being in direct contact with sunlight, and that could potentially cause problems with confined flammable liquids.
- Shelter from rain. This reduces the potential for deterioration of the drums and also the potential for storm water to become contaminated with waste residues.
- Access to control fires and spills. Fire fighting water and/or foam can be more easily applied to the area and spill response equipment can more easily access the areas. The Facility uses fire suppression systems in all storage areas.
- Adequate ventilation. The good ventilation reduces potential chemical exposures to workers and prevents a potentially explosive vapor build-up in the building in case of a spill or release.

Each drum storage area has been designed to drain liquids away from the drums to either a sump or a low point in the containment system. This design allows for manual removal of any spilled liquids from the containment area or precipitation that is blown into the buildings or tracked in by equipment. Any significant spills will be removed using vacuum tankers.

Most releases would be expected to be minor (less than one drum) and could be cleaned up with dry absorbent materials and/or a neutralizing agent depending on the nature of the released material. Container storage areas are inspected weekly by the Environmental Health and Safety Manager or a designee. In addition, containers are routinely observed by the personnel who are present in the storage areas. Any releases or other deficiencies observed will be corrected immediately or, if needed, a work order will be issued. All containment structures within container storage areas are examined on a weekly basis by employees for evidence of leakage, spills, or accumulated liquids, with sumps examined daily for accumulated liquids. Because of the frequent visual inspections, the Facility has not elected to install an automatic sump pump and an associated emergency spill tank for collection of any releases. Furthermore, manual removal affords the opportunity to determine the cause of the release and the characteristics of the waste before it is transferred to an appropriate disposition.

The container storage areas are designed to contain both hazardous waste and hazardous materials. The total volume of hazardous waste and hazardous materials combined will not exceed the capacity of the storage buildings discussed below. As outlined in the following sections, and in accordance with 22 CCR 66264.175, each container storage area has been designed to contain a minimum of 10% of the combined capacity of the containers, or the total volume of the largest container, whichever is greater. In addition, since each container storage area is equipped with a fire control sprinkler system, each secondary containment system can also handle the capacity of the largest container plus the design flow volume from the sprinkler system for a period of 20 minutes as prescribed by Section 8003.1.3.3 of the Fire Code. Romic uses Aqueous Film Forming Foam (AFFF) in their sprinkler systems on-site in all container storage areas except West Storage Building #1, which uses water instead of AFFF. The storage limits and secondary containment capacity for all container storage areas are summarized in Table D-1.

Romic may receive drums containing wastes that have the potential for off-gassing. These wastes will often be contained in drums constructed of high-density polyethylene (HDPE). HDPE drums containing mixtures of acids and hydrogen peroxide, for example, may start to bulge in storage. HDPE drums exhibit flexibility, and can return to their original shape after they are vented to reduce internal pressure, as long as the bulging was not excessive. Romic will repackage the contents of any HDPE drums that have bulged to the point where any seams are compromised or the drum will not return to its original shape. Other drums will be vented once. The date and time of venting will be marked on the drum. If a drum bulges again after venting, Romic will treat the contents of the drum onsite, as long as it is technically feasible. If such treatment cannot be conducted in an otherwise authorized treatment process, then the treatment will be conducted under the provisions of 22 CCR 66264.1(g)(8)(A). Romic will maintain records of such treatment in the operating record. If treatment is not technically feasible, Romic will vent the drum an additional time, overpack or repack the drum, and ship the drum to an authorized off-site treatment facility within 72 hours of overpacking/repacking.

D2.2.1. North Storage Building

D2.2.1.1. Design and Construction

The North Storage Building is a 49-foot by 99-foot space constructed of nominal 6" concrete with #6 rebar (or equal) spaced 12" on center each way. The containment slab is surrounded on three sides by the building walls. The east end of this area is open and has a berm. The average berm height for the containment area is 7.5 inches. The stacking diagram and configuration for this building is shown in Figure D-2.

The North Storage Building is protected by a sprinkler system using AFFF. This containment area floor will be coated with a concrete sealer in accordance with a compliance schedule of upgrades contained in Appendix 1. This coating is described in Section D2.4.4.

D2.2.1.2. Containment Capacity and Drainage Control

Romic will store a maximum of 45,650 gallons of containerized hazardous waste in the North Storage Building. This is based on stacking 830 55-gallon drums in the configuration depicted in Figure D-2, with minimum 36" aisle space, and double-stacking of drums. Although the maximum container storage capacity was based on storage of 55-gallon drums, other container types and sizes may be stored in this area, including a roll-off bin (1, maximum capacity 40 cubic yards), tri-wall boxes, totes, and drums and pails of less than 55 gallons in capacity.

The North Storage Building has a low point in the southeast portion of this area. The floor is sloped to this low point to allow for leak/spill detection and to facilitate removal. The layout/arrangement of container storage in this area is shown in Figure D-2.

As described in Table D-1 and Appendix 6, this area has sufficient secondary containment capacity to meet both Title 22 and UFC requirements based on maximum storage of 45,650 gallons. The Engineering Certification for this containment area is provided in Appendix 6.

D2.2.1.3. Waste-Type Storage

The wastes to be stored in the North Storage Building include any Romic-acceptable wastes except for containerized liquid inorganic corrosives meeting the definition in 22 CCR 66261.22(a)(1). However, lab packs containing corrosive liquids may be stored in this unit.

The North Storage Building handles materials that are generally compatible with each other, with a few exceptions. The main compatibility concerns in this storage area arise from ignitables and oxidizers. If these chemicals are both to be stored within this containment area, the Facility will segregate these incompatibles by placing the oxidizers on plastic containment pallets. Multiple pallets may be used. These containment pallets will have the following specifications: 1) designed to handle up to four 55-gallon drums, 2) has a containment capacity of at least 60 gallons for each four-drum pallet, and 3) is constructed of polyethylene; polyethylene is compatible with common oxidizers received at the facility such as hydrogen peroxide and nitric acid at ambient temperatures.

In addition to storage activities, waste repackaging, including lab pack repacking, will occur in the North Storage Building. Further, waste solids may be bulked into a roll-off bin.

D2.2.2. South Storage Building

D2.2.2.1. Design and Construction

The South Storage Building is a roughly 70-foot by 173-foot space constructed of nominal 6" concrete with #6 rebar (or equal) spaced 12" on center each way. The containment slab is surrounded on three sides by the building walls. The south end of this area opens to adjoin the aisle between this storage area and the Container Sampling Area (see Section D2.2.3). The minimum berm height for the entire containment area is approximately 9 inches. The stacking diagram and configuration for this building is shown in Figure D-3. There is a separately bermed Isolation Row about four feet wide by about fifteen feet in length located within this warehouse area that can store up to 24 drums, 55-gallons each in a single stack arrangement. The Isolation Row may be used to segregate incompatibles or to keep other materials separated, such as wastes for 10-day transfer.

The South Storage Building has an AFFF sprinkler system within the enclosure. This containment area floor will be coated with a concrete sealer in accordance with a compliance schedule of upgrades contained in Appendix 1. This coating is described in Section D2.4.4.

D2.2.2.2. Containment Capacity and Drainage Control

Romic will store a maximum of 140,580 gallons of containerized hazardous waste in the South Storage Building. This is based on stacking 2,556 55-gallon drums in the configuration depicted in Figure D-3, with minimum 36" aisle space, and double-stacking of drums. Up to 321 totes, 350 gallons each, may be stored (single-stacked) in the same row/aisle configuration, with additional space available for 34 55-gallon drums. Containers of other sizes and types may be stored in this area; the total inventory of containerized hazardous waste will be maintained at or below the maximum volume specified above.

The South Storage Building has two low points located along the southern portion of this area (see Figure D-3). The floor is sloped to these low points to allow for leak/spill detection and to facilitate removal. The layout/ arrangement of container storage in this storage area is shown in Figure D-3.

As described in Table D-1 and Appendix 6, this area has sufficient secondary containment capacity to meet both Title 22 and UFC requirements based on maximum storage of 140,580 gallons. The Engineering Certification for this containment area is provided in Appendix 6.

D2.2.2.3. Waste-Type Storage

The South Storage Building handles materials that are generally compatible with each other, with a few exceptions. The main compatibility concerns in this storage area arise from ignitables and oxidizers. If these chemicals are both to be stored within this containment area, the Facility segregates these incompatibles by placing the oxidizers on plastic containment pallets. Multiple pallets may be used. These containment pallets will have the following specifications: 1) designed to handle up to four 55-gallon drums, 2) has a containment capacity of at least 60 gallons for each four-drum pallet, and 3) is constructed of polyethylene; polyethylene is compatible with common oxidizers received at the facility such as hydrogen peroxide. The Isolation Row may also be used to provide physical segregation. No corrosives meeting the definition in 22 CCR 66261.22(a)(1) will be stored in the South Storage Building.

As shown in Figure B-2, a portion of the northwest corner of this storage area is closer than 50-feet to the property line. In accordance with 22 CCR 66264.176, ignitable or reactive wastes must be stored at least 50-feeet from the property line. Romic has placed a line on the floor to indicate the 50-foot mark and no reactive or ignitable wastes will be stored between this line and the property boundary.

D2.2.3. Sampling Area

D2.2.3.1. Design and Construction

The Sampling Area is a roughly 74-foot by 125-foot space constructed of nominal 6" concrete with #6 rebar (or equal) spaced 12" on center each way. The containment slab is surrounded on the south side by the building wall, and on the east and west by concrete berms. The north end of this area opens to adjoin the aisle between this storage area and the South Storage Building (see Section D2.2.2). The minimum berm height for the entire containment area is about 11 inches. The storage diagram and configuration for this building is shown in Figure D-4. Containers of various sizes and types may be stored in this area; the total inventory of containerized hazardous waste will be maintained at or below the maximum volume specified above.

The Sampling Area has an AFFF sprinkler system within the enclosure. This containment area floor will be coated with a concrete sealer in accordance with a compliance schedule of upgrades contained in Appendix 1. This coating is described in Section D2.4.4.

D2.2.3.2. Containment Capacity and Drainage Control

Romic will store a maximum of 40,755 gallons of containerized hazardous waste in the Sampling Area. This is based on storing 741 55-gallon drums in the configuration depicted in Figure D-4, with minimum 36" aisle space, and single-stacking of drums. Up to 188 totes, 350 gallons each, may be stored (single-stacked) in the same row/aisle configuration, with additional space available for thirty 55-gallon drums. This would exceed the established 40,755 gallon storage capacity limit for the unit, however. Under the gallonage limit, 116 totes, 350 gallons each, may be stored in the area.

The Sampling Area has two low points in the middle of the area. These are shown in Figure D-4 along with the layout/arrangement of container storage in this area. The floor is sloped to these low points to allow for leak/spill detection and to facilitate removal.

As described in Table D-1 and Appendix 6, this area has sufficient secondary containment capacity to meet both Title 22 and UFC requirements based on maximum storage of 40,755 gallons. The Engineering Certification for this containment area is provided in Appendix 6.

D2.2.3.3. Waste-Type Storage

The Sampling Area may handle any waste received by the Facility. Wastes stored in the Sampling Area are generally compatible with each other, with a few exceptions. The main compatibility concerns in the Sampling Area arise from the following incompatible chemical pairs: ignitables and oxidizers, and acids and bases. When acids or oxidizers are placed in the Sampling Area, the Facility will segregate these incompatibles by placing the oxidizers or the acids on plastic containment pallets. Multiple pallets may be used. These containment pallets will have the following specifications: 1) designed to handle up to four 55-gallon drums, 2) has a containment capacity of at least 60 gallons for each four-drum pallet, and 3) is constructed of polyethylene; polyethylene is compatible with common oxidizers and acids received at the facility such as hydrogen peroxide and nitric acid at ambient temperatures. Other wastes posing an incompatibility concern with other wastes in storage will be placed on plastic containment pallets. Appendix V to Chapter 14, Division 4.5, CCR Title 22 will serve as the primary reference in making incompatibility segregation decisions.

When IBCs of potentially incompatible materials are received they will not be able to be placed on secondary containment pallets due to insufficient containment volume. While in the Sampling Area, IBCs containing either strong acids or oxidizers will be placed in Row 80 of the Sampling Area. This row has a berm that separates these materials from other wastes. Drums of acids or oxidizers may also be placed in Row 80.

D2.2.4. West Storage Building #1

D2.2.4.1. Design and Construction

The West Storage Building #1 is comprised of two roughly 29-foot by 29-foot mirror image bays. Each bay is constructed of nominal 6" concrete with #6 rebar (or equal) spaced 12" on center each way. The containment slab is surrounded on three sides by the building walls or the inner wall that separates the two containment bays. The south end of this area is open and has a berm. The minimum berm height for the entire containment area is about 8 inches. The storage diagram and configuration for this building is shown in Figure D-5.

The West Storage Building #1 is protected by a sprinkler system. Unlike most other containment areas at the Facility, this sprinkler system uses water instead of AFFF, since fire prevention is not the primary consideration here. The containment area floor surface is provided with an acid-resistant coating, a Novolac epoxy.

D2.2.4.2. Containment Capacity and Drainage Control

Each containment cell of the West Storage Building #1 is designed to handle drums, other DOT-compliant containers, corrosive-containing articles and/or neutralization system portable tanks. The neutralization portable tanks (see Section D3.2.7), which have a maximum capacity of 500 gallons, may be staged in either cell provided the contents are compatible with other stored wastes. The Facility will stage the neutralization portable tanks in the appropriate area within West Storage Building #1 and then fill them by transferring drums and/or bulk loads into the neutralization portable tanks. These portable tanks are used in the Neutralization System (See Section E5.1).

Romic will store a maximum of 18,480 gallons of containerized hazardous waste in West Storage Building #1. This is based on stacking 336 55-gallon drums in the configuration depicted in Figure D-5, with minimum 36” aisle space, and double-stacking of drums.. Up to 36 500-gallon portable tanks could be stored under the capacity limit, with capacity remaining for an additional eight 55-gallon drums.

Containers of various sizes and types may be stored in this area; the total inventory of containerized hazardous waste will be maintained at or below the maximum volume specified above.

Each bay has one low point sump located at the closed (north) end and towards the outside wall (away from the center dividing wall). The floor is sloped to the sump in each bay to allow for leak/spill detection and to facilitate removal. Spills within the containment area would drain towards the passive sump in each area. The layout/arrangement of container storage in this area is shown in Figure D-5.

As described in Table D-1 and Appendix 6, this area has sufficient secondary containment capacity to meet the Title 22 secondary containment requirements based on maximum storage of 18,480 gallons. The Engineering Certification for this containment area is provided in Appendix 6. The area does not meet UFC secondary containment requirements for the sprinkler flow volume for a period of 20 minutes. Romic will install an automatic sump pump and collection tank system or raise the containment berm in accordance with the Compliance Schedule included as Appendix 1 of this application.

D2.2.4.3. Waste-Type Storage

The West Storage Building #1 currently handles acidic and basic wastes, along with other wastes. Typically, these wastes are transferred to this area from the Sampling Area (Section D2.2.3). However, containers may also be directly unloaded into this area from trucks. If acidic and basic wastes are handled at the same time, the two are separated so that acidic wastes are always separated from basic wastes by placing them into different cells (i.e., on different sides of the middle wall) within this area. However, depending on the wastes received by the Facility, both areas may contain acidic wastes or both may contain basic wastes. Before storing acidic wastes in a cell that previously stored basic wastes (or basic wastes in the cell that previously stored acidic wastes), the Facility shall first remove all potentially incompatible containers and portable tanks from the cell. The Facility shall then determine that there is no residue of waste remaining in the sump or on the floor that could be incompatible with the waste materials that will be stored in the containment area.

Acids and bases may be stored in the same bay at the same time, as long as either acids or bases are stored on spill containment pallets.

D2.2.5. West Storage Building #2

D2.2.5.1. Design and Construction

The West Storage Building #2 is separated into three areas. Hazardous waste may be present in either the southernmost area (South Bay) or the center area (North Bay). The third area is used for storage of commodities and raw materials (for example empty drums and absorbents) and not hazardous waste. The two areas where hazardous wastes are stored comprise an area roughly 65 feet deep and 125 feet wide. The inside dimensions for each bay are 61.5 by 64 feet. Each space is constructed of nominal 6" concrete with #6 rebar (or equal) spaced 12" on center each way. The containment slab of each bay is surrounded on three sides by two building walls and the interior wall separating the two areas. The east-facing side of

West Storage Building #2 is open to allow loading or unloading. The minimum berm height for the entire containment area is about 8 inches. The stacking diagram and configuration for the two areas of this building is shown in Figure D-6.

The two hazardous waste storage areas are equipped with AFFF sprinkler systems. The floors of each containment area will be coated with a concrete sealer in accordance with a compliance schedule of upgrades contained in Appendix 1. This coating is described in Section D2.4.4.

D2.2.5.2. Containment Capacity and Drainage Control

Romic will store a maximum of 28,160 gallons of containerized hazardous waste in the South Bay portion of West Storage Building #2. This is based on stacking 512 55-gallon drums in the configuration depicted in Figure D-6, with minimum 36" aisle space, and double-stacking of drums. Up to seventy totes, 350 gallons each, may be stored (single-stacked) in the same row/aisle configuration.

Because this storage area primarily contains lab packs, the actual volume of liquids would be expected to be less, since most 55-gallon drums would be lab packs that contain smaller chemical containers surrounded by an absorbent material. In addition, this area will frequently have containers smaller than 55-gallon drums. As described in Section E9.2, containers that are smaller than 55-gallons may be stacked more than two-high provided they do not exceed the height of two 55-gallon drums and that the containers can be easily moved by hand.

The South Bay has a sump in the southwest corner and the North Bay has a sump in its northwest corner. The floor is sloped in each area to these drains to allow for leak/spill detection and to facilitate removal. The layout/arrangement of container storage in this storage area is shown in Figure D-6.

Romic will store a maximum of 37,730 gallons of containerized hazardous waste in the North Bay portion of West Storage Building #2. This is based on stacking 686 55-gallon drums in the configuration depicted in Figure D-6, with minimum 36" aisle space, and double-stacking of drums. Up to ninety totes, 350 gallons each, may be stored (single-stacked) in the same row/aisle configuration.

As described in Table D-1 and Appendix 6, both of these areas have sufficient secondary containment capacity to meet both Title 22 and UFC requirements based on maximum storage of 28,160 gallons for the South Bay and 37,730 gallons for the North Bay. The Engineering Certification for this containment area is provided in Appendix 6.

D2.2.5.3. Waste-Type Storage

The materials stored in the Facility's West Storage Building #2 primarily consist of lab packs. Lab packs by their nature pose less of a compatibility concern, as they inherently provide secondary containment, and contain sufficient absorbent to absorb the contents of their inner containers. In addition, Section 8001.9.8 of Uniform Fire Code (UFC) mandates separation of incompatibles only when stored in containers that are more than 5 pounds or ½ gallon each. Many of the chemical containers handled in this area are of this size or less.

The materials handled in the North Bay generally would be similar to those wastes handled in the North or South Storage Buildings. Romic may also elect to store corrosive wastes in the North Bay. No incompatible wastes or materials will be stored in this area at the same time. Romic may submit plans in the future to construct segregation bays; this will entail a permit modification request.

D2.2.6. Drum Pumping Area

A new Drum Pumping Area will be provided adjacent to the west side of the Sampling Area (see Figure D-1). This area will be used for the temporary staging of drums from any of the storage areas except for acidic wastes from West Storage Building #1. Drums will be staged in the Drum Pumping Area for no longer than 24 hours so that they can be pumped into a yard tanker for subsequent transfer to an authorized process unit or storage tank. As shown in Figures B-2 and D-9, this area will maintain drums of ignitable hazardous waste more than 50 feet from the facility property line.

D2.2.6.1. Design and Construction

This area is detailed in Figure D-9. The Drum Pumping Area is an uncovered area and consists of a 12-inch high reinforced concrete berm placed on an existing reinforced concrete slab. The berm will provide a containment area of 784 square feet. This floor and interior berms will be coated with a concrete sealer as described in Section D2.4.4.

D2.2.6.2. Containment Capacity and Drainage Control

Drums in this area will be staged in a single stack of two rows, with each row two drums wide. There will be a 24-inch aisle space between the two rows. This is used rather than the 36-inch aisle space used in the other container storage areas because the drums in this area will only be staged for 24 hours or less before they are emptied.

A maximum of 80 drums, each 55-gallons or an equivalent capacity (4,400 gallons) using IBCs or a combination of IBCs and drums will be staged in this area at one time. As shown on Figure D-9, this containment area has sufficient volume to handle 10% of the maximum capacity (440 gallons) and the volume of a maximum 25-year, 24-hour storm event. Note that the Drum Pumping Area is not considered incremental storage capacity for drums – it is just a temporary holding place so that the drums can be emptied in a manner to reduce the likelihood of a release to the environment.

The Drum Pumping Area slopes to a low point to facilitate removal of accumulated storm water.

D2.2.6.3. Waste-Type Storage

The Drum Pumping Area can be used to handle any of the containerized waste streams processed onsite.

D2.2.6.4. Operational Considerations

Because the 80 drums (or equivalent) staged in this area will be generally pumped into a single yard tanker, the wastes will be compatible with one another. If there are any releases within the secondary containment system, Romic personnel will remove these wastes in a timely manner to assure there will be no overfill. Furthermore, if waste containers are to be placed within the Drum Pumping Area that may be incompatible with an observed release within the containment area, the release shall be removed before placing the containers of potentially incompatible waste within the area.

D2.2.7. Roll-Off Bins

Roll-off bins will be used onsite for bulk storage of solid hazardous wastes. In addition, liquid wastes may be received in roll-off bins if the liquids are enclosed in other containers (e.g., paint cans) within the roll-off bin. A single roll-off bin containing liquids in this manner may be stored within the North Storage Building. Romic will confirm that a waste is compatible with roll-off bin storage through visually determining that the waste does not contain observable free liquids. Although roll-off bins are used to manage solid wastes, some waste sludges or other materials may be received on-site that after transport will have expressed a minimal amount of incidental free liquids. As described in Section E5.2.4.4 these waste materials may be stabilized before further transport or handling.

There will be a maximum of 8 roll-off bins on-site containing off-site generated (or derived) hazardous waste, each not larger than 40-cubic yards. These will be used to store solid wastes related to *inorganic waste treatment, solids consolidation, debris shredding,* or other treatment processes. Roll-off bins may also be used to store crushed drums of RCRA-empty drums (i.e., non-RCRA hazardous waste). Roll-off bins may also be received from off-site (typically household hazardous waste collection events) that contain hazardous waste in containers that are then placed in the roll-off bin to facilitate shipment.

On-site generated hazardous waste from equipment maintenance or construction-related activities, such as from soil or concrete removal, may also be placed in a roll-off bin. Such roll-off bins may be stored in locations other than those designated for storage of off-site generated or derived wastes, for a period of up to ninety days. One or more other roll-off bins may also be used onsite for non-hazardous wastes such as trash and scrap metal accumulation, which are not regulated under this permit.

The locations where hazardous waste roll-off bins may be managed on-site are shown in the plot plan, Figure D-1 and described in Section D2.2.7.2.

D2.2.7.1. Design and Construction

There will be three types of roll-off bins that may be used on-site. One type is open top bins that can be covered with a tarp for use in handling low organic content solid wastes (below 500 ppm total volatile organic compounds, as certified by waste generators) such as metal bearing sludge. A second type of roll-off bin will have a closeable cover and be used for most waste types such as solid debris. The third type of roll-off bin will be NESHAP roll-off bins. NESHAP roll-off bins are specially equipped with gaskets and closures to meet requirements to transport waste subject to 40 CFR Part 61 Subpart FF, the

Benzene Waste Operations NESHAP. These will be used for storing waste that is subject to Article 28.5 of Chapter 14, California Code of Regulations Title 22. (See further discussion in Section O). Additionally, end dump trailers may be used in lieu of roll-off bins. End dump trailers are DOT-compliant bulk waste-bearing vehicles.

Each of the type of bins described above can be present on-site in various capacities from 10 cubic yards to 40 cubic yards. Approximate sizes for a selection of bins is provided below. Note that different manufacturers may have different dimensions and these are for example purposes only.

EXAMPLE ROLL-OFF BIN DIMENSIONS				
Capacity	**Length**	**Width**	**Height (inside)**	**Height (overall)**
Open Top Roll-off Bins				
20 YD^3	268 1/2"	95"	40"	50 3/16"
30 YD^3	268 1/2"	95"	63"	73 3/16"
40 YD^3	268 1/2"	95"	84"	94 3/16"
Rolling Lid Roll-off Bins /NESHAP Bins				
25 YD^3	276 "	96"	75"	81" (est.)

Romic will place a liner inside roll-off bins or end dump trailers that will contain sludges, wastes that may express free liquids, or wastes that are tacky or sticky, or at other times when necessary to facilitate material handling. The inside of the bin/end dump will be covered with plastic sheeting or a pre-formed bin liner. The liners are constructed of a minimum 6 to 10 mil thick high-density polyethylene. Roll-off bins of hazardous waste may be received from off-site that are not equipped with liners.

D2.2.7.2. Roll-off Bin Locations

A maximum of eight roll-off bins and/or end dump trailers containing hazardous waste at Romic will be stored in the following five locations:

- Tank Farm F - up to 1 bin, 20-cubic yard capacity
- North Roll-off Storage Area (East of South Storage Building) - up to 2 bins/end dumps
- Consolidation Area (North of North Storage Building) - up to 2 bins/end dumps
- West Roll-off Storage Area (West of Tank Farm Q) – up to 3 bins/end dumps
- East Roll-off/End Dump Storage Area (Southeast of Liquefaction) – up to 1 bin/end dump

Each of these areas is an asphalt or concrete surface with sufficient structural strength to handle stresses associated with stationary bins and during the handling of bins. The engineering certification for these areas is contained in Appendix 6. The roll-off bin storage locations described above will be delineated by painted lines or other markings. In addition, one roll-off bin may be stored in the North Storage Building.

Note, that the five locations identified above are for hazardous wastes in storage. When wastes in a roll-off or end dump are received on a truck or are loaded on a truck for transport, they may be temporarily stationed at other locations on-site.

The Facility will also use other roll-off bins for scrap metal and non-hazardous waste (e.g., trash or construction debris). These may be located in other areas around the site.

D2.2.7.3. Containment Capacity and Drainage Control

Since roll-off bins at Romic will only hold solid wastes, their volume does not need to be included to determine secondary containment capacity requirements. The only drainage from roll-off bins will be from storm water impacting the outside of the bins. All storm water onsite is collected and discharged in accordance with permit conditions.

D2.2.7.4. Roll-Off Bin Handling

When roll-off bins are picked up for off-site shipment, the truck will go to the location of the roll-off bin and load it onto the truck. Empty bins may be dropped at any location onsite until the full roll-off bins are removed.

Roll-off bins containing hazardous wastes will be kept closed unless otherwise necessary to add waste, remove waste, sample, visually inspect, or other activity requiring the bin to be open. Even empty bins shall be maintained with covers closed to prevent storm water from entering the bins.

Before using any roll-off bin, the interior of the bin shall be covered with plastic sheeting or a pre-formed bin liner, if necessary. Personnel performing such work shall follow all appropriate safety procedures including confined-space entry, if applicable.

D2.3 PROCEDURES FOR IGNITABLE, REACTIVE, AND INCOMPATIBLE WASTES IN CONTAINERS

Procedures for prevention of reaction of ignitable, reactive, and incompatible wastes in containers are discussed in Section E9.6.

D2.4 GENERAL FEATURES AND OPERATIONS FOR CONTAINER STORAGE AREAS

D2.4.1. Secondary Containment

Since all of the containment areas are covered, standing water from precipitation need not be considered in determining secondary containment capacities. As described in Section B5.2, West Storage Building #1 may receive water during 100-year flood. The procedures for removing the waste inventory are described in Section B5.2 and in the Contingency Plan (see Section G). Because the waste will be capable of being relocated during a potential flood event, floodwater was not addressed in the secondary containment capacity calculations.

Each containment area has been determined to have sufficient secondary containment capacity to handle both of the following situations:

- In accordance with 22 CCR 66264.175, containment areas must be capable of holding 10% of the combined capacity of the containers or the largest container, whichever is greater. (At the Facility, the maximum size of containers holding liquids would be an intermediate bulk container with a capacity of about 350 gallons, except for neutralization portable tanks in the West Storage #1 area which have a maximum capacity of 500 gallons).

- As prescribed by Section 8003.1.3.3 of the Uniform Fire Code, containment areas must handle the capacity of the largest container plus the design flow volume from the sprinkler system for a period of 20 minutes.

The secondary containment area certifications for the container storage areas are included in Appendix 6 to this submittal .

D2.4.2. Leak Detection

Any accumulated liquids in containment areas would be quickly observed since personnel are frequently in the containment areas while the facility is operational. In addition, all containers are inspected weekly by the Environmental Health and Safety Manager or a designee. These inspections look for leaking containers and for deterioration of the containers or the containment system. In addition, informal inspections of the containers are conducted daily by the personnel who handle drums in the storage areas.

All sumps and containment structures within container storage areas are examined at least once per week for evidence of leakage, spills, or accumulated liquids.

D2.4.3. Removal of Accumulated Liquids

The containment areas are operated so that liquids from leaks or spills are localized and removed as soon as possible, but within the required regulatory time frame. Accumulated liquids will drain towards the sumps or low points in each containment area, although in many cases small spills would be cleaned up before they can get to the low points. Most releases would be expected to be minor (less than one drum) and could be cleaned up with dry absorbent materials and/or a neutralizing agent depending on the nature of the released material. Large releases of hazardous waste would be handled as described in the applicable sections of the emergency response procedures and Contingency Plan discussed in Section G.

It is expected that the hazardous waste materials released would be pumped to a tank in sound condition, that has available capacity, and if not empty, contains a material of similar characteristics. This may be pumped directly to tankage through use of a yard truck, or pumped into a drum or other container that is then properly labeled with a hazardous waste label and a Romic-issued waste tracking label and assigned a disposition code.

Any storm water accumulations in the containment areas would be expected to be very limited since all containment areas are covered. Any such water will first be visually inspected for evidence of contamination such as a sheen, incidental odor, or discoloration. If any potential contamination is discovered, the source shall be investigated and the containment water will be either placed in a container and assigned an appropriate disposition code, or picked up by a yard tanker for transfer into an appropriate tank. The water will be pumped into the onsite hazardous waste storage tank for aqueous wastes. The water will be treated on-site in the Wastewater Treatment System.

D2.4.4. Containment Area Coating

As described, all containment systems other than the West Storage #1 (which will have an acid-resistant epoxy coating) will be coated. The coating selected is ChemTec One, a proprietary reactive silicate concrete treatment manufactured by ChemTec International, Cincinnati, Ohio. This product is applied to clean, dry concrete. It permeates the permeable zones of the concrete, reacting to form an insoluble byproduct. This hardens, strengthens, and reduces the porosity of the concrete, and also fills shrinkage and alligator cracks. In doing so, the coating protects the concrete from attack by liquid acids, salts, and other contaminants. Romic has performed bench-scale testing on this material with their waste streams and found it to provide adequate protection. This testing is discussed in the material compatibility certifications in Appendix 9. The containment areas will be coated with a concrete sealer in accordance with a compliance schedule of upgrades contained in Appendix 1.

D3 TANKS AND PROCESS VESSELS

This section along with referenced tables, drawings, and data sheets provides tank and process vessel design, construction, and operational information to adequately assess the suitability of these systems for their designated use within the Facility. Tank and process vessel systems include waste storage and treatment tanks and tank-like waste treatment process vessels (e.g. distillation columns). Non-tank process vessels (such as the *debris shredder*) are also discussed in this section where appropriate. However, because these pieces of equipment are unique to their intended function, they are more thoroughly discussed in Section E, Process Operations. Figure D-1, Facility Layout, shows the locations of these systems at the Facility.

D3.1 TANK SYSTEMS DESCRIPTIONS

The Facility stores and treats waste in several tank systems with various tank configurations. All tanks are typically operated at atmospheric pressure. In addition tanks R91-R95, tanks K-O , and many vessels associated with the solvent recycling processes (see Section E1) are designed to be operated under partial to full vacuum. All hazardous waste storage tanks are equipped with vents designed to avoid excessive positive or negative pressures beyond design limitations in the tanks that can arise during loading, unloading, and process operations. Tank venting is provided through conservation vents and/or vacuum/pressure relief valves to prevent pressures outside of acceptable design limits. Some process equipment, such as the *debris shredder* contain doors or other engineered features that are designed to give way if the equipment is overpressured to prevent damage to the process equipment. Such items are discussed in the process operation discussions in Section E.

Tanks are constructed of materials that are compatible with the wastes to be stored as described in Section D3.3. Compatibility of tank contents with tank materials of construction is also described in the engineering certifications in Appendix 8. This information is also summarized in Tables D-2 through D-5 and the engineering certification summary tables (Tables D-8 and D-9).

The Facility utilizes a combination of sealed tanks with conservation vents, pressure relief valves, and a vapor recovery system to control VOC emissions from the tank systems. Tank emission controls are described in Section O, Air Emission Standards for Containers and Tanks.

D3.2 TYPES OF TANKS

This section describes the basic physical design of the tanks used to store and treat waste at the Facility. In many cases the different types of tanks are used to handle more than one type of waste. However, each type of tank design is best suited to handle certain types of waste as described in the subsections below. If a tank is designed to handle high-solids waste, it can readily handle wastes with a low solids content. However, the reverse might not be true, and a high solids waste would not be preferentially placed in a tank designed for low solids.

The discussions below describe the tanks used for storing and/or treating hazardous wastes. Products and raw materials may also be stored in tanks that resemble these hazardous waste tanks or they may include different design types.

D3.2.1. Cone Bottom Tanks

Cone bottom carbon steel tanks receive the majority of wastes handled by the Facility. These tanks are designed and operated to allow the primary settling and separation of sludges in the tank. This separation process is accomplished through three possible discharge points from the tank. Settled sludges are discharged from the bottom gate valve of the tank. Depending upon the amount of sludge in the tank, the waste will be transferred to the process area via one of two lines that originate from the bottom of the cone or from the shell of tank just above the cone of the tank.

Tanks 48, 49, and 50 are examples of cone bottom tanks.

D3.2.2. Sloped Bottom Tanks

Sloped bottom tanks are used by the Facility primarily for storage. The tanks may receive wastewaters, solvents, oils, and fuel blending waste. The tanks may also be used as a receiving tank for incoming waste streams. The sloped bottom design is used to facilitate the complete removal of waste from the tanks. The tank foundation is comprised of a raised concrete pedestal with the tank drain valve located at the lowest point.

Tanks 5 and 6 are examples of sloped bottom tanks.

D3.2.3. Dished Tanks

Dish bottom tanks are used by the Facility in two main process areas. One is the fuel blending operation and the other is for hazardous waste treatment equipment associated with distillation operations (fractionation, vacuum pot, or thin film equipment). These tanks are elevated on legs and are equipped with agitators to enhance the mixing process for wastes that are blended and sent off-site as alternative fuels.

Examples of dished bottom tanks in fuel blending are R91 and Tank K. Examples of dished bottom tanks used in distillation processes are Reboiler 35 and Vac Pot Storage Tank 24.

D3.2.4. Flat Bottom Tanks

Flat bottom tanks are used by the Facility primarily for industrial wastewater treatment. The tanks receive wastewaters with some organic content and treat the waters with activated sludge to reduce the organic contamination. There are two types of flat bottom tanks at the Facility. These are closed top and open top.

Tanks T-13 and B-2 are examples of closed top flat-bottomed tanks and Tanks B-3 and B-4 are examples of open-top tanks with a flat bottom.

D3.2.5. Plastic Tanks

Plastic tanks made from cross-linked high-density polyethylene (HDPE) are flat-bottomed tanks. HDPE tanks are very resistant to attack from many chemicals such as concentrated mineral acids stored at ambient temperatures.

Tanks made from cross-linked HDPE are used to store incoming acidic wastes in Tanks 106, 107, 108, and 109 in the Planned Inorganic Waste Treatment Area.

A plastic tank (TW-1) is also used in the Facility at the truck wash area as a receiver vessel.

D3.2.6. Lined Tanks

Tanks used for corrosive wastes at the Facility are either lined with an epoxy coating or rubber. Tanks NT-1, NT-2, and NT-3 in the waste neutralization system are rubber lined and the bolted lids are epoxy-coated. Rubber-lined tanks also include *A-3 and A-5 in the proposed Tank Farm F, which will be used for the Planned Inorganic Waste Treatment Area.*

D3.2.7. Neutralization Portable Tanks

The Facility also uses neutralization portable tanks to handle corrosive hazardous wastes that will be managed in the Neutralization System (see Section E5.1). Acidic or alkaline wastes may be pumped from drums to the portable tank or offloaded from a bulk transport vehicle into the portable tank. These tanks are made of cross-linked HDPE up to 500 gallons and are mounted on metal skids that can be lifted by a forklift. See Figure D-7 for a schematic of a neutralization portable tank.

D3.2.8. Fractionators

Fractionator columns are upright cylindrical vessels. The vessels are operated at a controlled pressure (including partial vacuum) and temperature to separate one or more chemical constituents based on their relative vapor pressures at the process pressure and temperature. To facilitate this, the fractionators include a number of horizontal trays of varying designs to allow vapor to go up the column and liquid to travel down the column. At each horizontal tray, the vapor and liquid are intimately contacted to afford the separation of lower boiling components (higher vapor pressure) to the vapor phase and higher boiling point (lower vapor pressure) constituents to the liquid phase. The fractionators are designed to allow heated vapor to enter the column and to draw off liquids from the bottom and to route the vapor product to a heat exchanger/condenser where the vapors are condensed. See Section E1.1 for a discussion of the operation.

D3.2.9. Thin Film Evaporators

Thin film evaporators are vessels with a motorized wipe assembly that function similarly to one tray of a fractionator. Their advantage is that as waste is placed into the unit, the wiper assemblies spread the waste onto the heated wall allowing lighter components to evaporate and heavier or non-volatile materials (like solids) to exit the bottom of the unit. The vapors that exit are condensed and collected as product or for further processing.

D3.2.10. Vacuum Pots

The vacuum pots are either dished or coned-bottom vessel as otherwise described above except that one also has internal heating coils. The vacuum pots are simple devices that also function similarly to one tray of a fractionator. As waste is heated to various temperatures and maintained at a controlled level of vacuum, a lighter component (more volatile) will tend to preferentially partition into the vapor phase. The products recovered can vary with the temperature and pressure; however, the vacuum pots can only be used with materials that have a substantial difference in boiling points.

D3.3 MATERIAL COMPATIBILITY

This section briefly describes the various construction materials of the tanks and any compatibility limitations. The engineering certification on material compatibility is included in Appendix 9. (Refer to Table D-2 for a tank-by-tank listing of materials handled, materials of construction, and other limitations).

WASTE-TO-VESSEL COMPATIBILITY

PROCESS TYPE	COMPATIBLE TANKS PRIMARILY USED[1]	INCOMPATIBLE TANK MATERIALS
Solvent Recovery	Stainless steel Carbon steel	HDPE
Ethylene Glycol Recycling	Stainless steel Carbon steel	None
Fuel Blending	Stainless steel Carbon steel	None[2]
Liquefaction	(for liquefied product) Stainless steel Carbon steel	(for liquefied product) HDPE
Aqueous Treatment (Distillation processes)	Stainless steel Carbon steel	None
Aqueous Treatment (Biological Treatment System)	Stainless steel Carbon steel Coated carbon steel	None
Acid Waste Storage	Rubber-lined Carbon steel Cross-linked HDPE	Unlined carbon steel Stainless Steel (for certain acids such as hydrochloric)
Alkaline Waste Storage	Rubber-lined Carbon steel Cross-linked HDPE Stainless steel	Unlined carbon steel (for some alkaline materials)
Neutralization System	Rubber-lined Carbon steel	Unlined carbon steel Stainless Steel (for certain acids such as hydrochloric)
Inorganic Treatment	Cross-linked HDPE (acidic) Stainless steel (basic) Rubber lined carbon steel	Unlined carbon steel
Tanker Truck Wash	HDPE Carbon Steel Stainless Steel	None[2]

Note:

[1] These are the tanks normally used; however, others may be acceptable unless they are identified as being incompatible.

[2] May vary in special circumstances based on specific contaminants. Waste would not be processed if potentially incompatible.

D3.4 OTHER DESIGN LIMITATIONS

Individual tanks will also have defined waste limitations based on the specific gravity of the fluid that is placed in the tank. This is a function of the tank design and the supporting structure rather than just the material of construction. These limitations are defined in Tables D-2 through D-5 and also included with the engineering certifications in Appendix 8. Such limitations may include a specific gravity limitation, minimum shell thickness, required re-certification date, and recommended or required modifications for each tank as specified in the engineering certification documents. (See Section D3.5.1). In addition, Table D-8 will specify the minimum required shell thickness for each existing process unit and tank.

D3.5 EXISTING TANKS

D3.5.1. Assessment of Existing Tank System's Integrity

Evaluation procedures for certifying tank integrity are described below for existing tank systems.

Tank integrity assessments are conducted to determine that the tank systems as designed and constructed have sufficient structural strength and compatibility with the waste(s) so that they will not collapse, rupture, or fail. The assessments are reviewed and certified by an independent, qualified registered professional engineer. A copy of the written assessment is on file at the facility.

The tank integrity assessments for existing tank systems consider the design standards to which the tank systems are constructed and the design standards used to evaluate for certification.

The tank integrity assessment provides for an evaluation of the following items:

1. The hazardous characteristics of the wastes that have been or will be handled in the tank system,

2. the existing measures for the control of corrosion in tank systems,

3. the documented age of the tank system,

4. design drawings, and

5. the results from either a leak test, internal inspection, or other tank system integrity examination that addresses cracks, leaks, corrosion, and erosion.

The engineering certification efforts for each tank and tank-like process unit will determine a specified minimum allowable shell thickness based on the dimensions and configuration of the tank, the materials of construction of the tank, and the maximum specific gravity of the waste to be handled in the tank. These minimum thickness values are shown in the Engineering Certification Summary, Tables D-8 and D-9. The actual shell thickness measurements shall be taken in accordance with the Facility Inspection Plan (see Section F2).

As described in Section F, Romic has a rigorous inspection program for on-site tanks. This external inspections of the tanks include: 1) visual inspection of tank shells and welds for cracks, leaks, corrosion, erosion, and general condition, 2) ultrasonic thickness measurements taken from the top, sides and bottom of all tanks, if accessible, and 3) inspection of tank support structures for cracks, corrosion and weld conditions. The results of these inspections are maintained on-site and reviewed by the engineer prior to certifying the tank integrity assessment.

Tanks and ancillary equipment found to be leaking or unfit for use are removed from service and either repaired, replaced, or taken out-of-service. In accordance with 22 CCR 66264.196, tanks that have major repairs will be reassessed and certified by an independent professional engineer registered in California before being placed back in service as required by 22 CR 66264.196(b)(7).

Section F2.1 provides a schedule for continuing integrity assessments based on materials of construction and characteristics of waste(s) handled over the life of the tank.

Tank Certifications for existing tanks are presented in Appendix 8.

D3.5.2. Regulated Tanks and Process Vessels

The existing tanks in hazardous waste storage or treatment service are shown in Tables D-2 for Tanks and D-4 for Process Units. *Planned storage tanks are summarized in Table D-3 and planned process units are summarized in Table D-5.* The required tank certification made by an independent, professional engineer registered in the State of California are provided in Appendix 8.

D3.5.3. Non-Regulated Tanks and Process Vessels

There are a number of tanks located on-site that are not subject to tank standards under Article 10 of Title 22, Chapter 14, because they do not handle hazardous wastes. These tanks could be storing product (e.g., recovered solvent or ethylene glycol prior to sale), raw materials (e.g., boiler feed water), or non-hazardous materials (e.g., cooling tower water). Such tanks in existence at the time of initial preparation of this document are listed in Table D-6.

The Facility may add, remove, or replace tanks that do not handle regulated wastes. Such changes would be made without amending this permit. However, such modifications will be made in compliance with other applicable requirements that may include local building and fire codes and hazardous material requirements.

D3.6 NEWLY CONSTRUCTED TANKS

There are two categories of tanks that will be newly constructed (i.e., completed after approval of this permit application). One category is Replacement Tanks and the other is Newly Authorized Tanks. Replacement tanks will take the place of tanks that are currently in place. It may be necessary to build the replacement tanks first before taking the old tanks out of service. Newly Authorized Tanks are proposed tanks that are included in this permit application or in future permit modification requests. Either category of tank must follow the procedures identified in D3.6.1 below.

D3.6.1. Assessment and Certification Procedures

Newly constructed tanks must have a written assessment from an independent, qualified registered professional engineer attesting that tanks have sufficient structural integrity and are acceptable for storing and treating hazardous waste. The assessment is conducted, prior to installation, to demonstrate that the foundation, structural support, seams, connections, and pressure controls (if applicable) are adequately designed and that the tanks will have sufficient structural strength and compatibility with the waste(s).

The tank integrity assessment describes the method of corrosion protection used to ensure that tanks will not collapse, rupture, or fail. The assessment also includes design drawings, the design standard to which tank systems are constructed, and a discussion of the hazardous characteristics of wastes to be stored or treated. The time period for which the certification is valid must also be specified, i.e., the estimated remaining service life of the tank.

The structural integrity assessment for new tanks shall demonstrate that tank foundations will maintain the load of a full tank. The assessment also verifies that ancillary equipment will be supported and protected against physical damage and excessive stress due to settlement, vibration, expansion, or contraction.

These engineering assessments shall be provided in the Part B permit Application or with a permit modification request to the Department.

A list of planned tanks at the Facility is shown separately in Table D-3. The Tank Certification documents for these tanks are presented in Appendix 8, Tank Engineering Certifications.

Once the tank designs are authorized, they may be installed. As described, there is another, post-installation certification that is required.

New tanks must be installed using proper handling procedures to prevent damage to the tank system during installation. Before being placed in use, an independent professional engineer or qualified installation inspector inspects the tank system for the items listed below:

1. breaks, punctures, scrapes, corrosion, and any other structural damage,
2. inadequate construction/installation, and
3. tightness prior to being placed in use.

Tanks will not be placed in use if leaks are found (i.e., fails the tightness test). Any discrepancies noted during the pre-installation inspection will be corrected before tanks are placed in service. An independent professional engineer will determine the type and degree of corrosion protection required for tank systems, based on exposure conditions. The installation of a corrosion protection system that is field fabricated will be supervised by a professional engineer to ensure proper installation. Written statements by those supervising the installation will be kept on file at the facility.

The written statements certify that the tank system was properly installed and that repairs, where needed, were performed.

D3.6.2.Tanks A-J

The use of Tanks A-I, located in Tank Farm C, has been discontinued as of July 1, 2004. Similarly, the use of Tank J, located in Tank Farm R, has been discontinued as of the same date. These tanks will be replaced with new tanks, of approximately the same capacity as the existing tanks, but of a different physical configuration. The new tanks will be flat bottom stainless steel tanks sitting on concrete pedestals formed with inspection ports.

TANK	OLD CAPACITY	REPLACEMENT CAPACITY	DIFFERENCE
A	5,600 gal	5,940 gal	+ 340 gal (+6%)
B	5,600 gal	5,940 gal	+ 340 gal (+6%)
C	5,600 gal	5,940 gal	+ 340 gal (+6%)
D	5,600 gal	5,940 gal	+ 340 gal (+6%)
E	5,600 gal	5,940 gal	+ 340 gal (+6%)
F	6,200 gal	5,940 gal	- 260 gal (-4%)
G	6,200 gal	5,940 gal	- 260 gal (-4%)
H	5,600 gal	5,940 gal	+ 340 gal (6%)
I	6,700 gal	5,940 gal	- 760 gal (-11%)
J	6,700 gal	Will not be replaced.	- 6700 gal (-100%)
TOTAL	59,400 gal	53,460 gal	-5940 gal (-10%)

D3.7 TANK MANAGEMENT PROCEDURES

D3.7.1. Tank Freeboard

Nearly all tanks at the Facility are closed tanks. There are a few in the wastewater treatment plant (see Section E4) that are open top. These tanks are B-3, B-3A, B-4, B-4A, B-6, B-6A, SF-1, SF-2 and B-8. These tanks are gravity fed and will naturally maintain a freeboard from 1-inch to 36-inches. This is sufficient under normal conditions to prevent overtopping of the tanks. For example, tanks B-3/3A to B-4/4A and B-4/4A to B-6/6A are gravity fed. Therefore, as rainwater enters the vessels, the incremental water volume will not reduce the normal freeboard but will pass through to the next vessel. After vessel B-6/6A the water is gravity fed to the sand filters. The water from the sand filters then gravity flows to the holding tank, B-8. Tank B-8 is also on level control and discharges through the UV Oxidation system to the sewer discharge tanks (R-1A, 1B, or 1C). All open top tanks have the ability to receive rainfall from a 25-year, 24-hour storm without overflowing because the tanks are either gravity fed to other tanks or are on level controls.

D3.7.2. Level and Other Tank Controls

Tables D-2, D-3, D-4, and D-5 identify the level and other controls for the tanks and tank-like process equipment. Controls used at Romic to prevent overfills include radar level monitoring; ultrasonic level monitoring; manual gauging; and visual verification. Radar and ultrasonic devices are capable of continuous indication of level. The percentage level in a tank can be correlated to a volume available in the tank and thus it can be determined what amount of waste can be transferred without an overfill. Manual gauging of a tank is used to validate measurements from the radar or ultrasonic indicators as well as a stand-alone measuring tool. Validation of radar and ultrasonic readings will be conducted whenever an employee notices a discrepancy between the reading and his/her understanding of the volume in a tank, possibly based on operations records. By dropping a measuring tape from a known point in the tank to the start of liquid level, the volume available for a transfer can be determined. Visual verification is used for tanks without continuous level indicators. An employee will monitor the transfer into a tank and will manually stop waste transfer or call to another employee to stop waste transfer. Visual verification methods include monitoring sight glasses when they are present on tanks or tank-like process equipment.

Also as described in Section D3.1, the tanks include pressure or vacuum relief vents to maintain the tanks or process equipment at safe operating pressures. The distillation equipment is also equipped with sufficient temperature and pressure indicators to provide process information. These are also helpful in determining upset conditions.

D3.7.3. Special Precautions for Ignitable/Reactive Wastes

The purpose of this section is to describe the handling techniques employed by the Facility when storing or treating ignitable, reactive, and incompatible wastes in tanks.

Ignitable Wastes

Ignitable wastes are accepted in tanks (and containers) for storage, distillation and blending for use as alternative fuels. Ignitable wastes will be consolidated in these tanks with compatible materials. This consolidation does not render the waste non-ignitable, but ignitable storage is designed to be intrinsically safe. In addition to meeting buffer zone requirements, all ignitable waste is stored away from ignition sources in an open area as discussed in Section F5.1, Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Waste. "Danger-No Smoking, No Open Flames" signs are posted prominently in the hazardous waste fuel storage area, and smoking is confined to specific areas away from storage and treatment areas.

Hazardous waste storage tanks containing potentially ignitable waste are adequately located away from (a) a property line that is or can be built upon, and (b) the nearest side of any public way or from the nearest public building, as required by the Uniform Fire Code buffer zone requirements for ignitable wastes.

The following precautions are in place at the Facility to prevent the accidental ignition of ignitable waste:

For each tank that stores or treats ignitable waste the tank is equipped with:

- Conservation vents,
- Submerged fill lines.

To prevent the generation of sparks through static electricity all steel structures are commonly grounded. This combined with transfer grounding procedures (as recommended in NFPA 77 Recommended Practice on Static Electricity) will significantly reduce the possibility of generating a static charge during pumping operations involving flammable liquids.

All pumps, motors and electrical equipment are grounded at the motor control center via a grounding grid beneath the motor control foundation. All connections are welded to assure proper integrity. All equipment is commonly grounded.

Furthermore, all pump motors in hazardous service are designed to be intrinsically safe and in many situations air operated diaphragm pumps are used to eliminate the possible generation of a spark. All process equipment uses standard safety equipment and design features such as rupture discs and emergency venting to prevent explosions.

Reactive Wastes

Reactive wastes identified in 22 CCR 66261.23(a)(1)-(a)(5) are accepted at the Facility in quantities of 55-gallons or less and will not be stored or treated in tanks. Reactive wastes identified in 22 CCR 66261.23(a)(6), (7), and (8) are specifically restricted from acceptance at the facility.

Reactive waste will be segregated from any incompatible material while managed within the Facility.

D3.7.4. Special Precautions for Potentially Incompatible Wastes

Incoming wastes are tested for compatibility with wastes already in the tank prior to being transferred into the tank. Waste incompatibility for all wastes is determined by the procedures described in Section C7.3. Waste profile and check-in procedures are discussed in Section C4, Incoming Waste Procedures.

Incompatible wastes or materials are not stored in the same tank or in an unwashed tank that previously held an incompatible material. Before a tank can be used for storage of a material that is incompatible with residue in the tank, the tank is cleaned of residual waste. Incompatible wastes may be mixed during the neutralization process under controlled conditions (see Section F5.2, General Precautions for Handling Ignitable or Reactive Waste and Mixing of Incompatible Waste).

D4 TANKS AND PROCESS VESSEL CONTAINMENT AREAS

D4.1 TANK/PROCESS AREAS

As shown in Figure D-1, the tanks and process units are within identified containment areas. These areas are:

- Tank Farm A
- Tank Farm B
- Tank Farm C*
- Tank Farm D
- Tank Farm E
- *Tank Farm F*
- Tank Farm G
- Tank Farm H
- Tank Farm I
- Tank Farm J
- Tank Farm K
- Tank Farm L*
- Tank Farm MNO
- Production Area
- Tank Farm Q
- Tank Farm R*
- *Tank Farm S*
- *Tank Farm T*
- *Tank Farm U*
- Liquefaction Area

* Tank Farms C, L, and R will be combined and designated Tank Farm CLR (see below).

Each area contains one or more hazardous waste tanks or treatment vessels. Note that non-regulated tanks may also be within the same tank farm as hazardous waste storage tanks or process vessels (i.e., regulated units). The following subsections describe the common features of the tank containment areas. Note that some areas, like Tank Farm MNO are grouped together because the containment basins are linked together.

Tank Farms C, L, and R are currently separate tank farms. Romic plans to combine them into a single tank farm. The combined tank farm will have sufficient containment capacity for the tanks located therein.

D4.1.1. Containment Basins

The boundaries of each tank farm are defined by concrete berms or walls of varying heights.. The neutralization skid (Tank Farm J) is coated with an acid resistant epoxy coating. The other containment basins have concrete floors that will be coated with a concrete sealer in accordance with a compliance schedule of upgrades contained in Appendix 1. This coating, ChemTec One, is the same coating to be used for the container storage areas as described in Section D2.4.4.

The floors of the tank farms include the support mechanisms for each tank within the area. These can include bolts in the concrete or engineered foundations that are designed to handle the required structural loads. Generally, the seismic requirements under the Uniform Building Code provide the design requirements for the tank and equipment foundations.

D4.1.2. Precipitation and Run-on Control

All tank farms are located outside and are therefore exposed to rainfall. As discussed in Section B5.3, the 25-year, 24-hour rainfall amount was determined to be about 3.5 inches. After completion of modifications to Tank Farm Q as described in Section B5.2, all tank farm areas will be unaffected by a 100-year flood.

D4.1.3. Required Containment Capacity

The containment capacity for each tank farm area must be large enough to hold the accumulation of a 25-year, 24-hour rain event and the larger of: 1) 10% of the aggregate capacity of all tanks in the containment area or 2) the contents of the largest tank. Table D-7 summarizes the available and required secondary containment capacity for each tank farm unit. The engineering certifications for the containment areas are provided in Appendix 7.

D4.1.4. Leak Detection

Any accumulated liquids in a containment area would be quickly observed via the tank and containment area inspection procedures described in Section F and by the regular presence of Facility employees in the vicinity. In addition, many tanks are instrumented to provide the level of material in the tank. The employee would observe an unexpected change in the level reading and would initiate an investigation.

D4.1.5. Removal of Accumulated Liquids

Containment areas are operated so that liquids from leaks or spills are localized and removed as soon as possible but within required regulatory time limits. To minimize the occurrence of leaks or spills, the tanks and transfer operations are inspected regularly per the inspection schedule in Section F. Most releases would be expected to be minor and could be cleaned up with dry absorbent materials and/or other material depending on the nature of the release. Large releases of hazardous waste would be handled as described in the applicable sections of the emergency response procedures and Contingency Plan discussed in Section G. It is expected that the hazardous waste materials released would be pumped to a tank in sound condition, that has available capacity, and if not empty, contains a material of similar characteristics. The waste may be pumped directly or the material would be picked up by a Yard Tanker and then deposited into an appropriate tank.

Rainwater accumulations in the tank containment area will be visually inspected. If there are indications (e.g., a sheen) that the rain water has contacted waste material, the source will be investigated and corrective measures implemented as warranted. All storm water that accumulates in tank farm secondary containment areas is transferred directly by pump or use of a Yard Tanker to an appropriate tank. Unless contaminated by significant waste materials, this is not a regulated activity and is included for general informational purposes.

D5 FACILITY CONTAINMENT

D5.1 RAIN WATER

The entire active waste handling and auxiliary area (such as truck parking and maintenance) of the Romic facility is paved primarily with reinforced concrete, with limited areas of asphalt, and is graded to low points. Rain water drains to catch basins located in these low points throughout the facility. The initial flush of rain water is transferred to the square Rain Water Tank. From here it is transferred and processed through the Facility Wastewater Treatment System. As described in Section E4, wastewater treatment includes a Biological Treatment System prior to permitted POTW discharge.

After the initial flush, rain water is directed to the 500,000-gallon rain water tank (see Figure D-1). The water in this tank is analyzed and approval is obtained from the POTW before it is discharged. If necessary, the water is treated through the Wastewater Treatment System.

D5.2 SPILL/RELEASE PROTECTION FOR MONITORED ACTIVITIES

The design and construction of the plant provides assurance that, in case of catastrophic failure of a tanker, or even multiple tankers, no hazardous waste releases will leave the facility. Romic has a certification signed by an independent registered professional engineer conditionally attesting to the adequacy of the secondary containment. This will be included in Appendix 6. The conditions include repairs and maintenance to be performed by Romic. Until these repairs are performed, Romic will utilize absorbent booms (a/k/a “pigs”) to provide localized containment.

This plant-wide containment will provide protective secondary containment for tankers being used in monitored activities. Monitored activities are those activities where Romic personnel are in the vicinity of and either engaged in or observing the activity. For example, if an intra-facility transfer is taking place, and active pumping is occurring, this would be considered a monitored activity. Monitoring an activity ensures timely response in case of an incident.

The following discussion provides more detail on how the Facility Containment System can handle spills or releases of hazardous waste from tanker trucks.

1. The base of the facility is primarily concrete, with limited areas paved with asphalt. The active areas are maintained free of cracks or gaps in areas where waste is or may be handled. The concrete and asphalt areas will be, after scheduled repairs, sufficiently impervious to contain leaks, spills, and accumulated precipitation until the collected material is detected and removed. Releases into the facility containment system would be removed promptly, no longer than 24-hours after a spill.

2. The base is sloped to containment drains that allow storm water or a release of waste to be transferred to an appropriate tank or container.

3. The containment system can handle the full capacity of the largest tanker truck handled in the facility (approximately 6,000 gallons). This scenario is considered extremely unlikely and would require a catastrophic failure of a tanker or an overturn. Since the speed limit in the facility is 10 miles per hour, an overturn is far less likely than on a highway or public road.

4. The containment system is designed to collect and transfer storm water so that the collection system has sufficient excess capacity to handle both run-on into the containment system and the largest single container (a 6,000 gallon tanker truck).

5. Spilled or released off-site hazardous waste is cleaned up promptly. The collected material and any wastes resulting from the cleanup (e.g., contaminated absorbent) will be managed as an off-site hazardous waste.

6. Accumulated precipitation is removed from the Facility area promptly (within 24-hours unless quicker response and removal is needed to reduce hazards or to prevent overflow of the collection system). The collected material will be managed as a hazardous waste unless it can be proven in accordance with 22 CCR 66262.11 that the waste is non-hazardous.

D5.3 SPILL/RELEASE PROTECTION FOR UNMONITORED STAGING

The facility has established two areas with "enhanced" secondary containment. These areas provide secondary containment over and above that provided by the design of the entire plant described in Section D5.2. They will be used for unmonitored activities, such as the parking of loaded bulk trucks awaiting analytical results (note: in no case will tankers used for intra-facility movement of waste hold such materials for more than 24 hours). These areas will be constructed in accordance with the standards for permitted container storage areas. The locations of these enhanced secondary containment areas are shown on Figure D-8. The details of the design for each area are included in the engineering certification package in Appendices 6 and 7.

Each containment area described below, has been designed to not only handle the capacity of the largest truck or 10% of all trucks (whichever is greater) but also the accumulated rain from a 25-year, 24-hour storm event. Each containment area can bear the weight of a fully loaded tractor-trailer combination, or 80,000 pounds.

Area 1 is a rectangular area approximately 114 feet by 60 feet located west of the biological wastewater treatment system. The area is underlain by 6” of reinforced concrete, coated with ChemTec One (see Section D2.4.4.) to improve the strength, hardness, chemical resistance, and the impermeability of the concrete. It is bounded on the south by a 6” high concrete curb, and on the east and west sides by an 8” wide concrete curb, 6” to 14” high. The north side of the area is bounded by a 9” high berm, sloped over 10 feet in either direction. The area can accommodate up to 12 tanker trailers, each up to 6,000 gallons in capacity.

Area 2 is a roughly trapezoidal area approximately 46 feet by 42-48 feet. The area is underlain by 6” of reinforced concrete, coated with ChemTec One (see Section D2.4.4.) to improve the strength, hardness, chemical resistance, and the impermeability of the concrete. It is bounded on the north, east, and south sides by an 8” wide concrete berm, 6” to 14” high. The west side is bounded by a 6” to 8” high concrete berm, sloped over 10’ in either direction. This area can accommodate four tanker trailers, up to 6,000 gallons in capacity. The secondary containment is designed to hold the contents of one 6,000-gallon tanker trailer.

D6 COMPLIANCE SCHEDULE ITEMS

During the effort to perform engineering certifications for the container storage areas, tanks, and the tank containment areas, some required upgrades were identified. These are all summarized in Appendix 1 along with an estimated timetable for implementation.

Romic Environmental Technologies Corp.

CAD 009 452 657

East Palo Alto, California

Section E

Process Operations

November 2001
Rev. 4/05

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E PROCESS OPERATIONS

This section describes process operations and waste management methods used at the facility. The process operations portion describes specific methods of processing waste streams, such as how ethylene glycol fluids are reclaimed. The subsection on management methods describes procedures used at Romic to transfer liquids that are used in multiple processes. In addition, the handling of storm water at the Facility is described.

The following subsections describe the main treatment methods for the wastes processed at the Facility. Subsidiary waste management methods (for example, unloading bulk delivery trucks) are described elsewhere in Section E. The processes discussed here are:

- Solvent Recycling
- Ethylene-Glycol Recycling
- Fuel Blending/Liquefaction
- Wastewater Treatment
- Neutralization
- Inorganic Treatment
- Solids Consolidation
- Debris Shredding
- Miscellaneous Management Processes
- - Small Container Management
- - *Drum Crushing* (currently not a hazardous waste treatment activity)
- Aerosol Depressurization
- Truck Wash
- Waste Handling Methods

E1 SOLVENT RECYCLING

Romic receives halogenated and non-halogenated solvent wastes. Romic evaluates these wastes to determine if they are amenable to processing to reclaim the solvent. Romic's laboratory evaluates any new waste type to determine if it can be recycled and if so, what types of processing equipment will provide the best recovery. The laboratory uses chemical analyses or bench-scale processes (or both) to make these assessments. Based on these tests, material that has greater than approximately 10% solids will generally be processed by Thin Film Evaporation (TFE) or a combination of TFE and Fractionation. A simple two-component mixture or single-component with water and/or oil contamination may be processed in a vacuum pot (vac pot). Solvent wastes that require complex separations because they are multi-component, difficult to separate, or require high purity will be processed in a fractionator or in multiple steps. Recovery of some waste materials may require that a fractionator be used in conjunction with a vac pot or one or more other fractionation steps.

The fractionators, TFE units, and vac pots all use the principle of distillation. Distillation is a separation process that takes advantage of the differing boiling points and relative vapor pressures of the components in a mixture. Generally, a liquid is heated and gradually converted to a vapor. The more volatile components of the mixture (those that have a lower boiling point) vaporize first. The vapor is then condensed to a liquid and recovered. Non-volatile or low-volatility constituents such as solids or high boiling components remain in the liquid and are managed as "still bottoms." Depending on the solvent and the equipment, the target solvent to be recovered may be in the bottoms or the distillate, although recovery as distillate is the more common approach.

E1.1 FRACTIONATION

Fractionation is a multi-stage separation process that has been used for about 40 years at Romic. It is also a common approach used in the chemical processing and petroleum refining industries to increase the purity of a particular stream. This section describes the fractionation process including a discussion of waste types, equipment used, processing rates, management of waste residuals, and air emissions/controls.

E1.1.1. Waste Types

Halogenated and non-halogenated solvent waste streams may be processed by fractionation. Typical RCRA waste codes to be managed in these units include F001, F002, F003, F004, F005, and D001. See Section C, Tables C-1 and C-2 for a more complete list of the RCRA and California Waste Codes that may apply to these waste streams. Generally, fractionation is used for these waste streams because of the high purity required for the end product, or because the waste contains multiple components that may be recovered.

Wastes that will be fractionated must have low solids content to avoid fouling the contact trays in the fractionator columns. If a waste to be fractionated contains a significant amount of solids, the waste may be first processed by thin film evaporation (see Section E1.3) to remove the solids prior to fractionation. An example waste stream that is processed by fractionation is an acetone and water waste used in a paper finishing process. This waste has low solids and fractionation can yield a high purity product.

E1.1.2. Storage Prior to Processing

Prior to being fractionated, solvent wastes may be stored in one or more of the tanks shown in Table E-1. These are the primary waste storage tanks for organic and aqueous wastes. The capacity, design features, and certification status of all storage tanks are discussed in Section D3.

The tanks shown in Table E-1 are not dedicated for storage of solvents prior to fractionation. They may store solvents prior to other recycling techniques or any other waste or non-waste materials (such as products) that are compatible with the use of these tanks. Waste solvents will be stored in tanks certified in accordance with Article 10, Chapter 14 of Title 22 of the California Code of Regulations. Finished products may be stored in clean, certified waste-storage tanks or in non-certified tanks that meet applicable local codes (e.g., Uniform Fire Code, Uniform Building Code, etc.).

E1.1.3. Processing Equipment Used

The processing equipment used for fractionation for solvent recovery is shown in the table below. Note that this equipment may also be used in other processes such as distillation of wastewater (see Section E4.1) or for ethylene glycol recycling (see Section E2). The processing equipment and containment areas used for fractionation are discussed in Section D.

Equipment Used for Solvent Recovery by Fractionation

UNIT NAME	MAJOR COMPONENTS (vessel capacity in gallons)	LOCATION[1]	ANCILLARY EQUIPMENT
Column 24 (C-24)	C24 Column	Production	Condenser, Reflux Pump, Overhead Separator, Plate and Frame Chilling Condenser, Piping
	Reb-24 Reboiler (830)	(Same)	
Column 32 (C-32)	C32 Column	Production	Reboiler Heat Exchanger, Condenser, Reflux Pump, Overhead Separator, Plate and Frame Chilling Condenser, Piping
	Reb-32 Reboiler (3,647)	(Same)	
Column 35 (C-35)	C35 Column	Production	Reboiler Heat Exchanger, Condenser, Reflux Pump, Overhead Separator, Piping
	Reb-35 Reboiler (4,670)	Tank Farm I	
Column 36 (C-36)	C36 Column	Production	Reboiler Heat Exchanger, Condenser, Reflux Pump, Overhead Separator, Plate and Frame Condenser, Plate and Frame Chilling Condenser, Piping
	Reb-36 Reboiler (7,500)	Tank Farm I	
Column 37 (C-37)	C37 Column	Production	Condenser, Reflux Pump, Overhead Separator, Piping
	Reb-37 Reboiler (6,100)	Tank Farm G	
Column 42 (C-42)	C42 Column	Production	Reboiler Heat Exchanger, Condenser, Reflux Pump, Overhead Separator, Plate and Frame Condenser, Plate and Frame Chilling Condenser, Piping
	Reb-42 Reboiler (9,400)	Tank Farm I	
Column 43 (C-43)	C43 Column	Production	Reboiler Heat Exchanger, Condenser, Reflux Pumps (2), Overhead Separators (2), Plate and Frame Condenser, Piping
	Reb-43 Reboiler (6,996)	Tank Farm I	
Column 48 (C-48)	C48 Column	Production	Condenser, Reflux Pump, Overhead Separator, Piping
	Reb-48 Reboiler (9,300)	Tank Farm I	
Column 49 (C-49)	C49 Column	Production	Reboiler Heat Exchanger, Condenser, Reflux Pump, Overhead Separator, Piping
	Reb-49 Reboiler (15,792)	Tank Farm G	
Column 34 (C-34)	*C34 Column*	*Production*	*Condenser, Reflux Pump, Overhead Separator, Piping*
	Reb-34 Reboiler (16,500)	*(Same)*	

Notes: 1. See Figure D-1 for equipment and containment area locations.

Each of the columns is a vertical enclosed vessel with multiple horizontal trays that allow contact between the rising vapor and the falling liquid. Several different types of trays are used in the columns. Because the fractionators at Romic may differ from one another in the number of trays, type of trays, their dimensions, and support equipment, specific fractionators may be required for certain waste streams. Other waste streams may be processed in different fractionators, however, the processing time needed for each fractionator to achieve the same product specifications may vary. The decision on which fractionator to use for a specific waste stream considers availability of the unit, past processing experience on the same or similar waste streams, product requirements, and other factors.

Support equipment associated with fractionators includes reboilers and condensers. Heat is applied to the reboiler to allow the waste solvent charge to vaporize. There are two kinds of reboilers at Romic. One is a kettle type that is equipped with internal heating coils, and the second is a vessel equipped with an external heat exchanger where the charge is pumped on one side of tubes and heating medium passes on the other side. In either case, steam is used to heat the waste solvents, but the steam does not directly contact waste materials. The steam used comes from the plant steam system, which has a maximum temperature of about 347ºF.

As vaporized materials of higher purity leave the top of the fractionator, they are condensed by cooling water in condensers. These are heat exchangers that use cooling tower water or chilled water to cool the vapors and cause them to return to the liquid state. As with the reboilers, the process fluid (solvent vapors) is separated from the cooling water stream by metal tubes and there is no direct contact between solvent and water.

E1.1.4. Process Description

E1.1.4.1. Primary Process

The process flow diagram for solvent recovery by fractionation is shown in Figure E-1.

Solvent waste will arrive at the facility either in DOT-compliant containers (such as 55-gallon drums) or in bulk by tanker trucks. Containers are temporarily stored in the drum receiving and sampling areas where they are sampled and analyzed by the on-site lab as described in the Waste Characteristics Section (Section C). Samples are also collected from each tanker truck as it arrives at the facility. After review of tanker truck or container analytical results, the laboratory assigns a disposition code to the waste stream. The tanker truck will be pumped either into a storage tank or directly into the fractionation process. If the waste was received in containers, a yard tanker truck (yard tanker) will be used to empty the contents of the containers. The yard tanker will then transfer the waste into an appropriate hazardous waste storage tank within 24 hours. Romic may also pump material from containers directly into either storage tanks or process units. If there is a question concerning potential incompatibilities with the waste stream and other material in the storage tank, the facility will perform a bench-scale compatibility test prior to the transfer (see Section C7.3.4). This test looks for increases in temperature of waste mixtures or other signs of incompatibility. If the two wastes are found to be incompatible, the waste will be pumped into a tank where the wastes are compatible.

Before waste is pumped from the storage tank(s) into the fractionation process, a baseline sample may be collected from the tank or tanks and submitted to the laboratory for analysis. Waste solvent is then pumped into the reboiler associated with the specific fractionation column used until the target amount is reached. Typically there is a high level alarm in the vessel. The high level triggers a waste feed cut-off system that automatically stops transfer of waste. These levels are set at locations to avoid the possibility of overfilling. After the reboiler is charged (filled), another sample may be collected from the waste in the reboiler and submitted to the laboratory for analysis. After the analytical results are received, the pH of the liquid in the reboiler may need to be adjusted to protect the equipment due to pH changes that can occur during the heating and evaporation process. This is done through manual addition of acidic or alkaline materials based on the analytical results.

The process begins with the heating of the solvent waste mixture in the reboiler by adding steam to one side of the tubes (either an internal heating coil or external heat exchanger). As the mixture heats, the lower boiling point components (also known as the lighter fractions) tend to concentrate in the vapor phase. The vapors are then fed to the fractionation column. As the vapors rise in the column, they concurrently condense on the horizontal trays such that there is always some liquid on the tray and vapor above the tray rising to the next tray. Columns are designed to allow liquid-vapor contact throughout the length of the column. The composition of the liquid and the vapor at any given point in a column depends upon the temperature at that point. The temperature is higher at the bottom of the column, and lower at the top. The composition of the lighter, lower boiling temperature compounds is higher at the top of the column, while the heavier, high boiling temperature components concentrate in the lower portions of the column and the reboiler. A larger number of trays allows for increased separation (less heavy compounds in the light overhead product and less light ends in the heavy bottoms).

The vapors that exit the top of the column are condensed in a water-cooled heat exchanger (a condenser) with the water separated from the solvent vapors by the heat exchanger tubes. After the condenser, the stream is sent to a separator, where the liquids are separated from non-condensable gases, and then to a distillate receiver vessel (typically a tank). The non-condensable gases are inert gases or chemicals that have a boiling point less than the cooling water temperature. The non-condensable gases are sent to the VOC control system on-site (see Figure E-2). At least a portion of the condensed liquid from the separator is fed back to the top of the column as reflux. All condensed material may be routed back to the column (or the reboiler) for a short period of time during the initial startup. This is known as total reflux and helps to establish the proper conditions in the fractionator to recover the target solvents. The reflux liquid travels downward through the column. As this liquid travels down the column, the heavier constituents increase in concentration. The liquid at the bottom of the column goes back into the reboiler where it can be revaporized.

> **Example**: Assume a waste solvent mixture contains two constituents, a light constituent (L) and a heavy constituent (H). In the reboiler, evaporation of the components will occur with the concentration of L in the vapor greater than H. As the vapor moves up the column, the concentration of L becomes higher (in both liquid and vapor phases), with the concentration of H becoming less. Conversely, as the liquid returns down the column the concentration of H becomes greater as it approaches the bottom of the fractionator. In

the example waste stream of acetone contaminated with water, acetone is the light product and water is the heavy contaminant.

Romic fractionator columns may produce product from the top of the column (overhead) and/or the column bottom or reboiler (bottoms). This depends on whether the solvent mixture is contaminated with heavy, less volatile constituents (product recovery at the top of the column) or the solvent mixture is contaminated with light, more volatile constituents (product recovery at the bottom). Depending on the solvent waste, products may be recovered both at the top and the bottom of the fractionator. Multiple products may also be recovered on the top as the temperature changes. (See box on typical fractionation).

TYPICAL FRACTIONATION

During a fractionation run, the top temperature in the fractionator will initially be cool. As the temperature increases in the reboiler, the top temperature also slowly increases. The reboiler temperature will increase until significant evaporation occurs. This will be indicated by the column top temperature, which will stay relatively constant while the first constituent is being recovered. This first constituent may be a desired solvent that is being recovered, or it may be a contaminant that has a lower boiling point than the desired (or target) solvent.

When recovery of the lowest boiling point constituent is nearly complete, the column top temperature will rise again until it levels off indicating recovery of the second constituent in the waste mixtures. This will be repeated until either the reboiler reaches a low level or the column top temperature reaches a point where past experience or laboratory testing has indicated that there are no other viable products to be recovered. When the fractionation is complete, the steam to the reboiler system is turned off.

After the steam is turned off, the remaining contents of the reboiler are then sampled and analyzed by the laboratory. Based on this analysis, the reboiler residue is managed either as a saleable product, as a recyclable waste (for example, in fuel blending) or as a waste to be treated further.

If a product is recovered from the overhead, samples of the distillate from the top of the fractionator are collected to determine the disposition. When the column conditions generate the target product, the distillate stream will be diverted to a separate storage tank. Only tanks authorized for hazardous waste storage will be used to store product prior to verification that specifications have been met. Frequently, the initial liquid that condenses is a lighter solvent than the desired product and will be sent to separate tankage. If the overhead stream is not the desired product, it will sent to other hazardous waste tanks for further processing, for reuse, or for blending for disposal as a fuel at an off-site facility. (See Fuel Blending discussion in Section E3.1).

A sample will be collected from the (permitted) distillate receiver tank or other permitted storage tank for analysis to determine if the product meets customer specifications. These specifications vary considerably based on the customer's use of the material. If the product does not meet specification, it may be processed further or purchased high-purity solvent may be added to elevate the concentration to meet required product composition, quantity, or other specifications. After the solvent in the product tank is verified by the laboratory to be within specification, it may be transferred to a nonpermitted tank, or packaged for sale/distribution. Typically this is in containers such as 55-gallon drums or intermediate bulk containers (IBCs), although bulk shipments can also be made.

E1.1.4.2. Supplemental Processes

E.1.1.4.2.1. Solvent Drying

After fractionation, some solvents may require additional processing to remove trace or low-level contaminants prior to resale. A common trace contaminant of recycled solvent is water. Fractionation of certain solvents results in a product containing approximately 0.5% water. In order to reduce the water content below these levels, the product requires additional processing by "solvent drying". Although the products can be sold with the water, they can be sold at a higher price without the water. Because the material can be sold without drying, Romic believes that solvent drying is a product-finishing step much like packaging and is not a waste treatment technique. Nevertheless, Romic is describing these units in this permit application.

Water can be removed using the principle of adsorption in molecular sieves or dryers. This involves contacting solvents with an adsorbent material in flow-through process equipment. The adsorbents can selectively remove water. Solvents pass through the adsorbent and are collected in tanks as a purer product ready for resale. The adsorbent used in molecular sieves can be regenerated after use by applying heat, plant steam and/or dry plant air through the molecular sieve, which releases the water (or other contaminants) from the adsorbent. Molecular sieves may require replacement after time.

The two THF molecular sieve units are located within Containment Area MNO next to Tank 36. These units are made of 304 stainless steel and are approximately 18-inches in diameter and 11-feet long. The TF Molecular Sieve is located in the process area just north of the WWT Tank. This unit is also made of stainless steel and is approximately 2 feet in diameter and 10 feet long. Both are designed to handle temperatures and pressures consistent with their intended application.

E.1.1.4.2.2. Liquid-Liquid Extraction

Another supplemental product finishing process that may be used is liquid-liquid extraction. Due to physical interactions on the molecular level, some compounds are especially difficult to extract out of solvents. Typically, these are water-soluble organic compounds that are of similar boiling point or that have a strong affinity to the product solvent. For example, alcohol cannot be readily distilled out of chlorinated solvents in a fractionator. Rather than attempting to separate these compounds via distillation techniques, the solubility of alcohol in water (and insolubility of water in chlorinated solvents) is utilized in a liquid-liquid extraction process referred to as water washing.

Liquid-liquid extraction may occur in either the water-wash tank (WWT), stainless steel kettle (SSK), or the caustic column (CC). WWT, SSK, and the caustic reboiler (associated with the caustic column unit) are included in the list of potential storage tanks for most aqueous and organic wastes (see Table E-1).

Liquid-liquid extraction is generally a final polishing step that involves thorough mixing of water with the product solvent. During the mixing process, the contaminant is dissolved in the water. After mixing is complete, the liquids are allowed to phase-separate due to their differences in specific gravity. The water phase that now contains the contaminant is removed, leaving the product solvent free of water and the contaminant (alcohol).

After liquid-liquid extraction, the target solvent is a purified, higher-value product. The contaminated water stream is stored in waste tanks and will be evaluated for treatment through the Facility's Wastewater Treatment system as described in Section E4.

E1.1.5. Management of Residuals

Solvent recycling generates some residual materials as described above. These waste residuals and their usual disposition are:

- **Reboiler Residue** – The heavy ends from the solvent recycling will first be evaluated for use as a heavy product. If the material cannot be designated a heavy product, it will be sent for use in Fuel Blending on-site (see Section E3.1) or it may be further processed on-site.

- **Light Product** – A product that may be generated in the distillation process that may be sold, or may be used as a solvent for the Liquefaction process on-site (see Section E3.2). In addition, this material may be processed further on-site, sold with or without other solvents blended in, or sent to Fuels Blending on-site.

- **Spent Adsorbents** - Spent molecular sieves, if generated, would be discarded and managed as an off-site generated waste.

- **Wastewater** – Wastewater will be generated in the liquid-liquid extraction process if used. It may also be produced in the fractionator if water is a contaminant of the solvent. Wastewater streams will be tested and placed into the appropriate tank on-site prior to processing through the Facility's Wastewater Treatment system (See Section E4).

E1.1.6. Process Rate

The fractionator columns have the following theoretical maximum instantaneous processing rates.

Fractionator Column	Max. Capacity
C24 (existing)	14 gpm
C32 (existing)	18.5 gpm
C34 (planned)	*21 gpm*
C35 (existing)	21 gpm
C36 (existing)	21 gpm
C37 (existing)	21 gpm
C42 (existing)	24.5 gpm
C43 (existing)	24.5 gpm
C48 (existing)	28 gpm
C49 (existing)	28 gpm

gpm = gallons per minute

The total theoretical maximum instantaneous processing rate (sum of the rate for each column) is 221.5 gpm. However, the actual throughput in the facility also depends on other factors. These include: time for analytical results; time for filling the reboilers; time to bring the reboilers up to temperatures where vaporization starts to occur; and the speed at which the waste solvent vaporizes. The effective capacity is considerably less than the values in the table above. Romic will limit total hazardous waste processing (fuels blending, solvent recycling, ethylene glycol recycling, and all other management methods combined) to the current permit limit of 154,512 gal per day annual average. This is consistent with the Health Risk Assessment (HRA) performed by Environ and submitted separately to DTSC.

E1.1.7. Air Emissions and Controls

E1.1.7.1. Regulatory Applicability

Process vents from the fractionators and reboilers are subject to Article 27 (of Chapter 14 of Title 22 of the California Code of Regulations) and are vented to the plant VOC control system (see Figure E-2). See Section M (Process Vents). Some of the equipment used in the fractionators, such as pumps, valves, and flanges are also subject to regulation under Article 28 (of Chapter 14 of Title 22 of the California Code of Regulations). This involves a systematic approach to monitoring such connections in high organic service for fugitive vapor emissions and specified repair procedures. See Section N on Air Emission Standards for Equipment Leaks.

In addition the requirements of Article 28.5 (of Chapter 14 of Title 22 of the California Code of Regulations) will apply to the waste storage in tanks and containers prior to fractionation provided the waste contains 500 parts per million by weight (ppmw) or more of volatile organic compounds as defined by Article 28.5. Compliance with these provisions is described in Section O. The storage tanks will have Level 1 controls (fixed roof tanks that provide a continuous barrier over the entire tank surface). Waste containers would meet Level 1 controls or Level 2 controls for containers greater than 121 gallons that are used in “light material service" as defined by the regulations. (This is based on the vapor pressure of the waste materials).

E1.1.7.2. Air Emission Quantification

Air emissions were estimated by Environ for use in the HRA document. Emissions arise from the sources described in the table below. The table also identifies factors affecting emissions and methods employed to control emissions.

Emissions Source	Factors Affecting Emissions	Emissions Control
Material storage and handling of organic containing materials	a. Breathing losses occur from vapor loss during changes in temperature or atmospheric pressure. These emissions occur even if no material is pumped into or out of the tank. This is not affected by throughput. b. Working losses occur when the tank is emptied creating a larger vapor space above the liquid, then more liquid is pumped into the tank displacing vapors. The greater number of tanks that are turned over, the greater the emissions. In general tank turnovers are related to plant throughput.	Conservation vents are used to minimize ambient emissions.
Emissions from processing equipment (non-condensable gases and fugitive losses)	a. Waste characteristics b. Processing conditions c. Processing rates	Non-condensable gases are routed to the plant VOC Control System that includes scrubbers and a boiler. When chlorinated solvents are fractionated, or the boiler temperature falls below its set point, the gases are routed to the scrubber system and then to activated carbon (instead of the on-site boilers) to remove air contaminants.
Emissions from sampling containers or bulk shipments.	a. Waste characteristics b. Number of bulk shipments c. Number of containers or bulk volume in shipment (e.g., a large number of small volume wastes would have larger emissions expected than from fewer shipments of larger quantities.	Not applicable.

E1.2 VACUUM POT DISTILLATION

Vacuum pot distillation is a process in which one component is removed from a multi-component mixture. For example, vacuum pot distillation is used to separate a mixture such as a solvent contaminated with water and/or oil. This section describes the vacuum pot process including a discussion of waste types, equipment used, processing rates, management of waste residuals, and air emissions/controls.

E1.2.1. Waste Types

Both halogenated and non-halogenated solvent waste streams may be processed by vacuum pot distillation. The High Temperature Unit (HTU) is especially well suited for processing higher boiling materials such as ethylene glycol, other glycols, n-methyl pyrrolidone, and water. Typical RCRA waste codes to be managed in these units include F001, F002, F003, F004, F005, and D001. See Section C, Tables C-1 and C-2 for a more complete list of the RCRA and California Waste Codes that may apply to these waste streams.

Dehydration of ethylene glycol (EG) is an example of a waste stream where vacuum pot distillation is used. The water is evaporated, leaving the EG behind. This is discussed further in Section E2 on ethylene glycol recycling.

E1.2.2. Storage Prior to Processing

Prior to being processed by vac pot distillation, wastes may be stored in one or more of the tanks shown in Table E-1. These are the primary waste storage tanks for organic and aqueous wastes. The capacity, design features, and certification status of all storage tanks are discussed in Section D3.

The tanks shown in Table E-1 are not dedicated for storage of solvents prior to vac pot distillation. They may store solvents prior to other recycling techniques or any other waste or non-waste materials (such as products) that are compatible with the use of these tanks. Waste solvents will be stored in tanks certified in accordance with Article 10, Chapter 14 of Title 22 of the California Code of Regulations. Finished products may be stored in clean, certified waste-storage tanks or in non-certified tanks that meet applicable local codes (e.g., Uniform Fire Code, Uniform Building Code, etc.).

E1.2.3. Processing Equipment Used

The processing equipment used for solvent recovery by vacuum pot distillation is shown in the table below. Note that this equipment may also be used in other processes such as distillation of wastewater (see Section E4) or for ethylene glycol recycling (see Section E2). The processing equipment and containment areas used for vacuum pot distillation are discussed in Section D3.

Equipment Used for Solvent Recovery by Vacuum Pot Distillation

UNIT NAME	MAJOR COMPONENTS (vessel capacity in gallons)	LOCATION[1]	ANCILLARY EQUIPMENT
Vac Pot 24	V24 Vacuum Pot (1,525)	Production	External heat exchanger, knockout separator, condenser, distillate receiver, piping and pumps
	Tank T-24 (3,400)	Tank Farm R[2]	
Vac Pot 25	V25 Vacuum Pot (2,234)	Production	Internal heating coils, knockout separator, condenser, transfer pumps (Qty. 2), distillate receiver, piping and pumps
	Tank T-25 (3,400)	Tank Farm R[2]	
High Temperature Unit	HTU (1,127)	Boiler Area	Condenser, piping, pumps, and instrumentation.
	HTU-1 (474)	Same	
	HTU-2 (330)	Same	

Notes: 1. See Figure D-1 for equipment and containment area locations. 2. To be combined with Tank Farms C and L; to be designated Tank Farm CLR.

Each of the vacuum pots is a simple vessel that is used to hold the waste solvent and allows it to be heated to allow the material to evaporate. The vac pot vessels include nozzles for high and low level probes, temperature indication, waste solvent inlet, bottoms solvent outlet, and vapor outlet.

An integral component of the vac pots are the heaters. On Vac Pot 24 the heater is an external heat exchanger while Vac Pot 25 has internal coils. Both use steam as the heating medium. In either case, the steam does not directly contact waste materials. The steam used comes from the plant steam system, which has a maximum temperature of about 347ºF. The high temperature vac pot (HTU) also uses internal heating coils, but to achieve a higher temperature, a heat transfer fluid is used. The heat transfer fluid is heated to a maximum temperature of 600°F using a separate gas-fired heater, pumped to the heating coils, and then returned to be reheated in a closed loop system. The heat transfer fluid does not contact the waste materials.

Knockout pots and condensers are additional components used to handle the vapor outlet of the vacuum pot. The knockout pot is a vessel much smaller than the vac pot. Its purpose is described in the process description section below. The condenser is a heat exchanger that uses cooling tower water to cool the vapors and cause them to return to the liquid state. As with the heaters, the process fluid (solvent vapor) is separated from the cooling water stream by metal tubes and there is no direct contact between solvent and water.

E1.2.4. Process Description

The process flow diagram for solvent recovery by vacuum pot distillation is shown in Figure E-3.

Solvent waste arrives at the facility either in DOT-compliant containers (such as 55-gallon drums) or in bulk by tanker trucks. Containers are temporarily stored in the drum receiving and sampling areas where they are sampled and analyzed by the on-site lab as described in the Waste Characteristics Section (Section C). Samples are also collected from each tanker truck as it arrives at the facility. After review of tanker truck or container analytical results, the laboratory assigns a disposition code to the waste stream. The tanker truck will be pumped either into a storage tank or directly into the vacuum pot process. If the waste was received in containers, a yard tanker will be used to empty the contents of the containers. The yard tanker will then transfer the waste into an appropriate hazardous waste storage tank within 24 hours. Romic may also pump material from containers directly into either storage tanks or process units. If there is a question concerning potential incompatibilities with the waste stream and other material in the storage tank, the facility will perform a bench-scale compatibility test prior to the transfer (see Section C7.3.4). This test looks for increases in temperature of waste mixtures or other signs of incompatibility. If the two wastes are found to be incompatible, the waste will be pumped into a tank where the wastes are compatible.

Before waste is pumped from the storage tank into the vac pot, a baseline sample may be collected from the tank and submitted to the laboratory for further analysis. Waste solvent is then pumped into the vac pot until the target amount is reached.

Vacuum pot distillation is a process that is able to manage material with high solids, oil, grease, water, and other contamination. Vacuum pots can be used consecutively to provide for a multi-stage separation, or they can be used before fractionation (see Section E1.1).

Vac pot distillation is primarily started by heating the waste solvent while the vessel is under a vacuum (a pressure lower than atmospheric). The vacuum allows the material to boil at a lower temperature, since some materials may start to degrade at atmospheric boiling temperatures. The material is heated by pumping it through an external heat exchanger heated by plant steam for Vac Pot 24 and internal steam coils with plant steam for Vac Pot 25. The steam used comes from the plant steam system, which has a maximum temperature of about 347ºF. The high temperature unit is heated by a circulating heat transfer fluid that passes through internal coils. As the material is heated, evaporation occurs. It will be heated until a target temperature is reached or there is a low-level in the vac pot, whichever comes first.

The vacuum and temperature are set to evaporate the lower-boiling components(s) in the vac pot. The vapors are condensed in a cooling water condenser and sent to a separate overhead tank, where the distillate is condensed. The distillate is transferred to a distillate receiver for storage and/or further processing. The material remaining in the vac pot can either be the desired recycled product or the by-product, depending on the relative boiling point of the materials. If any wastewater is generated from the vac pot, it is processed in the wastewater treatment system (see Section E4) or sent off-site for final disposal.

The vapors that exit the top of the vac pot typically go to a knockout pot. The knockout pot is a small vessel that allows entrained liquids to separate from the vapors. Liquids that are knocked out of the vapor stream are returned to the vac pot or transferred to other tanks. The vapors then are condensed in a water-cooled heat exchanger (a condenser) with the water separated from the solvent vapors by the heat exchanger tubes. After the condenser, the stream is sent to a receiver vessel where the liquids are separated from non-condensable gases. Liquids drain off the bottom of the vessel and the non-condensable gases exit the top. The non-condensable gases are inert gases or chemicals that have a boiling point less than the cooling water temperature. The non-condensable gases are sent to the on-site VOC control system (see Figure E-2).

The vac pots may produce product overhead from the evaporated material (recovered in the distillate receiver) or from what is left in the vac pot (bottoms). If product is recovered from the overhead, samples of the condensed material are collected to verify the target product and specifications have been reached. If the overhead stream is not the desired product, it will be sent to hazardous waste tanks for further processing, reused, reprocessed, or Fuel Blended (see Section E3.1) for use at an off-site facility.

> **Example**: Assume a waste solvent mixture contains two constituents, a light constituent and a heavy constituent. When evaporation occurs in the vac pot, the light components in the vapor are much greater than the heavy components. Although a perfect separation is not made, a stream rich with light constituents is recovered in the receiver vessel and the heavier (lower vapor pressure components) remain in the vac pot. In the example waste stream of ethylene glycol with water, water is the light constituent and the contaminant. The dehydrated ethylene glycol is recovered as the heavy constituent in the bottoms and is sent for further processing.

A sample will be collected from the product storage tank for analysis to determine if the product meets customer specifications. These specifications vary considerably based on the customer's use of the material. If the product does not meet specification, it may be processed further or purchased high-purity solvent may be added to elevate the concentration to meet required product purity, quantity, or other specifications. After the solvent in the product tank is verified by the laboratory to be within specification, it will be packaged for sale/distribution. Typically this is in containers such as 55-gallon drums or IBCs, although bulk shipments can also be made.

The vac pot bottoms may be sampled and analyzed by the laboratory. Based on analysis or knowledge, the vac pot bottoms will be sent to tankage as the target product, as a heavy solvent product, for further recovery, or for use in Fuel Blending (See Section E3.1). Target product will be sent to designated tanks.

E1.2.5. Management of Residuals

Solvent recycling generates some residual materials as described above. These waste residuals and their usual disposition are:

- **Vac Pot Residue** – The heavy ends from the solvent recycling will first be evaluated for use as a heavy product. If the material cannot be designated a heavy product, it will be sent for use in Fuel Blending on-site (see Section E3.1).

- **Light Product** – A product may be generated in the vac pot process that may be sold, or may be used as a solvent for the Liquefaction process on-site (see Section E3.2). In addition this material may be processed further on-site.

- **Wastewater** – Wastewater may be produced in the vac pot if water is a contaminant of the solvent. Wastewater streams will be tested and placed into the appropriate tank on-site prior to processing through the Facility's Wastewater Treatment system (See Section E4).

E1.2.6. Process Rate

The vacuum pot process vessels have the following theoretical maximum instantaneous processing rates.

Vacuum Pot	Max. Capacity
Vac Pot 24 (existing)	5 gpm
Vac Pot 25 (existing)	5 gpm
High Temperature Unit (existing)	5 gpm

gpm = gallons per minute

The total theoretical maximum instantaneous processing rate (sum of the rate for each unit) is 15 gpm. However, the actual throughput in the facility also depends on other factors. These include: time for analytical results; time for filling the vac pots, time to bring the vac pots up to temperatures where vaporization starts to occur; and the speed at which the waste solvent vaporizes. The effective capacity may be less than the values in the table above. Romic will limit total hazardous waste processing (fuels blending, solvent recycling, ethylene glycol recycling, and all other management methods combined) to the current permit limit of 154,512 gal per day annual average. This is consistent with the Health Risk Assessment (HRA) performed by Environ and submitted separately to DTSC.

E1.2.7. Air Emissions and Controls

E1.2.7.1. Regulatory Applicability

Process vents from these units are subject to Article 27 (of Chapter 14 of Title 22 of the California Code of Regulations) and are vented to the plant VOC control system (see Figure E-2). See Section M (Process Vents). Some of the equipment used in the vac pots, such as pumps, valves, and flanges are also subject to regulation under Article 28 (of Chapter 14 of Title 22 of the California Code of Regulations). This involves a systematic approach to monitoring such connections in high organic service for fugitive vapor emissions and specified repair procedures. See Section N on Air Emission Standards for Equipment Leaks.

In addition the requirements of Article 28.5 (of Chapter 14 of Title 22 of the California Code of Regulations) will apply to the waste storage tanks prior to vac pot processing if the waste stream has 500 ppmw or more of volatile organic compounds. As described in Section O, the storage tanks have Level 1 controls (fixed roof tanks that provide a continuous barrier over the entire tank surface).

E1.2.7.2. Air Emission Quantification

Air emissions were estimated by Environ for use in the HRA document. Emissions arise from the sources described in the table below. The table also identifies factors affecting emissions and methods employed to control emissions.

Emissions Source	Factors Affecting Emissions	Emissions Control
Material storage and handling of organic containing materials	a. Breathing losses occur from vapor loss during changes in temperature or atmospheric pressure. These emissions occur even if no material is pumped into or out of the tank. This is not affected by throughput. b. Working losses occur when the tank is emptied creating a larger vapor space above the liquid, then more liquid is pumped into the tank displacing vapors. The greater number of tanks that are turned over, the greater the emissions. In general tank turnovers are related to plant throughput.	Conservation vents are used to minimize ambient emissions.
Emissions from processing equipment (non-condensable gases and fugitive losses)	a. Waste characteristics b. Processing conditions c. Processing rates	Non-condensable gases are routed to the plant VOC Control System that includes scrubbers and a boiler. When chlorinated solvents are processed, or the boiler temperature falls below its set point, the gases are routed to the scrubber system and then to activated carbon (instead of the on-site boilers) to remove air contaminants.
Emissions from sampling containers or bulk shipments.	a. Waste characteristics b. Number of bulk shipments c. Number of containers or bulk volume in shipment (e.g., a large number of small volume wastes would have larger emissions expected than from fewer shipments of larger quantities.	Not applicable.

E1.3 THIN FILM EVAPORATION

Thin Film Evaporation (TFE) is primarily used to handle high solids content waste solvent and/or water streams. The liquid stream may undergo further processing in the facility (for example by fractionation).

This section describes the TFE process including a discussion of waste types, equipment used, processing rates, management of waste residuals, and air emissions/controls.

E1.3.1. Waste Types

Wastewater streams, halogenated solvent wastes, and non-halogenated solvent wastes may be processed by TFE. Typical RCRA waste codes to be managed in these units include F001, F002, F003, F004, F005, and D001. See Section C, Tables C-1 and C-2 for a more complete list of the RCRA and California Waste Codes that may apply to these waste streams.

An example waste stream that is commonly processed by thin film evaporation is wastewater that has high total organic carbon content and solids. Clean water is recovered off the top and solids and heavy organic constituents are collected in the bottoms.

E1.3.2. Storage Prior to Processing

Prior to being processed by TFE, wastes may be stored in one or more of the tanks shown in Table E-1. These are the primary waste storage tanks for organic and aqueous wastes. The capacity, design features, and certification status of all storage tanks are discussed in Section D3.

The tanks in Table E-1 are not dedicated for storage of solvents prior to being processed by TFE. They may store solvents prior to other recycling techniques or any other waste or non-waste materials (such as products) that are compatible with the use of these tanks. Waste solvents will be stored in tanks certified in accordance with Article 10, Chapter 14 of Title 22 of the California Code of Regulations. Finished products may be stored in clean, certified waste-storage tanks or in non-certified tanks that meet applicable local codes (e.g., Uniform Fire Code, Uniform Building Code, etc.).

E1.3.3. Processing Equipment Used

The processing equipment used for solvent recovery by TFE is shown in the table below. Note that this equipment may also be used in other processes such as distillation of wastewater (see Section E4.1) or for ethylene glycol recycling (see Section E2). The processing equipment and containment areas used for TFE are discussed in Section D3.

Equipment Used for Solvent Recovery by Thin Film Evaporation

UNIT NAME	MAJOR COMPONENTS (vessel capacity in gallons)	LOCATION[1]	ANCILLARY EQUIPMENT
TFE #1	R-93 (4,743)	Tank Farm B	Condenser, piping, pumps
	TFE 1 Thin Film Evaporator	Production Area	
	Tank 4– Receiver (4,500)	Tank Farm A	
TFE #2	R-94 (4,743)	Tank Farm B	Condensers (3), piping, pumps
	TFE 2 Thin Film Evaporator	Production Area	
	Tank 8 – Receiver (4,500)	Tank Farm A	

UNIT NAME	MAJOR COMPONENTS (vessel capacity in gallons)	LOCATION[1]	ANCILLARY EQUIPMENT
TFE #3	R-95 (4,743)	Tank Farm B	Condensers (3), piping, pumps
	TFE 3 Thin Film Evaporator	Production Area	
	Tank 12– Receiver (4,500)	Tank Farm A	
TFE #4 (proposed)	R-91 or R-92 (existing) (4,743)	Tank Farm B	*Condensers (3), piping, pumps*
	TFE 4 Thin Film Evaporator	Production Area	
	Tank 1– Receiver (4,200)	Tank Farm A	

Notes: 1. See Figure D-1 for equipment and containment area locations.

The Thin Film Evaporators are narrow diameter vessels that are equipped with an internal rotating blade assembly that spreads the waste into a film onto the heated interior walls of the vessel. An integral component of the TFE units are the steam-heated jacket and the rotating assembly. The steam used comes from the plant steam system, which has a maximum temperature of about 347ºF. In addition, like the other distillation process methods, water-cooled condensers are used to condense the evaporated vapors. Waste to the TFE process is fed from agitated (stirred) vessels (R-91, R-92, R-93, R-94, or R-95) when necessary because of the high amount of solids in the waste stream.

E1.3.4. Process Description

The process flow diagram for solvent recovery by TFE is shown in Figure E-4.

Solvent waste arrives at the facility either in DOT-compliant containers (such as 55-gallon drums) or in bulk by tanker trucks. Containers are temporarily stored in the drum receiving and sampling areas where they are sampled and analyzed by the on-site lab as described in the Waste Characteristics Section (Section C). Samples are also collected from each tanker truck as it arrives at the facility. After review of tanker truck or container analytical results, the laboratory assigns a disposition code to the waste stream. The tanker truck will be pumped either into a storage tank or directly into one of the agitated vessels (R-91, R-92, R-93, R-94, or R-95). If the waste was received in containers, a yard tanker will be used to empty the contents of the containers. The yard tanker will then transfer the waste into an appropriate hazardous waste storage tank or directly into tanks R-91, R-92, R-93, R-94, and/or R-95 within 24 hours. Romic may also pump material from containers directly into a storage tank and/or tanks R-91, R-92, R-93, R-94, and/or R-95 using a pump. If there is a question concerning potential incompatibilities with the waste stream and other material in the storage tank, the facility will perform a bench-scale compatibility test prior to the transfer (see Section C7.3.4). This test looks for increases in temperature of waste mixtures or other signs of incompatibility. If the two wastes are found to be incompatible, the waste will be pumped into a tank where the wastes are compatible.

Tanks R-91, R-92, R-93, R-94, or R-95 can be used because they are agitated to maintain solids in suspension. These tanks are vented to the VOC control system (see Figure E-2) on-site. Before waste is pumped from storage tanks into the TFE process, a baseline sample may be collected and analyzed by the laboratory.

Unlike other distillation processes where waste is pumped to fill a reboiler or vacuum pot vessel, in TFE the waste is pumped at a controlled rate directly into the Thin Film Evaporator vessel. The waste is distributed onto the interior walls of the vessel that are heated by plant steam passing in an external jacket. The rotating wipe assembly spreads the waste into a thin layer to improve the heat transfer. As lighter components evaporate, the solids and heavier liquids continue to drop down the TFE Vessel until they reach the bottom. At the bottom, they are pumped back into the agitated vessel, into the Fuels Blending Process, or other tanks for further processing. The decision of where to pump the TFE Unit bottoms is primarily based on its viscosity from samples collected and analyzed by the laboratory. In the initial stages of the operation, the viscosity will be low (less than about 1,000 centipoise). This will be routed back to the agitated tanks where it can be rerun in the TFE Unit. As more and more light ends evaporate, the waste thickens as indicated by an increased viscosity. When the viscosity is greater than about 1,000 centipoise, the TFE Unit bottoms will be diverted to the Fuels Blending Process (See Fuel Blending discussion in Section E3.1).

The evaporated light ends in the overhead (e.g. solvent) from the waste are condensed in the water-cooled condenser and collected in a receiving tank associated with the specific TFE Unit (see Table in Section E1.3.3 above). TFE #2 and TFE#3 share a chiller condenser, which uses chilled water to condense more volatile components (i.e., those with a lower boiling point). The chiller condenser would be used with only one Thin Film Evaporator at a time. Any non-condensable gases after the condenser or the condenser plus chiller are sent to the on-site VOC control system (see Figure E-2). These would be inert gases or chemicals that have a boiling point less than the cooling water (or chiller) temperature.

Condensed material will be transferred to a product storage tank, or to another hazardous waste tank if the material was processed to remove the solids and requires further processing (for example by fractionation). If the output of the TFE Process is intended to be a product, a sample will be collected from the TFE Receiver Tank for analysis to determine if the product meets customer specifications. These specifications vary considerably based on the customer's use of the material. If the product does not meet specification, it may be processed further (e.g., fractionation) or purchased high-purity solvent may be added to elevate the concentration to meet required product purity, quantity, or other specifications.

After the solvent in the product tank is verified by the laboratory to be within specification, it will be packaged for sale/distribution. Typically, product will be placed in containers such as 55-gallon drums or IBCs, although bulk shipments can also be made.

E1.3.5. Management of Residuals

Solvent recycling by Thin Film Evaporation generates some residual materials as described above. These waste residuals and their usual disposition are:

- **TFE Bottoms** – The heavy ends from the TFE process are directed to the on-site Fuels Blending process.

- **Wastewater** – If wastewater is generated in the TFE process, it will be tested and placed into the appropriate tank on-site prior to processing through the Facility's Wastewater Treatment system (See Section E4).

- **Light Product** – A product may be generated in the vac pot process that may be sold, or may be used as a solvent for the Liquefaction process on-site (see Section E3.2). In addition this material may be processed further on-site.

E1.3.6. Process Rate

The fractionator columns have the following theoretical maximum instantaneous processing rates.

Thin Film Evaporation Unit	Max. Capacity
TF1 (existing)	8 gpm
TF2 (existing)	10 gpm
TF3 (existing)	10 gpm
TF4 (planned)	*15.5 gpm*

gpm = gallons per minute

The total theoretical maximum instantaneous processing rate (sum of the rate for each process unit) is 43.5 gpm. However, the actual throughput in the facility also depends on other factors. These include: time for analytical results, heat transfer, and evaporation rates. The effective capacity would be less than the values in the table above. Romic will limit total hazardous waste processing (fuels blending, solvent recycling, ethylene glycol recycling, and all other management methods combined) to the current permit limit of 154,512 gal per day annual average. This is consistent with the Health Risk Assessment (HRA) performed by Environ and submitted separately to DTSC.

E1.3.7. Air Emissions and Controls

E1.3.7.1. Regulatory Applicability

Process vents from the Thin Film Evaporator vessels, the associated agitated mixing tanks (R-91, R-92, R-93, R-94, and R-95), and the TFE Receivers (4, 8, and 12) are subject to Article 27 (of Chapter 14 of Title 22 of the California Code of Regulations), and are vented to the plant VOC control system. See Section M (Process Vents). Some of the equipment used in the TFE Units, such as pumps, valves, and flanges are also subject to regulation under Article 28 (of Chapter 14 of Title 22 of the California Code of Regulations). This involves a systematic approach to monitoring such connections in high organic service for fugitive vapor emissions and specified repair procedures. See Section N on Air Emission Standards for Equipment Leaks.

E1.3.7.2. Air Emission Quantification

Air emissions were estimated by Environ for use in the HRA document. Emissions arise from the sources described in the table below. The table also identifies factors affecting emissions and methods employed to control emissions.

Emissions Source	Factors Affecting Emissions	Emissions Control
Material storage and handling of organic containing materials in closed-roof, non-agitated tanks.	a. Breathing losses occur from vapor loss during changes in temperature or atmospheric pressure. These emissions occur even if no material is pumped into or out of the tank. This is not affected by throughput. b. Working losses occur when the tank is emptied creating a larger vapor space above the liquid, then more liquid is pumped into the tank displacing vapors. The greater number of tanks that are turned over, the greater the emissions. In general tank turnovers are related to plant throughput.	Conservation vents are used to minimize ambient emissions.
Material storage and handling of organic containing materials in closed-roof, tanks that are agitated.	a. Same emissions as above plus increased emission potential due to mixing causing more exposure of liquid to the air space.	Non-condensable gases are routed to the plant VOC Control System that includes scrubbers and a boiler. When chlorinated solvents are processed, or the boiler temperature falls below its set point, the gases are routed to the scrubber system and then to activated carbon (instead of the on-site boilers) to remove air contaminants.
Emissions from processing equipment (non-condensable gases and fugitive losses)	a. Waste characteristics b. Processing conditions c. Processing rates	Non-condensable gases are routed to the plant VOC Control System that includes scrubbers and a boiler. When chlorinated solvents are processed, or the boiler temperature falls below its set point, the gases are routed to the scrubber system and then to activated carbon (instead of the on-site boilers) to remove air contaminants.

Emissions Source	Factors Affecting Emissions	Emissions Control
Emissions from sampling containers or bulk shipments.	a. Waste characteristics b. Number of waste shipments c. Number of containers or bulk volume in shipment (e.g., a large number of small volume wastes would have larger emissions expected than from fewer shipments of larger quantities.	Not applicable.

E1.4 TFE AND FRACTIONATION

The two operations of TFE and Fractionation are often used together. The two processes are complementary with a waste that is a multi-component mixture that also contains solids. The solids are first removed through TFE and then fractionation is used to recover one or more solvent products. The processing steps and equipment are the same as described for the individual processes in Sections E1.1 (Fractionation) and E1.3 (TFE) above. An example of a waste that is processed by TFE and Fractionation is wastewater contaminated by solids and organic materials. This process is described in detail in Section E4.1.

E2 ETHYLENE GLYCOL RECYCLING

About 20% of Romic's incoming waste in the 2000 calendar year was used automotive or industrial antifreeze that is processed to recover the ethylene glycol (EG). Ethylene glycol is processed using the techniques of fractionation or a combination of vacuum pot steps, or vacuum pot and fractionation. The processing of antifreeze wastes is discussed below for each of the two main processing methods: fractionation alone or using vacuum pots. Both fractionation methods may be used simultaneously to recover ethylene glycol.

E2.1 ETHYLENE GLYCOL RECYCLING BY FRACTIONATION

This section describes the ethylene glycol recycling process. This includes a discussion of waste characteristics, equipment used, processing rates, management of waste residuals, and air emissions/controls.

E2.1.1. Waste Description

Used automotive or industrial coolant containing ethylene glycol is profiled by Romic's on-site laboratory. This is done using the generator-supplied data (on a profile form) and analytical testing by Romic. This waste will contain ethylene glycol, water, and trace contaminants such as metals and additives. This waste generally has a specific gravity of between 1.0 and 1.1. Since ethylene glycol based coolant is used in automotive and other critical machinery made of steel, aluminum, or other metals, it is not a corrosive waste and is compatible with metal and plastic. This waste may be hazardous by equivalent oral LD-50, metals content, or fish toxicity.

E2.1.2. Storage Prior to Processing

Prior to being processed, ethylene glycol wastes may be stored in one or more of the tanks shown in Table E-1. These are the primary waste storage tanks for organic and aqueous wastes handled in the facility. These tanks are all rated to handle the specific gravity and are chemically compatible with the non-corrosive EG waste. The capacity, design features, and certification status of all storage tanks are discussed in Section D3.

The tanks shown in Table E-1 are not dedicated for storage of solvents prior to EG Recycling. They may store any other waste or non-waste materials that are compatible with the use of these tanks. Hazardous wastes will be stored in tanks certified in accordance with Article 10, Chapter 14 of Title 22 of the California Code of Regulations. Finished products may be stored in clean, certified waste-storage tanks or in non-certified tanks that meet applicable local codes (e.g., Uniform Fire Code, Uniform Building Code, etc.).

E2.1.3. Processing Equipment Used

The fractionation processing equipment used for ethylene glycol recycling is shown in the table below. Note that this equipment may also be used in other processes such as distillation of wastewater (see Section E4) or for solvent recovery (see Section E1). Further details on the processing equipment design and containment areas used for ethylene glycol recycling are discussed in Section D3.

Equipment Used for Ethylene Glycol Recycling

UNIT NAME	MAJOR COMPONENTS (vessel capacity in gallons)	LOCATION[1]	ANCILLARY EQUIPMENT
Column 24 (C-24)	C24 Column	Production	Condenser, Reflux Pump, Overhead Separator, Plate and Frame Chilling Condenser, Piping
	Reb-24 Reboiler (830)	(Same)	
Column 32 (C-32)	C32 Column	Production	Reboiler Heat Exchanger, Condenser, Reflux Pump, Overhead Separator, Plate and Frame Chilling Condenser, Piping
	Reb-32 Reboiler (3,647)	(Same)	
Column 35 (C-35)	C35 Column	Production	Reboiler Heat Exchanger, Condenser, Reflux Pump, Overhead Separator, Piping
	Reb-35 Reboiler (4,670)	Tank Farm I	
Column 36 (C-36)	C36 Column	Production	Reboiler Heat Exchanger, Condenser, Reflux Pump, Overhead Separator, Plate and Frame Condenser, Plate and Frame Chilling Condenser, Piping
	Reb-36 Reboiler (7,500)	Tank Farm I	
Column 37 (C-37)	C37 Column	Production	Condenser, Reflux Pump, Overhead Separator, Piping
	Reb-37 Reboiler (6,100)	Tank Farm G	
Column 42 (C-42)	C42 Column	Production	Reboiler Heat Exchanger, Condenser, Reflux Pump, Overhead Separator, Plate and Frame Condenser, Plate and Frame Chilling Condenser, Piping
	Reb-42 Reboiler (9,400)	Tank Farm I	
Column 43 (C-43)	C43 Column	Production	Reboiler Heat Exchanger, Condenser, Reflux Pumps (2), Overhead Separators (2), Plate and Frame Condenser, Piping
	Reb-43 Reboiler (6,996)	Tank Farm I	
Column 48 (C-48)	C48 Column	Production	Condenser, Reflux Pump, Overhead Separator, Piping
	Reb-48 (9,300)	Tank Farm I	
Column 49 (C-49)	C49 Column	Production	Reboiler Heat Exchanger, Condenser, Reflux Pump, Overhead Separator, Piping
	Reb-49 Reboiler (15,792)	Tank Farm G	
Column 34 (C-34)	*C34 Column*	*Planned*	*Condenser, Reflux Pump, Overhead Separator, Piping*
	Reb-34 Reboiler (16,500)	*Same*	
Vac Pot 24	V24 Vacuum Pot (1,525)	Production	External heat exchanger, knockout separator, condenser, distillate receivers (Qty. 2), piping and pumps
	T24 Tank (3,400)	Tank Farm R[2]	
Vac Pot 25	V25 Vacuum Pot (2,234)	Production	Internal heating coils, knockout separator, condenser, transfer pumps (Qty. 2), distillate receivers (Qty. 2), piping and pumps
	T25 Tank (3,400)	Tank Farm R[2]	
High Temperature Unit	HTU (1,127)	Boiler Area	Condenser, piping, pumps, and instrumentation.
	HTU-1 (474)	Same	
	HTU-2 (330)	Same	

Notes: 1. See Figure D-1 for equipment and containment area locations. 2. To be combined with Tank Farms C and L; to be designated Tank Farm CLR.

The equipment is described in the specific processing sections for fractionators (Section E1.1) and vacuum pots (Section E1.2).

E2.1.4. Process Description

E2.1.4.1. Waste Receiving and Storage

The process flow diagram for ethylene glycol recycling is shown in Figure E-5 for the C43 process and Figure E-6 for the multi-stage process.

Antifreeze waste will arrive at the facility either in DOT-compliant containers (such as 55-gallon drums) or in bulk by tanker trucks. Containers are temporarily stored in the drum receiving and sampling areas where they are sampled and analyzed by the on-site lab as described in the Waste Characteristics Section (Section C). Samples are also collected from each tanker truck as it arrives at the facility. After review of tanker truck or container analytical results, the laboratory assigns a disposition code to the waste stream. The tanker truck will be pumped either into a storage tank or directly into the process. If the waste was received in containers, a yard tanker will be used to empty the contents of the containers. The yard tanker will then transfer the waste into an appropriate hazardous waste storage tank within 24 hours. Romic may also pump material from containers directly into either storage tanks or process units. If there is a question concerning potential incompatibilities with the waste stream and other material in the storage tank, the facility will perform a bench-scale compatibility test prior to the transfer (see Section C7.3.4). This test looks for increases in temperature of waste mixtures or other signs of incompatibility. If the two wastes are found to be incompatible, the waste will be pumped into a tank where the wastes are compatible. Antifreeze wastes are almost always compatible.

E2.1.4.2. C43 Process

This process option is referred to as the C43 process because it is currently conducted primarily in Column 43. However, it may be conducted in any column that is operated under vacuum, such as Column 32. Waste antifreeze is pumped into a reboiler until the target amount is reached or the reboiler is full. There is a high level alarm in the vessel. There is a waste feed cut-off system that automatically stops transfer of waste when the high level is reached. The level is set to avoid the possibility of overfilling.

The process begins with the heating of the antifreeze waste mixture in the reboiler by adding steam from the plant steam system, which has a maximum temperature of about 347ºF to one side of the tubes on the heat exchanger. As the mixture heats, the more volatile components (also known as the lighter fractions) tend to concentrate in the vapor phase. The vapors are then fed to the fractionation column. As the vapors rise in the column, they concurrently condense on the horizontal trays such that there is always some liquid on the tray and vapor above the tray rising to the next tray. The composition of the liquid and the vapor at any given point in a column depends upon the temperature at that point. The temperature is higher at the bottom of the column, and lower at the top. Materials removed from the top of the column (condensed vapors) are called “overhead” and unvaporized materials removed from the reboiler are called “bottoms.”

During the initial stages of fractionation, the water is evaporated from the used antifreeze. The first water to evaporate is condensed in a water-cooled heat exchanger (a condenser) and is sent to the Wastewater Treatment system where it is processed as water with high total organic carbon (TOC) content (See Wastewater Treatment discussion in Section E4). After the hydrocarbon content is reduced, the condensed overhead stream is then switched to other tankage prior to processing in the Wastewater Treatment system. This water is Grade A1 water (see Section E4.1) and may be amenable to processing directly in the biological treatment system due to the low levels of contamination. As the fractionator temperature increases, a high boiling waste stream is produced out of the top of the fractionator. This is known as EG riser, which is a transitional phase that initially consists mostly of water and becomes mostly ethylene glycol. This material is sent to permitted hazardous waste storage and is subsequently reprocessed. When the fractionator reaches a specified top temperature, the ethylene glycol stream will be the primary stream that is condensed. A sample will be collected to verify the purity. If this meets specification, this ethylene glycol is sent to a product storage tank. As the evaporation process continues, there may be organic contaminants in the waste that boil at higher temperatures than ethylene glycol. These constituents will be residue left in the reboiler and are known as fractionator bottoms. These may be sent for reprocessing or to the Fuel Blending Process (see Section E3.1) where they can contribute BTU value to a supplemental hazardous waste fuel. The process will stop when the reboiler reaches a low level or the fractionator temperatures indicate that the ethylene glycol recycling is completed.

The recovered ethylene glycol is considered a product and can be sold to some industrial clients who add their own additives such as corrosion inhibitors. However, if the ethylene glycol will be sold in bulk to other customers or packaged in containers for purchase by consumers in an automotive parts (or similar) store, the ethylene glycol will be passed through a carbon filter to remove any materials that may cause undesirable color or odor to the product. Then the additive package, primarily a corrosion inhibitor, will be added with the ethylene glycol and mixed in the blending tank. This is now called inhibited product and is sent to storage where it will be sold in bulk or packaged into smaller containers including one-gallon consumer-sized containers.

E2.1.4.3. Multi-Stage Process

An alternate process used for ethylene glycol recycling utilizes two sets of equipment. The first step is dehydration, or removal of most of the water. The second step is the purification step.

Dehydration

Ethylene glycol waste can be dehydrated in the following pieces of equipment: Columns C24, C32, *C34*, C35, C36, C37, C42, C43, C48, C49, Vac Pot 24, Vac Pot 25, or the High Temperature Unit.

Ethylene glycol waste will be pumped from hazardous waste tank storage to the process unit(s) being used. The waste mixture will be heated with the water evaporating first. This water will be condensed and sent to on-site tankage prior to further processing by Wastewater Treatment (see Section E4). The sequence of water recovery is the same as in C43 process. First high TOC wastewater is recovered, then Grade A1 water (see Section E4.1), and then finally the transitional EG riser stream. This dehydration will continue until the waste mixture is less than or equal to about 1% water. This is an intermediate, which will be handled as a hazardous waste, and will be sent to a suitable authorized storage tank. From here it will be fed into the purification stage of the process.

Purification

Purification will occur in either Vac Pot 24, Vac Pot 25, HTU, or a column capable of operating under vacuum (e.g., C32). The dehydrated ethylene glycol waste will be fed either to a reboiler or into one of the vacuum pots until the high level is reached. The waste will then be heated by steam (except for the HTU as discussed in Section E1.2.4) and the vessel will be maintained at a partial vacuum. The steam used comes from the plant steam system, which has a maximum temperature of about 347ºF. The product ethylene glycol will be recovered in the overhead where it will be condensed in heat exchangers using cooling tower water. The condensed liquid will be stored in Receiver T-24, Receiver T-25, HTU-1 or HTU-2 receivers, or in appropriate storage tanks. A sample will be taken to determine if the product meets specification. If the analytical results demonstrate that the purified ethylene glycol is within specifications, it will be pumped to a suitable tank. From there, it will be processed further to improve the product quality as described for the C43 process above. This includes carbon filtering, inhibitor blending, product storage, and packaging.

The heavy constituents from the purification process are the materials remaining in the vac pots, the HTU, or in the reboiler (fractionator bottoms). This waste is sent to the Fuel Blending process as described in Section E3.1.

E2.1.5. Management of Residuals

Ethylene glycol recycling generates some residual materials as described above. These waste residuals and their usual disposition are:

- **Reboiler or Vac Pot Residue** – These materials are sent to the Fuel Blending process on-site (see Section E3.1), or for further processing.

- **Spent Carbon -** Spent activated carbon will be either sent off-site for recycling or managed on-site in a DTSC authorized waste management unit. Containers of spent carbon will be stored in either an authorized storage area or a ninety-day accumulation area.

- **Wastewater** – Wastewater will be generated in dehydration steps occurring either in the C43 process or in the two-stage process. Wastewater streams will be placed into the appropriate tank on-site prior to processing through the Facility's Wastewater Treatment system (See Section E4). Wastewater streams recovered include high TOC water and Grade A1 water that may be sent directly to the Biological Treatment System of the Wastewater Treatment System. Wastewater removed from antifreeze may be characterized as non-hazardous.

- **EG Riser** – This transitional stream between water and EG is reprocessed to recover additional ethylene glycol.

E2.1.6. Process Rate

The theoretical maximum ethylene glycol instantaneous processing rates are:

Fractionator Column	**Max. Capacity**
C24 (existing)	14 gpm
C32 (existing)	18.5 gpm
C34 (planned)	*21 gpm*
C35 (existing)	21 gpm
C36 (existing)	21 gpm
C37 (existing)	21 gpm
C42 (existing)	24.5 gpm
C43 (existing)	24.5 gpm
C48 (existing)	28 gpm
C49 (existing)	28 gpm
Vac Pot 24	5 gpm
Vac Pot 25	5 gpm
High Temperature Unit	5 gpm

gpm = gallons per minute

The total theoretical maximum instantaneous processing rate (sum of the rate for each process unit) is about 236 gpm. However, the actual throughput in the facility also depends on other factors. These include: time for analytical results; time for filling the reboilers; time to bring the reboilers up to temperatures where vaporization starts to occur; and the rate at which the waste vaporizes. The effective capacity is considerably less than the values in the table above. Furthermore, much of this equipment is used in a multi-step process where waste EG is being dehydrated on some equipment and purified on other equipment. Romic will limit total hazardous waste processing (fuels blending, solvent recycling, ethylene glycol recycling, and all other management methods combined) to the current permit limit of 154,512 gal per day annual average. This is consistent with the Health Risk Assessment (HRA) performed by Environ and submitted separately to DTSC.

E2.1.7. Air Emissions and Controls

E2.1.7.1. Regulatory Applicability

Process vents from these units are subject to Article 27 (of Chapter 14 of Title 22 of the California Code of Regulations) and are vented to the plant VOC control system (see Figure E-2). See Section M (Process Vents). Some of the equipment used in the fractionators, such as pumps, valves, and flanges are also subject to regulation under Article 28 (of Chapter 14 of Title 22 of the California Code of Regulations). This involves a systematic approach to monitoring such connections in high organic service for fugitive vapor emissions and specified repair procedures. See Section N on Air Emission Standards for Equipment Leaks.

The requirements of Article 28.5 (of Chapter 14 of Title 22 of the California Code of Regulations) will apply to the waste storage tanks prior to fractionation if the waste stream contains 500 ppmw or more of total volatile organic compounds as defined in Article 28.5. As described in Section O, the storage tanks used for waste subject to Article 28.5 would have Level 1 controls (fixed roof tanks that provide a continuous barrier over the entire tank surface).

E2.1.7.2. Air Emission Quantification

Air emissions were estimated by Environ for use in the HRA document. Emissions arise from the sources described in the table below. The table also identifies factors affecting emissions and methods employed to control emissions.

Emissions Source	Factors Affecting Emissions	Emissions Control
Material storage and handling of organic containing materials	a. Breathing losses occur from vapor loss during changes in temperature or atmospheric pressure. These emissions occur even if no material is pumped into or out of the tank. This is not affected by throughput. b. Working losses occur when the tank is emptied creating a larger vapor space above the liquid, then more liquid is pumped into the tank displacing vapors. The greater number of tanks that are turned over, the greater the emissions. In general tank turnovers are related to plant throughput.	Conservation vents are used to minimize ambient emissions.
Emissions from processing equipment (non-condensable gases and fugitive losses)	a. Waste characteristics b. Processing conditions c. Processing rates	Non-condensable gases are routed to the plant VOC Control System that includes scrubbers and a boiler.
Emissions from sampling containers or bulk shipments.	a. Waste characteristics b. Number of waste shipments c. Number of containers or bulk volume in shipment (e.g., a large number of small volume wastes would have larger emissions expected than from fewer shipments of larger quantities.	Not Applicable.

E3 FUEL BLENDING AND LIQUEFACTION

Fuel Blending is one of the most common processes used at Romic. It is used to handle both off-site wastes, wastes derived from off-site wastes (primarily treatment residuals such as distillation bottoms and wastes from the Liquefaction Unit), and on-site generated wastes. This unit uses solvents to remove residues such as sludge from drums. The solvent and sludge is then processed in the Fuel Blending system to generate a hazardous waste fuel for use by licensed facilities such as cement kilns. These processes are described in more detail below.

E3.1 FUEL BLENDING

Fuel Blending is the process of mixing different fuel grade materials to make a product that is desirable for combustion by a cement kiln or other user of hazardous waste fuel. The primary specifications are heat value (measured by BTU/lb), solids content, water content, and halogen content. Specifications for the final blended fuel are defined by the recipient who burns the hazardous waste fuel in an authorized industrial furnace or boiler. Incoming waste streams with sufficient BTU and/or organic content are combined in proportions determined through laboratory analysis and generator-supplied information.

E3.1.1. Waste Types

Fuel Blending at the facility is typically used to manage organic solvents, oil-based paints, oily wastes, gasoline, and kerosene. Other types of industrial chemicals such as alcohols, ketones, or aromatic hydrocarbons may also be fuel blended. Distillation bottoms, non-target solvents, liquefaction waste, and other streams (including tank truck sludge) are also used in Fuel Blending provided they have a sufficient heat and/or organic content.

Typical RCRA waste codes to be managed in these units include F001, F002, F003, F004, F005, D001, D004-D011, D018, D019, D021-D030, D032-D036, D038-D040, and D043. See Section C, Tables C-1 and C-2 for a more complete list of the RCRA and California Waste Codes that may apply to these waste streams.

E3.1.2. Storage Prior to Processing

There is no separate storage in tanks prior to Fuel Blending because the storage tanks also serve as the process vessels as described in Section E3.1.4. Waste for Fuel Blending will arrive at the facility either in DOT-compliant containers (such as 55-gallon drums) or in bulk by tanker trucks. Containers are temporarily stored in the drum receiving and sampling area where they are sampled and analyzed by the on-site lab as described in the Waste Characteristics Section (Section C). Samples are also collected from each tanker truck as it arrives at the facility. After review of tanker truck or container analytical results, the laboratory assigns a disposition code to the waste stream and the waste will be transferred to an appropriate tank as described in Section E3.1.4.

E3.1.3. Processing Equipment Used

There are two types of hazardous waste tanks used for Fuel Blending. These are tanks with agitators or tanks without agitators. These are indicated in the table below.

Tanks Used for Fuel Blending

SECONDARY CONTAINMENT LOCATION[1]	**TANK NUMBERS**
TANKS WITH AGITATORS	
Tank Farm A	K, L, M
Tank Farm B	R-91, R-92, R-93, R-94, R-95
Tank Farm E	*A-6, A-7, N, O, R-90*
TANKS WITHOUT AGITATORS	
Any tank in Table E-1 unless there are specific tank or waste limitations.	

Notes: 1. See Figure D-1 for equipment and containment area locations.

The capacity, design features, and certification status of all storage tanks are discussed in Section D3. These tanks are made of materials that are compatible with typical Fuel Blending wastes. Romic's laboratory personnel in communication with operations may define specific tanks if necessary based on review of the waste profile or waste analyses upon receipt.

The tanks without agitators are used to handle only wastes containing low solids content. The agitated tanks can handle either high solids or low solids content waste. The agitators are bladed mixers on a shaft with the motor outside the tank. These mixers help to keep the solids in suspension to make a more homogenous mixture.

E3.1.4. Fuel Blending Process Description

The process flow diagram for Fuel Blending is shown in Figure E-7.

After the waste is received and the laboratory performs the analytical tests described in Section C4, the waste will be assigned to a specific tank. The tanker truck will be pumped into a specific storage tank. If the waste was received in containers, a yard tanker will be used to empty the contents of the containers. The yard tanker will then transfer the waste into an appropriate hazardous waste storage tank within 24 hours. Romic may also pump material from containers directly into storage tanks. If the waste to be transferred into the Fuel Blending tank is not known to be compatible with waste already in the tank, a bench-scale waste compatibility test is used to verify that there are no adverse reactions from combining the waste streams (see Section C7.3.4). If this test indicates an adverse reaction, the incoming waste will be transferred into a different tank that has waste compatible with the incoming material.

The determination of which tank to use is made by the Romic laboratory in conjunction with Operations based on analytical results for the key blending specifications. The target specifications depend on the disposition of the hazardous waste fuel. There may be specifications for heat content (BTU/lb), percent water, percent solids, and other physical and/or chemical parameters. The specifications are not usually absolute limits and surcharges could apply to fuel outside these specifications. There may or may not be levels at which the waste could be rejected on a facility-by-facility basis.

High Solids

If the waste material contains high solids it is transferred as described above (Section E3.1.4) into one or more of the agitated tanks. Some tanks, for example Tanks R-91 through R-95, are about the same capacity as a tanker truck. In this case, the waste may be pumped into more than one tank to make the blend. Other tanks such as Tank L, have a capacity of about two tank trucks. The agitator continues to run while the waste is being pumped in the tank and while the waste remains in the tank. Other compatible waste materials are added to the tanks to meet the target blend specifications. After all desired wastes are added to the tank, a sample is collected for laboratory analysis to determine if the blend specification was achieved. Note that the target blend specification does not necessarily represent the limits of acceptability by the cement kiln or other user of the fuel. For example, Romic may send hazardous waste fuel to cement kilns or other users of the fuel that has higher solids or higher water content than the target specification. Romic may incur surcharges for water content or solids content that are above specified levels.

The blending process occurs without the addition of heat. A minimum mixing time may be needed, however in most cases the waste treatment process is complete when all the identified waste materials have been pumped into the tanks. If needed, an emulsifying agent may be added in some cases to help keep the waste mixture homogenous.

Low Solids

Waste for fuel blending that contains low solids can be processed in either a tank with or without an agitator. Waste will be pumped from tanker trucks, yard tankers, or directly from containers into one or more of the agitated or non-agitated tanks listed in the above table (See Section E3.1.3). Other compatible waste materials are then added to the tanks to meet the target blend specifications. Since the materials have low solids content, and are otherwise miscible, an external agitator is not required to mix the materials. The pumping of the materials into the tank provides enough energy to mix the materials. After all desired wastes are added to the tank, a sample is collected for laboratory analysis to determine if the blend specification was achieved. Like the high solids streams above, the target blend specifications are not necessarily the acceptance limits of the cement kilns or other user of hazardous waste fuel.

The blending process occurs without the addition of heat. The waste treatment process is complete when all the identified waste materials have been pumped into the tanks.

Disposition

After the target blend specification is reached in either an agitated or a non-agitated tank, and the sample results indicate that fuel has blended to appropriate specifications, one or more tanks will be pumped into a tanker truck. If for some reason the target specification has not been achieved, the non-conforming waste may be distributed to another tank for addition of other blending materials. A sample is collected from the tanker truck. After the analytical tests confirm waste fuel is within the specifications of the receiving facility, the tanker truck is shipped under manifest to an off-site Romic facility located in Redwood City where it is loaded into a rail car. Loading and other operations occurring in Redwood City are subject to the Standardized Permit for this facility by DTSC. Romic may also send waste from the East Palo Alto facility to another off-site facility that is authorized to handle the manifested waste.

E3.1.5. Management of Residuals

The Fuels Blending process does not normally generate residuals.

E3.1.6. Process Rate

As described earlier, the Fuels Blending Process does not require a significant amount of time since heating and other time intensive processes are not required as in the distillation process. Basically, it involves filling the tanks with appropriate waste materials, and when required, maintaining the solids in suspension. The cycle time for processing waste also includes the various analytical tests. Romic will limit total hazardous waste processing (fuels blending, solvent recycling, ethylene glycol recycling, and all other management methods combined) to the current permit limit of 154,512 gal per day annual average. This is consistent with the Health Risk Assessment (HRA) performed by Environ and submitted separately to DTSC.

E3.1.7. Air Emissions and Controls

E3.1.7.1. Regulatory Applicability

The requirements of Article 28.5 (of Chapter 14 of Title 22 of the California Code of Regulations) will apply to the waste storage tanks and containers that handle RCRA hazardous waste containing 500 parts per million or more (by weight) of volatile organic compounds. As described in Section O, the agitated storage tanks meet Level 2 controls. The vapor spaces of these closed tanks are vented to the plant VOC control system (see Figure E-2), which includes a scrubber system, followed by venting of any remaining vapor emissions to the on-site boiler. All non-agitated storage tanks have Level 1 controls (fixed roof tanks that provide a continuous barrier over the entire tank surface).

E3.1.7.2. Air Emission Quantification

Air emissions were estimated by Environ for use in the HRA document. Emissions arise from the sources described in the table below. The table also identifies factors affecting emissions and methods employed to control emissions.

Emissions Source	**Factors Affecting Emissions**	**Emissions Control**
Material storage and handling of organic containing materials in closed-roof, non-agitated tanks.	a. Breathing losses occur from vapor loss during changes in temperature or atmospheric pressure. These emissions occur even if no material is pumped into or out of the tank. This is not affected by throughput. b. Working losses occur when the tank is emptied creating a larger vapor space above the liquid, then more liquid is pumped into the tank displacing vapors. The greater number of tanks that are turned over, the greater the emissions. In general tank turnovers are related to plant throughput.	Conservation vents are used to minimize ambient emissions.
Material storage and handling of organic containing materials in closed-roof, tanks that are agitated.	a. Same emissions as above plus increased emission potential due to mixing causing more exposure of liquid to the air space.	Non-condensable gases are routed to the plant VOC Control System that includes scrubbers and a boiler. When chlorinated solvents are fractionated, or the boiler temperature falls below its set point, the gases are routed to the scrubber system and then to activated carbon (instead of the on-site boilers) to remove air contaminants.
Emissions from sampling containers or bulk shipments.	a. Waste characteristics b. Number of waste shipments c. Number of containers or bulk volume in shipment (e.g., a large number of small volume wastes would have larger emissions expected than from fewer shipments of larger quantities.	Not applicable.

E3.2 LIQUEFACTION

Liquefaction is the process at Romic that liquefies sludges and other residues that remain in drums in a manner that ensures the drum is emptied and cleaned.

E3.2.1. Waste Types

All waste material processed in the liquefaction system must have sufficient heat and/or organic content. Waste types that are typically processed in the liquefaction system are paint sludges, waxes, greases, contaminated absorbent, and other RCRA sludges. Typical RCRA waste codes to be managed in these units include F001, F002, F003, F004, F005, D001, D004-D011, D018, D019, D021-D030, D032-D036, D038-D040, and D043. See Section C, Tables C-1 and C-2 for a more complete list of the RCRA and California Waste Codes that may apply to these waste streams.

E3.2.2. Storage Prior to Processing

Prior to processing in the Liquefaction Unit, waste materials will be stored within the originally received container (such as a 55-gallon drum). Such containers may meet the definition of RCRA-empty but would probably not meet the California definition of empty in 22 CCR 66261.7. The containers will be stored in authorized waste storage areas (see Section D) prior to being staged near the Liquefaction process. Wastes to be managed through liquefaction received in containers other than 55-gallon steel drums may be repackaged into 55-gallon steel drums.

E3.2.3. Processing Equipment Used

The processing equipment for Liquefaction is shown in the table below:

UNIT NAME	MAJOR COMPONENTS (vessel capacity in gallons)	LOCATION[1]	ANCILLARY EQUIPMENT
Liquefaction	Liquefaction Enclosure and Shredder (800)	Drum and Debris Processing Building	VOC system, raw material feed rollers, cyclone separator, fire suppressant system, drum de-header, pumps, and transfer hoses
	Second and Third stage Grinders	(same)	
	Tank PT-1 (1,160)	(same)	

Notes: 1. See Figure D-1 for equipment and containment area locations.

E3.2.4. Liquefaction Process Description

A process flow diagram for liquefaction is provided in Figure E-8. Figure E-8a illustrates the system and its components. Figure E-8b illustrates the air pollution control system that reduces organic emissions from the liquefaction and *debris shredder (see Section E7)* systems.

Liquefaction is an important recycling step at Romic. The process treats containers to remove sludges and other residues so that the container can meet the classification as an empty container. The containers are cleaned so that they can be reconditioned off-site or further processed on-site before being recycled as scrap metal. The recovered sludges are recycled as hazardous waste fuel after Fuel Blending.

This process liquefies sludges that originate from a variety of sources. Many drums shipped to Romic contain significant amounts of sludge, which may settle to the bottom of drums. Drums that contain sludge are typically pumped to remove free liquids. Once the free liquids are removed, the drum is moved to the liquefaction area for further waste removal and processing. The Liquefaction Unit can also handle full drums of materials that may otherwise be difficult to remove.

For open-top drums the lid is simply removed by an employee. Bung-top or closed-head drums require that the head be cut off the drum by an employee using non-sparking tools. Once the head is removed, the sludge is mechanically removed from the drum using an auger and/or a hydraulic scraping blade. In some instances both ends of the drum may be removed to remove sludge.

After the head of the drum is removed, it is placed into the enclosed drum cleaning system. The drum is held in place by a mechanical assembly during the automated cleaning process. Wiper blades are first inserted into the drum to scrape residues from the drum surface. The scraping is assisted by a light solvent, such as liquefaction solvent, that is recovered in certain distillation operations, such as the distillation of wastewater (see Section E4.1). After the scraping cycle, brushes are automatically placed into the drum and moved across the inner surface of the drum to clean it. The cleaning action is assisted by diesel that is injected into the drums.

During both the scraping and brushing cycles, any solids in the drum that are removed fall into the integral solids shredder assembly located beneath the drum enclosure. The shredder reduces the size of any solids until they can pass through a screen. Some of the material (solid/semi-solid) rejected by the screen is pumped to a separator and subsequently to a 55-gallon drum. The contents of this drum will be processed through liquefaction. A nitrogen purge is used to enhance safety by serving to suppress fires. The liquid and solids that pass through the coarse shredder go through a three stage grinding process to progressively reduce the particle size. After the final grinding stage, the liquid and small solids are pumped to the product tank, PT-1, which has an internal mixer. The waste solids are pumped through another grinder to further reduce particle size before being placed in a yard tanker for transfer to the Fuels Blending System. The transfer of PT-1 to the Fuels Blending System may also be by hard-piped connections.

A vapor recovery system is used to recover solvent/diesel vapors from the Liquefaction Enclosure and shredder/grinder equipment. This system is discussed further in Section E3.2.7. The system includes a condenser, diesel scrubber, and activated carbon.

An emulsifying agent may be added to Tank PT-1 to help maintain the solids in suspension. After thorough mixing, the liquid in the Tank PT-1 is sent to the Fuel Blending process (see Section E3.1). A tanker truck, preferably one equipped with internal agitation, is parked in the area south of the Liquefaction unit. Employees connect a flexible hose between the tanker and a fitting that is piped to the Liquefaction Product Tank (PT-1). The tanker is then grounded, and any static differential allowed to dissipate. The automated nitorgen purge cycle on the Liquefaction process is initiated, inerting the atmosphere within the tanker. Liquefied fuels are pumped from PT-1 to the tanker truck by a pump that activates, either automatically or manually, when the contents in PT-1 reach a preset level. Romic plans to install fixed storage and blending tanks in close proximity to the process system (Tanks A-6, A-7, N, O, and R-90 in Tank Farm E; see Section D). Until these tanks are constructed and authorized for use, Romic will continue to use tanker trucks to transfer material from the Liquefaction process to fuel blending tanks elsewhere in the facility. Alternately, Romic may elect to install hard piping and pumps to transfer material to existing fuel blending tanks.

E3.2.5. Management of Residuals

The Liquefaction Process generates some residual materials as described above. These waste residuals and their usual disposition are:

- **Empty Clean Drums** – Drums exiting the Liquefaction Process are now empty in accordance with Federal and California regulations and are excluded from further hazardous waste regulation. They are sent for reconditioning (if the drum is in good condition) or scrap metal recovery.

- **Liquefied Sludge/Solids –** Liquefied sludge/solids is recycled for fuel value through use of the on-site Fuels Blending system, which produces a hazardous waste fuel that is shipped off-site for combustion by cement kilns or other licensed boilers or industrial furnaces.

- **Diesel –**Diesel from the Liquefaction vapor recovery system is recycled for fuel value through the on-site Fuels Blending process.

- **Activated Carbon –** Activated carbon from the vapor recovery system will be either sent off-site for recycling or managed on-site in a DTSC authorized waste management unit.

E3.2.6. Process Rate

The maximum treatment capacity of the Liquefaction System is 400 drums/day.

E3.2.7. Air Emissions and Controls

E3.2.7.1. Regulatory Applicability

The tanks associated with the liquefaction process are subject to the requirements of Article 28.5 (of Chapter 14 of Title 22 of the California Code of Regulations). As such they are equipped with appropriate controls (see Section O). These tanks manage hazardous wastes below the vapor pressure levels specified in § 66264.1084(b)(1)(A). These tanks are vented through a closed-vent system to a control device that includes a venturi scrubber, nitrogen-cooled condenser, and two carbon canisters. These tanks are maintained closed except when adding or removing waste.

E3.2.7.2. Air Emission Quantification

Air emissions were estimated by Environ for use in the HRA document. Emissions from Liquefaction occur from evaporative losses of the liquefaction solvent. Although most of the fugitive emissions are captured some are emitted as fugitive vapor emissions. The captured emissions pass through a control system consisting of a diesel scrubber, nitrogen condenser, and two carbon canisters. Condensed vapors are returned to a tank for reuse. Although the Liquefaction System normally operates for 10-hours per day, five days per week, the HRA assumed it was operating seven days per week. The emissions estimation methodology for this unit is further defined in Appendix C, Table C.18a of the HRA document prepared by Environ.

E3.2.8. Safety Measures for the Liquefaction Process

In addition to the normal systems in place to handle ignitable waste (see Section E10.6), the Romic Facility's Liquefaction System utilizes additional fire protection systems to prevent the ignition of ignitable waste. The following summarizes the protective systems used in the Liquefaction System.

E3.2.8.1. System Grounding

The Liquefaction System steel structure is bonded to the building, which, in turn, is grounded to reduce sparking potential.

E3.2.8.2. Nitrogen Purge During Operation

During the operation of the Liquefaction System, drums are placed in the dumping chamber and the oxygen content of the atmosphere within the chamber is reduced through the addition of nitrogen. The addition of nitrogen produces an atmosphere that will not support combustion if a spark were to be created during the drum emptying process. The control of the air emissions from the dumping chamber is enhanced with a venturi that creates a slight vacuum within the system. The displaced vapors and air are processed in a pollution control system described in Romic's BAAQMD Permit. In summary, the abatement equipment scrubs the vapors using a venturi type scrubber with diesel. The vapors are then chilled with condensed vapors collected and returned to the liquefaction system. Non-condensed gases are finally passed through two carbon drums in series. In addition, nitrogen is introduced into the product blend tank where the final mixing is conducted prior to discharge to a tanker.

E3.2.8.3. Nitrogen Purge During Shutdown

When the Liquefaction System is not in operation, nitrogen will be introduced into the drum-dumping chamber and the blended product tank (PT-1). The nitrogen is introduced at an approximate rate of 30 - 60 cubic feet per hour.

E3.2.8.4. Tanker Loading

Once the Liquefaction System has produced a liquefied fuel through the grinding, shredding and resuspension processes, the fuel is ready for transfer to a yard tanker truck. Prior to initiating the transfer, the truck will be purged with nitrogen to produce an inert atmosphere. The tanker truck is grounded to allow any static charges to be dissipated.

Unless the nitrogen purge process is completed, the discharge pump from the blend tank will not operate. In addition, the pump cannot be activated until the nitrogen flow switch and associated timer detects 10 minutes of flow of nitrogen. Once the nitrogen flow has been completed, the system will allow the discharge pump to be activated.

The tanker truck will be unloaded within 24 hours of the initial addition of waste to the tanker.

E4 WASTEWATER TREATMENT

About 20% to 40% of the waste received at the Romic facility is off-site industrial wastewater. In addition, Romic will treat water that results as a byproduct of other processes, such as recovery of water from water-contaminated solvents. There are two process sequences of Wastewater Treatment -- Aqueous Treatment and Biological Treatment. Aqueous Treatment removes the majority of hydrocarbon contaminants using one of the distillation methods. Distillation also removes inorganic contaminants from the water stream. The product water stream from Aqueous Treatment is called clean column water. This water is then processed in the Biological Treatment system to produce a wastewater stream that will meet permitted effluent limitations from the East Palo Alto Sanitary District.

E4.1 AQUEOUS TREATMENT

Water received or generated at the facility is divided into one of the following three Romic assigned grades based on the level of organic contamination of the water and the resulting pre-treatment processes that will be required to process it. The grades of water are:

Grade A1 – This is the water with the least amount of contamination and can be handled by a simple one step distillation process. After processing, the clean column water from Grade A1 wastewater will be directed to the Biological Treatment System. Some Grade A1 wastewater may be clean enough to not require Aqueous Treatment and it can go directly to Biological Treatment.

Grade A2 – This is wastewater that is more heavily contaminated than Grade A1 water and requires treatment in distillation columns for maximum recovery. Product clean column water is directed to the Biological Treatment system. Some water may also be generated that requires further processing.

Grade A3 - This is water that is most heavily contaminated and requires a multi-step process to produce clean column water that can be processed in the Biological Treatment System. Other wastewater streams may also be generated that require further processing.

E4.1.1. Waste Types

The facility may process any wastewater material listed in the facility's Part A permit application, if the waste meets the specifications required for the system. The materials managed typically may have an organic concentration of 30% or more. Typical RCRA waste codes to be managed in these units include F001, F002, F003, F004, F005, D001, and D004-D011. See Section C, Tables C-1 and C-2 for a more complete list of the RCRA and California Waste Codes that may apply to these waste streams. Some wastewater, especially Grade A1, may be classified as non-hazardous.

The Romic laboratory will assign a disposition code to wastewater based on laboratory analyses or based on waste profiling.

E4.1.2. Storage Prior to Processing

Prior to being processed, wastewater may be stored in one or more of the tanks shown in Table E-1. These are the primary waste storage tanks for organic and aqueous wastes. The capacity, design features, and certification status of all storage tanks are discussed in Section D3.

The tanks shown in Table E-1 are not dedicated for storage of untreated wastewater. They may store organic wastes prior to other recycling techniques or any other waste or non-waste materials (such as products) that are compatible with the use of these tanks. The hazardous waste storage tanks are certified in accordance with Article 10, Chapter 14 of Title 22 of the California Code of Regulations.

E4.1.3. Processing Equipment Used

The processing equipment used for Aqueous Treatment consists of distillation equipment. This equipment is fully described in the solvent recycling process discussion in Section E1. The equipment used varies depending on the grades of water as discussed below.

E4.1.3.1. Grade A1 Water

Grade A1 water can be processed using any of the following pieces of equipment:

- Column 24 (C24)
- Column 32 (C32)
- Column 35 (C35)
- Column 36 (C36)
- Column 37 (C37)
- Column 42 (C42)
- Column 43 (C43)
- Column 48 (C48)
- Column 49 (C49)
- *Column 34 (C34) (planned)*
- Vac Pot 24
- Vac Pot 25
- Thin Film Evaporator TFE #1
- Thin Film Evaporator TFE #2
- Thin Film Evaporator TFE #3
- *Thin Film Evaporator TFE #4 (planned)*

When processing Grade A1 water, the above equipment will be operated similarly as it is for solvent waste streams. Refer to Section E1.

E4.1.3.2. Grade A2 Water

Grade A2 water can be processed using the following pieces of equipment:

- Column 24 (C24)
- Column 32 (C32)
- Column 35 (C35)

- Column 36 (C36)
- Column 37 (C37)
- Column 42 (C42)
- Column 43 (C43)
- Column 48 (C48)
- Column 49 (C49)
- *Column 34 (C34) (planned)*

In addition, it may be necessary to use one of the following units:

- Thin Film Evaporator TFE #1
- Thin Film Evaporator TFE #2
- Thin Film Evaporator TFE #3
- *Thin Film Evaporator TFE #4 (proposed)*
- Vac Pot 24
- Vac Pot 25

When processing Grade A2 water, the above equipment will be operated similarly as it is for solvent waste streams. Refer to Section E1.

E4.1.3.3. Grade A3 Water

Grade A3 water can be processed using the following pieces of equipment:

First Stage

- Thin Film Evaporator TFE #1
- Thin Film Evaporator TFE #2
- Thin Film Evaporator TFE #3
- *Thin Film Evaporator TFE #4 (planned)*

Second Stage

- Column 24 (C24)
- Column 32 (C32)
- Column 35 (C35)
- Column 36 (C36)
- Column 37 (C37)
- Column 42 (C42)
- Column 43 (C43)
- Column 48 (C48)
- Column 49 (C49)
- *Column 34 (C34) (planned)*

When processing Grade A3 water, the above equipment will be operated similarly as it is for solvent waste streams. Refer to Section E1.

E4.1.4. Process Description

E4.1.4.1. Waste Receiving

The waste receiving processes are the same for all grades of water received for Aqueous Treatment. Wastewater will arrive at the facility either in DOT-compliant containers (such as 55-gallon drums or larger tote-bins) or in bulk by tanker trucks. Drums are temporarily stored in the receiving and sampling area where they are sampled and analyzed by the on-site lab as described in the Waste Characteristics Section (Section C). Samples are also collected from each tanker truck as it arrives at the facility. After review of tanker truck or containers analytical results, the laboratory assigns a disposition code to the waste stream, which is the Grade of the water (A1, A2, or A3). The tanker truck will transfer the waste into one of the storage tanks listed above.

If the waste was received in containers, a yard tanker will be used to empty the contents of the drums. The drums may be staged in an authorized hazardous waste container storage area prior to such time. After emptying a number of drums, the yard tanker will then transfer waste into an appropriate hazardous waste storage tank within 24 hours. Romic may also pump material from containers directly into either storage tanks or process units.

If the waste to be transferred into the storage tank or process unit is not known to be compatible with waste already in the tank or unit, a bench-scale waste compatibility test is used to verify that there are no adverse reactions from combining the waste streams (see Section C7.3.4). If this test indicates an adverse reaction, the incoming waste will be transferred into a different tank that has waste compatible with the incoming material.

Similarly, on-site generated wastewater is sampled and analyzed and assigned a disposition code. It is then pumped either directly into a storage tank (or process unit) or it is pumped from a yard tanker into a storage tank or process unit. Similar to other waste streams, a waste compatibility test may be performed to confirm that wastes are compatible.

E4.1.4.2. Grade A1 Water

The process flow diagram for Aqueous Treatment of Grade A1 water waste is shown in E-9.

Some Grade A1 water may be amenable to bypassing the distillation process and routed directly to the Biological Treatment Process. This would need to have a chemical oxygen demand (COD) measured by a commercial test kit (or equivalent methods) of about 25,000 parts per million (mg/L) or less to allow Romic to meet its wastewater discharge permit.

The Grade A1 Aqueous Treatment process begins with the heating of the wastewater in one of the distillation units identified in Section E4.1.3.1. The basic processes are identical to processing solvent in fractionators (see Section E1.1), in Vac Pots (see Section E1.2) and in Thin Film units (see Section E1.3).

As the water mixture heats, the small amount of organic materials and some water are evaporated. Organic material with some water is collected after it is condensed and is sent as high-TOC wastewater to be reprocessed in a distillation unit. When the condensed material is determined by analytical testing from the on-site laboratory to be low hydrocarbon content, it is sent as clean-column (CC) water to the Biological Treatment System. Clean column water is transferred to permitted storage tanks and subsequently to the Biological Treatment System via hard piping. Distillation residues will be transferred to permitted storage tanks via hard piping.

E4.1.4.3. Grade A2 Water

The process flow diagram for Aqueous Treatment of Grade A2 water waste is shown in Figure E-10.

Grade A2 water requires more treatment because it is contaminated with more hydrocarbons than Grade A1 water and it may include hydrocarbons that are both more volatile (evaporates at a lower temperature) and those that are less volatile than water. Because of this it may require a two-step process.

The Grade A2 Aqueous Treatment process begins with the heating of the wastewater in one of the distillation units identified in Section E4.1.3.2. (columns or vac pots). The basic processes are identical to processing solvent in fractionators (see Section E1.1) or vacuum pots (see Section E1.2). As the temperature increases when processing Grade A2 water, a light solvent may be the first to evaporate. This is condensed and runs down via hard piping into a permitted storage tank, where it is evaluated for use as liquefaction solvent to be used in the Liquefaction Process (see Section E3.2), where it serves to remove solids remaining in drums.

As the wastewater continues to heat, some water with a small amount of organic materials are evaporated together. This water is collected after it is condensed and is sent as high-TOC wastewater to permitted storage tanks for subsequent reprocessing in a distillation unit. When the condensed material is determined by analytical testing from the on-site laboratory to be low hydrocarbon content, it is stored in tanks and subsequently sent as clean-column (CC) water to the Biological Treatment System. Clean column water is transferred to permitted storage tanks and subsequently to the Biological Treatment System via hard piping.

The heavier constituents that concentrate in the reboiler (bottoms) are either sent directly to the on-site Fuel Blending process (see Section E3.1), to one of the Thin Film Evaporators, TFE #1, TFE #2, TFE #3, or *TFE #4 (proposed)* as described in Section E1.3, or to tanks for further processing. This disposition is determined based on the analytical testing performed on the waste. If the waste is sent to one of the Thin Film Units, any remaining water will be evaporated overhead. The bottoms from the Thin Film Evaporators are primarily heavier hydrocarbons and are sent to the on-site Fuel Blending System (see Section E3.1) via hard piping.

E4.1.4.4. Grade A3 Water

The process flow diagram for Aqueous Treatment of Grade A3 water waste is shown in Figure E-11.

Grade A3 water requires the most intensive treatment because it is contaminated with the highest levels of hydrocarbons than either Grade A1 or Grade A2 waters. It typically contains significant hydrocarbons that have a lower vapor pressure than water. Like Grade A2 water, it requires a multi-step treatment process.

The Grade A3 Aqueous Treatment process begins with the wastewater first being processed in one of the Thin Film Evaporators, TFE #1, TFE #2, TFE #3, or *TFE #4 (proposed)*. These are operated as described in Section E1.3. As the wastewater is heated in the TFE Units, the lower vapor pressure constituents go overhead. This includes water and light hydrocarbons. This overhead water is condensed and collected as high-TOC water and sent to a hazardous waste storage tank. Here it is combined with high-TOC water produced by Aqueous Treatment processes for Grade A1 and Grade A2 water. The bottoms from the TFE Units are typically hydrocarbon-rich and are sent for energy recovery through the on-site Fuels Blending System (see Section E3.1). The bottoms are pumped to R-91 through R-95 from the TFE units via hard piping.

A sample of the wastewater in the high-TOC water tank is taken and analyzed by the on-site laboratory. If the chemical oxygen demand is less than 25,000 ppm and metals content are consistent with the POTW discharge limits, the TFE overhead may be sent directly to a tank in the Biological Treatment Process. Otherwise, this water will be processed in one of the fractionator columns identified in the second stage equipment list in Section E4.1.3.3. The columns are used to remove further organic or metal contaminants. Column 49 is preferred for this processing because it has a heat exchanger allowing the water to be cooled to a temperature more amenable to biological or other treatment. This process occurs similarly to distillation of solvents as described in Section E1.1.

The wastewater is fed into the reboiler of the distillation column being used. As the wastewater is heated in the fractionator, the initial material to be condensed and recovered in the overhead is a light solvent. This is sent as product solvent to the holding tank to be used in the Liquefaction Process (see Section E3.2) where it is used for the removal of other solids remaining in drums.

As the mixture continues to heat, the overhead vapors, when condensed will produce wastewater with a small amount of organic material. This wastewater is collected and reprocessed as high-TOC water in a fractionator column. When the condensed material is determined by analytical testing from the on-site laboratory to have sufficiently low hydrocarbon content, it is sent as clean-column (CC) water to the Biological Treatment System. Clean column water is transferred to permitted storage tanks and subsequently to the Biological Treatment System via hard piping.

If the fractionation process produces water with small amounts of organic materials it is collected and recycled as high-TOC water back into the fractionator. Similarly, the fractionator bottoms are recycled back to the fractionator for recovery for separation of water from the hydrocarbons. Alternatively, if the chemical oxygen demand is less than 25,000 ppm and metals content are consistent with the POTW discharge limits, the column bottoms may be sent directly to a tank in the Biological Treatment Process via hard piping.

E4.1.5. Management of Residuals

Distillation of Grade A1, A2, or A3 waters generates some residual materials as described above. These waste residuals and their usual disposition are:

- **Heavy Hydrocarbons** – The heavy ends from the distillation steps (fractions less volatile than water) will be typically sent for use in Fuel Blending on-site (see Section E3.1).
- **Light Hydrocarbons** – A hydrocarbon fraction that has a vapor pressure similar to that of water, is typically transferred as a solvent for the Liquefaction Process on-site (see Section E3.2). This is sometimes called Liquefaction solvent at Romic.
- **Other Wastewater Streams -** Processing wastewater by distillation may also generate small amounts of wastewater where the contaminants are more heavily concentrated. This is commingled with other similar wastewater streams and processed as Grade A2 water or processed in the Biological Treatment System if the water meets metals and chemical oxygen demand specifications.

E4.1.6. Process Rate

The treatment of Grades A1, A2, or A3 wastewater will be similar to the rates on the same pieces of equipment used to process solvents (see Section E1). Processing Grade A2 or A3 water will be slower due the staged processing that occurs. Romic will limit total hazardous waste processing (fuels blending, solvent recycling, ethylene glycol recycling, and all other management methods combined) to the current permit limit of 154,512 gal per day annual average. This is consistent with the Health Risk Assessment (HRA) performed by Environ and submitted separately to DTSC.

E4.1.7. Air Emissions and Controls

E4.1.7.1. Regulatory Applicability

Process vents from the fractionators, vac pots, and thin film evaporators are subject to Article 27 (of Chapter 14 of Title 22 of the California Code of Regulations) and are vented to the plant VOC control system (see Figure E-2). See Section M (Process Vents). Some of the equipment used in the fractionators, such as pumps, valves, and flanges are also subject to regulation under Article 28 (of Chapter 14 of Title 22 of the California Code of Regulations). This involves a systematic approach to monitoring such connections in high organic service for fugitive vapor emissions and specified repair procedures. See Section N on Air Emission Standards for Equipment Leaks.

In addition the requirements of Article 28.5 (of Chapter 14 of Title 22 of the California Code of Regulations) will apply to the waste storage tanks prior to one of the distillation processes if the wastewater is a RCRA hazardous waste with 500 ppmw or more of volatile organic constituents. As described in Section O, the storage tanks have Level 1 controls, which means that they are equipped with fixed roofs that provide a continuous barrier over the entire tank surface.

The reboilers require Level 2 controls since heat is applied. As the reboiler is pressured, a check valve allows gases to be vented to the plant VOC control system (See Figure E-2).

E4.1.7.2. Air Emission Quantification

Air emissions were estimated by Environ for use in the HRA document. These emissions are based on the distillation units processing solvents. Emissions arise from the sources described in the table below. The table also identifies factors affecting emissions and methods employed to control emissions.

Emissions Source	Factors Affecting Emissions	Emissions Control
Material storage and handling of organic containing materials	a. Breathing losses occur from vapor loss during changes in temperature or atmospheric pressure. These emissions occur even if no material is pumped into or out of the tank. This is not affected by throughput. b. Working losses occur when the tank is emptied creating a larger vapor space above the liquid, then more liquid is pumped into the tank displacing vapors. The greater number of tanks that are turned over, the greater the emissions. In general tank turnovers are related to plant throughput.	Conservation vents are used to minimize ambient emissions.
Emissions from processing equipment (non-condensable gases and fugitive losses)	a. Waste characteristics b. Processing conditions c. Processing rates	Non-condensable gases are routed to the plant VOC Control System that includes scrubbers and a boiler. When chlorinated solvents are processed, or the boiler temperature falls below its set point, the gases are routed to the scrubber system and then to activated carbon (instead of the on-site boilers) to remove air contaminants.
Emissions from sampling containers or bulk shipments.	a. Waste characteristics b. Number of waste shipments c. Number of containers or bulk volume in shipment (e.g., a large number of small volume wastes would have larger emissions expected than from fewer shipments of larger quantities.	Not applicable.

E4.2 BIOLOGICAL TREATMENT

Wastewater generated from other on-site processes such as Aqueous Treatment of Grade A1, A2, or A3 waters, handling of first-flush of non-hazardous storm water, or non-hazardous wastewater received from off-site are processed in the Biological Treatment system. This system can handle waters with a chemical oxygen demand (COD) over 25,000 ppm and can treat them to POTW discharge conditions.

The Biological Treatment System includes a number of different process steps: filtration, aerobic biological treatment, carbon adsorption, ion exchange, flocculation, clarification, sand filtering, and ultraviolet (UV) oxidation. Not all treatment methods may be needed for each batch of water processed. All wastewater is sampled and analyzed in accordance with Romic's POTW permit before processing. As is common in Wastewater Treatment, the water is also subjected to treatability testing prior to processing. During the treatment process, the wastewater is subject to bench-scale testing that approximates the level of treatment required to meet local POTW discharge parameters or for in-plant process reuse.

E4.2.1. Waste Types

The facility may process any wastewater material listed in the facility's Part A permit application. The materials managed may have an organic concentration of up to about 5,000 ppm of volatile organic compounds. Typical RCRA waste codes to be managed in these units include F001, F002, F003, F004, F005, D001, and D004-D011. See Section C, Tables C-1 and C-2 for a complete list of the RCRA and California Waste Codes that may apply to these waste streams. Water processed by Biological Treatment may also be non-hazardous.

Some miscellaneous sources of wastewater are: laboratory sump water, truck wash water and the first flush of storm water.

The Biological Treatment system cannot handle waste streams with metal concentrations that are substantially above the discharge limits. Wastewaters that are contaminated with significant amount of metals must be first processed in other on-site treatment processes.

E4.2.2. Storage Prior to Processing

Prior to being processed in the Biological Treatment System, low TOC wastewater (less than 25,000 ppm chemical oxygen demand) may be stored in any of the tanks listed in Table E-1.

E4.2.3. Processing Equipment Used

The table below shows the processing equipment used for biological treatment of wastewater.

Equipment Used for Biological Wastewater Treatment

UNIT NAME	MAJOR COMPONENTS (vessel capacity in gallons)	LOCATION[1]	ANCILLARY EQUIPMENT
Bio Treatment System	T-13 Equalization Tank (26,630)	Tank Farm K	VOC System (carbon beds), overflow tank (2), Nutrient mix tank, level indicator and discharge pumps for each tank
	B-2 Feed Tank (26,630)	(Same)	
	B-3 Aerator (27,158)	(Same)	Air Blower (one for each)

UNIT NAME	MAJOR COMPONENTS (vessel capacity in gallons)	LOCATION[1]	ANCILLARY EQUIPMENT
	B-3A Aerator (27,158)	(Same)	
	B-4 Bio Reactor (17,440)	(Same)	
	B-4A Reactor (17,440)	(Same)	
	B-6 Clarifier (9,305)	(Same)	Mixer (one for each), pumps (2)
	B-6A Clarifier (9,305)	(Same)	
	B-5 Holding Tank for low-TOC water (5,875)	(Same)	Discharge pump
	B-7 Bio Sludge Holding Tank (5,875)	(Same)	Level indicator and tote tank pump
	Sand Filters SF-1/SF-2 (475)	(Same)	Level indicators, cyclone separators
	B-8 Clean Effluent Discharge Holding Tank (375)	(Same)	Level control and discharge pump
Carbon Adsorption	Carbon Adsorption Beds [up to two] (414)	South of Tank Farm K	Containment pan, hose/pipe draining to Tank Farm K
Ion Exchange	Ion Exchange Beds [optional, up to two] (320)	South of Tank Farm K	Containment pan, hose/pipe draining to Tank Farm K
Ultra Violet Oxidation Unit	UV Oxidation	Adjacent to Tank Farm K	Electrical and control system

Notes: 1. See Figure D-1 for equipment and containment area locations.

All of the major components listed in the table above are tank-like vessels except for the carbon beds, the ion exchange beds, and the UV Oxidation Unit. The components grouped under the unit name, "Bio Treatment System" are all located within Tank Farm K. The carbon adsorption and ion exchange beds are mounted on containment pans that drain by gravity into the Tank Farm K containment structure. The UV Oxidation unit consists of two reactor vessels that operate in parallel or in series (see Appendix E-1 for information on the unit). The two vessels and their associated control panels are mounted on a steel containment pan to contain any leaks or releases that may occur. The containment pan is equipped with an automatic sump pump that returns any released water to the Tank Farm K containment structure. The system is protected from precipitation by a roof and walls.

E4.2.4. Process Description

The process flow diagram for Biological Treatment of wastewater is shown in Figure E-12.

The Biological Treatment System will use any and/or all of the treatment processes described below to treat low total organic carbon content wastewater streams. All wastewater processed in the Biological Treatment System is sampled and analyzed for treatability prior to processing, in accordance with Romic's POTW permit. During the treatment process, the wastewater is subject to bench-scale testing that approximates the level of treatment required to meet local POTW discharge parameters or for in-plant process reuse.

Wastewater enters the system at Tank T-13. In addition to clean-column waters recovered by distillation and non-hazardous water from off-site sources, clean water from boiler blowdown will also be sent to Tank T-13. Samples are collected from the water in this tank and analyzed to determine the processing required to meet effluent discharge limitations. Tank T-13 permits equalization of wastewater streams prior to transfer to tank B-2, which serves to provide additional equalization (Equalization allows a more homogenous mixture to be fed to the downstream treatment equipment and at a more controlled rate). Analytical data is taken of the wastewater in T-13 holding tank before transfer to the B-2 feed tank. The biological oxidation process is typically initiated here by charging the wastewater with nutrients (e.g., diammonium phosphate) to assist the micro-organisms. If the pH of the water is too high or too low, it is adjusted as necessary.

The microbes also need oxygen to digest wastewater contaminants. After transfer from Tank B-2, the wastewater is treated using activated carbon adsorption and/or ion exchange to remove excess mercury, if needed, so that the final effluent will meet discharge standards. The stream may also be treated using ultraviolet light oxidation (see below) at this stage. It then enters a parallel process train. Nonhazardous wastewaters may also be introduced at this stage, or to tank B-5. The first tanks are the aeration tanks, B-3 and B-3A. Here, blowers inject air into the bottom of the wastewater tank to increase the dissolved oxygen content of the water. The aeration process also collects some solids that are transferred to tank B-7. Steam can also be added to the aeration tanks to control the temperature to an optimal range for the microbial degradation.

The wastewater then flows by gravity into biological reactors B-4 and B-4A. These vessels also have air injected into them by blowers to replace that digested by the microbes. Additional microbial degradation of wastewater contaminants occurs here. Additional nutrients can be added to the biological reactors as needed to maintain biological activity levels. The microbes break down the organic contaminants into carbon dioxide and water. Some solids (primarily biomass) are also generated as a byproduct.

The sludge is settled out and skimmed off in clarifiers (vessels B6 and B6A). The sludge is then recycled back to the bioreactor where it is used as supplemental nutrient for the microbes. To remove additional solids from the wastewater, it is sent to one of the two sand filter units (SF-1 and SF-2) that operate in parallel. The two sand filters then discharge into the common B-8 Tank. Samples of the treated wastewater are analyzed. Wastewater that exceeds discharge parameters can be recirculated through the Biological Treatment System until discharge parameters are met.

The effluent from the Biological Treatment system undergoes polishing treatment via ultraviolet light oxidation. This destroys n-nitrosodimethylamine (NDMA), a contaminant with a sewer discharge limit of 750 mg/l, in the wastewater. The UV oxidation system generates powerful oxidants or hydroxyl radicals in the presence of ultraviolet light. These then initiate decomposition reactions in the NDMA. A P&ID of the UV oxidation system is included as Figure E-12a.

The treated wastewater may be reused on-site and/or placed in sewer discharge tanks R-1A, R-1B, or R-1C. Samples are collected from the wastewater in these vessels to analyze for effluent parameters prior to sewer discharge. If the wastewater does not meet sewer discharge limits, the water may be returned to some portion of the process for additional treatment.

E4.2.5. Management of Residuals

The Biological Treatment System generates no residuals requiring treatment in other processes or shipment offsite. Solids (excess biomass) removed from the process system at B-7 are recirculated back into the process or discharged to sewer.

E4.2.6. Process Rate

The Biological Treatment System is designed to manage 3,000 pounds of COD per day. Therefore, if the average concentration of hydrocarbons is 10,000 ppm COD, the system can treat about 36,000 gallons of water per day. However, other factors may further limit the wastewater processed, especially the ability to distill Grade A1, A2, or A3 water. Romic will limit total hazardous waste processing (fuels blending, solvent recycling, ethylene glycol recycling, and all other management methods combined) to the current permit limit of 154,512 gal per day annual average. This is consistent with the Health Risk Assessment (HRA) performed by Environ and submitted separately to DTSC.

E4.2.7. Air Emissions and Controls

E4.2.7.1. Regulatory Applicability

Tanks T-13 and B-2 may handle hazardous wastes with volatile organic concentrations of 500 ppmw or greater and are therefore subject to Article 28.5 controls. Tanks T-13 and B-2 are vented to activated carbon beds.

E4.2.7.2. Air Emission Quantification

In preparing the HRA document, Environ estimated emissions from the open top tanks in the Biological Treatment System. This includes tanks after the T-13 and B-2 tanks. These two are vented to activated carbon drums. According to Environ's estimates, the emissions will vary with organic concentrations above the wastewater and wind speed.

E5 INORGANIC WASTE TREATMENT

This section describes two sets of processes used at Romic: 1). the existing waste neutralization system and 2). *a proposed inorganic waste treatment system.* The waste neutralization system is used to adjust high or low pH aqueous wastes so that they can be processed in the on-site Wastewater Treatment system. *Although the new inorganic treatment system will also include pH adjustment, it will also include equipment for removing dissolved and suspended metals and salts from the waste streams.*

E5.1 NEUTRALIZATION SYSTEM

This section describes the existing neutralization process including a discussion of waste types, equipment used, processing rates, management of waste residuals, and air emissions/controls.

E5.1.1. Waste Types

The existing neutralization system can process spent acidic or caustic solutions that are aqueous and have little or no organic contamination. Waste types include acids and alkaline materials that may contain low concentrations of RCRA- or California-regulated heavy metals. Waste limitations are: maximum organic concentrations of 1%; maximum volatile organic compounds less than 500 ppmw; maximum alkaline concentration of 50%; and maximum acid concentration of 30%. These waste streams may carry EPA Waste Codes D002, D004-D011 See Section C, Tables C-1 and C-2 for a complete list of the RCRA and California Waste Codes that may apply to these waste streams.

E5.1.2. Storage Prior to Processing

The wastes are typically received in 55-gallon plastic or lined-metal drums or corrosion resistant tote bins. Bulk wastes, if received, will be off-loaded to portable plastic tanks (considered containers since they can be moved when in use).

These acidic or alkaline wastes may be stored in a regulated tank in the Facility if the tank is compatible with the waste.

E5.1.3. Processing Equipment Used

The processing equipment used for the Neutralization Process is shown in the table below. This equipment is specialized and is not utilized for any purpose other than pH adjustment.

Equipment Used for Neutralization

VESSEL NAME	LOCATION[1]	DESCRIPTION	ANCILLARY EQUIPMENT
NT-1	Tank Farm J	580-gallon carbon steel cylindrical vessel with a rubber liner.	pH sensor, control and alarm, pump, heat exchanger (for cooling), piping
NT-2	(Same)	580-gallon carbon steel cylindrical vessel with a rubber liner.	pH sensor, control and alarm, piping
NT-3	(Same)	580-gallon carbon steel cylindrical vessel with a rubber liner.	piping, acid gas scrubber

Notes: 1. See Figure D-1 for equipment and containment area locations.

All of the process tanks, NT-1, NT-2, and NT-3, are certified in accordance with Article 10, Chapter 14 of Title 22 of the California Code of Regulations. (See Section D3).

E5.1.4. Process Description

The process flow diagram for the Neutralization Process is shown in Figure E-13.

Acidic and alkaline waste streams are neutralized in this three-tank system. The waste material is analyzed prior to treatment to ensure its characteristics are within the processing capabilities of the system. Although acids and bases are considered to be generally incompatible, the equipment and controls are designed to perform this action safely in a controlled manner.

Corrosive waste materials are pumped from drums, totes, or portable tanks into Tank NT-1. The waste will be recirculated back into the tank, and will pass through a heat exchanger. During this process, waste or virgin chemical will be automatically fed by a metering pump based on the pH meter reading that is connected to the pH controller. If a waste acid is being neutralized, virgin alkaline material (for example sodium hydroxide or similar material) or waste alkaline material will be used to neutralize the acidic wastes. Similarly, if waste alkaline material is to be neutralized, virgin acid or waste acid can be used. The waste in NT-1 is normally adjusted to a pH of 2 or greater when acidic wastes are processed, and less than about 12 when alkaline wastes are processed. As more waste material is added into NT-1, the waste material will flow by gravity to Tank NT-2. This tank has an independent pH meter and control system and will feed treatment chemical to further adjust the pH to near neutral (pH of 7). Ferrous sulfate can also be added if required to initiate precipitation of any suspended solids in the waste. After the ferrous sulfate is added (if used), the waste then drains by gravity to Tank NT-3. If additional treatment is necessary, additional treatment chemicals can be manually added to NT-3 or the waste can be drained into a container, tote bin, or portable tank for processing starting back in vessel NT-1. Treated waste in NT-3 will be transferred to any storage tank listed in Table E-1 prior to processing in the Wastewater Treatment System. The transfer operation will occur through use of a yard tanker or through pumping. Since the pH of the waste is now near neutral, the wastewater would be compatible with the unlined metal tanks in the Wastewater Treatment System or in storage tanks.

Tanks NT-1, NT-2, and NT-3 are all vented to a caustic scrubber system located on the neutralization skid. There is a knockout pot, S-1 to collect any entrained liquids. Liquids that collect in S-1 are circulated back to NT-1. Vapor is routed to a venturi nozzle on vessel S-2 where a recirculating sodium hydroxide solution will neutralize any acid vapors that may be present.

Salts generated from the neutralization system removed from NT-1, NT-2, or NT-3 are consolidated in storage tanks (any of the tanks listed in Table E-1) or containers and managed with other similar wastes for on-site treatment or off-site disposal.

E5.1.5. Management of Residuals

Neutralization of aqueous waste streams will generate some residual materials as described above. These waste residuals and their usual disposition are:

- **Dissolved Solids** – Dissolved solids may be generated by the neutralization reactions. For example, adding lime to hydrochloric acid would produce the salt calcium chloride that has a fairly high solubility in water. Dissolved solids would carry through the Wastewater Treatment system and would be discharged under permit.

- **Suspended Solids** – Suspended solids may also be generated by the neutralization reactions. Suspended solids may occur from the small amounts of metals in the waste stream or from production of insoluble salts from the neutralization reaction. Suspended solids would settle in the bottom of Tanks NT-1, NT-2, or NT-3. From here they are removed by opening a bottom drain valve and collecting the waste in a container. The solids and water are consolidated in storage tanks or containers and managed with other similar wastes for on-site treatment or off-site disposal.

- **Spent Caustic Scrubber Solution** – The caustic scrubber solution will be reduced in alkaline strength over time (i.e. the pH will lower and start approaching neutral). This spent solution would then be removed and either processed in the Neutralization System or sent directly to the Wastewater Treatment system if it is within the feed specifications for the Biological Treatment System. Collected liquids in the knockout pot would be handled in the same way.

E5.1.6. Process Rate

The processing rate for this system is 10 gpm. Romic will limit total hazardous waste processing (fuels blending, solvent recycling, ethylene glycol recycling, and all other management methods combined) to the current permit limit of 154,512 gal per day annual average. This is consistent with the Health Risk Assessment (HRA) performed by Environ and submitted separately to DTSC.

E5.1.7. Air Emissions and Controls

E5.1.7.1. Regulatory Applicability

The waste processed in this system is inorganic in nature and contains less than an average of 500 ppmw of volatile organic compounds. Therefore, no Article 28.5 (of Chapter 14 of Title 22 of the California Code of Regulations) controls are required for the system. However, the process vessels are enclosed tanks.

E5.1.7.2. Air Emission Quantification

In preparation of the HRA document, Environ considered air emissions from these units. These emissions are negligible because of low treatment rates and the very low organic content of the wastes.

E5.2 INORGANIC TREATMENT (Planned)

This section describes the planned inorganic waste treatment system. This unit includes the ability to neutralize aqueous waste streams like the existing Neutralization System*, however it also includes the capabilities to precipitate and remove metals and to handle higher concentrations of acidic and alkaline components. This section describes the proposed process including a discussion of waste types, equipment used, processing rates, management of waste residuals, and air emissions/controls.*

E5.2.1. Waste Types

The planned inorganic treatment system can process spent acidic or caustic solutions that are aqueous and that may contain RCRA- or California-regulated metals. Similar to the wastes processed by the existing Neutralization System, *the waste streams will have little or no organic contamination. Waste* *types such as spent aqueous cleaners include acids and alkaline materials that may contain regulated metals. Organic concentrations should be less than 10% with total volatile organic compounds less than 500 ppmw. These waste streams may carry EPA Waste Codes D002 and D004-D011. See Section C, Tables C-1 and C-2 for a complete list of the RCRA and California Waste Codes that may apply to these waste streams.*

E5.2.2. Storage Prior to Processing

Prior to being processed, wastewater may be stored in the tanks shown in the table below. There are tanks for acidic wastes streams and separate tanks for alkaline waste streams. The capacity, design features, and certification status of all storage tanks are discussed in Section D3. The tanks shown in the table below will primarily be dedicated for storage of inorganic waste streams to be processed in this system. The designs of the storage tanks shown below have been certified in accordance with Article 10, Chapter 14 of Title 22 of the California Code of Regulations. The certification package for the storage tanks to be added for Inorganic Treatment is included in Appendix 8. A post-installation integrity assessment will also be performed in accordance with the Tank Standards and the documentation retained.

Tanks Used for Storage of Aqueous Inorganic Waste Streams

PRIMARY TYPE OF WASTE	***SECONDARY CONTAINMENT LOCATION[1]***	***TANK NUMBER(S)***
Acidic	*Tank Farm T*	*106, 107, 108, 109*
Alkaline	*Tank Farm S*	*78, 80*
Non-corrosive aqueous wastes	Any tank in Table E-1 unless there are specific tank or waste limitations.	

Notes: 1. See Figure D-1 for equipment and containment area locations.

The acid tanks are cross-linked high-density polyethylene (HDPE). The tanks are 10 feet in diameter, 14.5 feet high and each can hold 8,500 gallons. Cross-linked HDPE is a suitable material for storing waste acids at ambient temperatures. Tanks 106 through 109 may also be used to store alkaline wastes because HDPE is also compatible with alkaline materials. At any given time, all the tanks in the tank farm will be in the same service (acid or alkaline) or empty. When the material type contained in these tanks is changed from acid to alkaline or alkaline to acid, all tanks will be properly cleaned before the change.

The alkaline storage tanks in Tank Farm S are Series 316L stainless steel and are 10 feet in diameter and 26 feet long with cone bottoms and can each hold 12,000 gallons. 316L stainless steel is compatible with alkaline waste streams.

Tank Farm T is located in a building and is the old maintenance shop area. This containment area is concrete coated with an epoxy coating that is acid resistant. Tank Farm T is separated from the process area by an intermediate wall.

Tank Farm S will be a newly constructed tank farm located south of the Drum and Debris Processing Building. The walls between Tank Farm S and Tank Farm T are separated by several feet buffer space.

E5.2.3. Processing Equipment Used

The processing equipment used for the Inorganic Treatment Process is shown in the table below. This equipment is specialized and is not utilized for other purposes other than Inorganic Treatment. The certification package for the processing equipment to be added for Inorganic Treatment is included in Appendix 8.

Equipment Used for Inorganic Treatment

VESSEL NAME	*LOCATION[1]*	*DESCRIPTION*	*ANCILLARY EQUIPMENT*
A2, A-3, A-4, and A-5	*Tank Farm F*	*12,000 gallon rubber-lined vessel wit internal cooling coil (with cooling tower water)*	*pH sensor, control and alarm, mixer, indicators and/or controls (for pressure, temperature, and level), chemical injection (sodium hydroxide, sulfuric acid, reducing agent), caustic scrubber, piping, pump*
79 and 82	*Tank Farm S*	*12,000 gallon 316L stainless steel with cone bottom*	*mixer, level indicator/control, piping, pump*
Filter Press	*Tank Farm F*	*100 cubic feet*	*Collection bins*
Chemical Feed System	*Tank Farm F*	*Will be specified at time of construction*	*Metering pumps, small-volume chemical storage drums/tanks*
Acid Fume Scrubber	*Outside of treatment area*	*Will be specified at time of construction in concert with Bay Area Air Quality Management District permit process*	*Pumps and controls*
Baghouse	*Outside of treatment area*	*Will be specified at time of construction in concert with Bay Area Air Quality Management District permit process*	*Solids collection system.*
Roll-Off Bin	*Tank Farm F*	*20 cubic yard metal box*	*Pozzolanic material storage, mixing device*

Notes: 1. See Figure D-1 for equipment and containment area locations.

The design of the process tanks, A-2 through A-5, and Tanks 79 and 82 have been certified in accordance with Article 10, Chapter 14 of Title 22 of the California Code of Regulations. A post-installation integrity assessment will be performed in accordance with the Tank Standards.

E5.2.4. Process Description

The process flow diagram for the Inorganic Treatment Process is shown in Figure E-14.

Acidic and alkaline aqueous wastes will be received at the facility in drums and/or bulk. There may be a variety of different types of materials. The wastes will be analyzed for appropriate waste analysis parameters. A bench scale test will be performed on these waste streams to determine a recipe for treatment. The general chemical processes that will be used in this system are discussed below.

E5.2.4.1. Chemical Precipitation

Chemical precipitation is typically applied to metal-containing wastes to chemically convert chemicals such as metal compounds from a soluble to an insoluble form. The insoluble precipitate is then removed through settling, decanting, and filtration. This process is aided by flocculation. The term chemical precipitation refers to the primary step of forming a chemical precipitate as well as the follow-up operations that separate the solid precipitate from the liquid.

Most precipitation reactions involve a hydroxide compound. The general process chemistry for hydroxide precipitation used at the facility for metal precipitation is as follows:

$M^{n+} + n\,OH^- \rightarrow M(OH)_n$ *(precipitate),*

where M represents metal species such as iron, lead, chromium, etc.

Some of the precipitating agents that could be used include: sodium hydroxide, calcium hydroxide, magnesium hydroxide, and magnesium oxide. For example:

$Cu^{2+} + 2NaOH \rightarrow 2Na^+ + Cu(OH)_2$ *(precipitate)*

$Cu^{2+} + Ca(OH)_2 \rightarrow Ca^{2+} + Cu(OH)_2$ *(precipitate)*

$Cu^{2+} + Mg(OH)_2 \rightarrow Mg^{2+} + Cu(OH)_2$ *(precipitate)*

$Cu^{2+} + MgO + H_2O \rightarrow Mg^{2+} + Cu(OH)_2$ *(precipitate)*

Other chemicals may be used based on the particular constituents of the waste stream being treated. For example, fluoride salts may be precipitated with calcium hydroxide or other calcium compounds.

E5.2.4.2. Chemical Reduction

Chemical reduction is a planned process that may be used at the facility for converting chemicals such as hexavalent chromium (Cr^{+6}) to trivalent chromium (Cr^{+3}) by addition of a reducing agent. The primary reducing agents used are sodium bisulfite ($NaHSO_3$) or sodium metabisulfite ($Na_2S_2O_5$). Sodium *borohydride, sulfur dioxide, ferrous sulfate, and sodium thiosulfate are other reducing agents that may also be used.*

Chemical reduction will be used to destroy strong oxidizing materials such as chlorates, perchlorates, persulfates, inorganic and organic peroxides, nitrates and hypochlorites.

Sodium bisulfite reacts with water to form sulfurous acid (H_2SO_3):

$$NaHSO_3 + H_2O \rightarrow H_2SO_3 + NaOH$$

The sulfurous acid reduces chromium (Cr^{+6}):

$$2H_2CrO_4 + 3H_2SO_3 \rightarrow Cr_2(SO_4)_3 + 5H_2O$$

The theoretical amount of sulfurous acid required to reduce a given amount of chromium can be calculated from this equation. The optimum efficiency of chromium reduction occurs at a pH of 2 to 3 with agitation of the mixture. Chromium (Cr^{+3}) has a low solubility at a high pH, and can be precipitated as chromic hydroxide by the addition of sodium hydroxide or calcium hydroxide (lime).

E5.2.4.3. Chemical Oxidation

Chemical oxidation occurs when a substance loses electrons (is oxidized) by action of an oxidizing agent that gains electrons (is reduced). Oxidation and reduction reactions always occur simultaneously. Oxidation is useful in breaking down chelating agents, emulsions and other materials. Heat may be used to augment the oxidation process. The facility will use a variety of agents to carry out chemical oxidation.

E5.2.4.4. Processing Methods

Acids will be carefully combined with alkaline materials in treatment tanks and neutralized. A chemical addition system will provide the necessary treatment chemicals, on a case-by case basis, for the precipitation of heavy metals and/or oxidation/reduction of other waste materials. This reaction is monitored by pH and/or oxidation/reduction potential (ORP) probes. Vessels A-3 and A-5 are equipped with cooling coils to remove heat from exothermic reactions. There is also a caustic scrubber system that can neutralize acidic gases that may evolve from this process. When the treatment process is complete the precipitation sludge and water products will be transferred to a settling tank. Water that separates from the sludge will be transferred directly to a second settling tank while the precipitated sludges will be sent to a filter press where water will be removed to concentrate the solids.

The filter press has an assembly of alternating solid plates and hollow frames. The solid plates have flow channels and are covered by a fabric filter medium on both sides. These plates and frames alternate and hang vertically to make a long horizontal assembly.

The wet metal precipitate (sludge) is fed into one end of the filter press. The wet material will start to coat the filter media as it progresses via drainage channels through the filter plates. During the initial stage, the liquid filtrate is returned to the settling tanks. After the pre-coat is complete, the water becomes clear. This water is collected in a tank first or pumped directly to a storage tank. This water can be *processed further in the facility Wastewater Treatment system, sent off-site for disposal, or re-used on-site (for example as cooling tower water supply to replace evaporated water). It may be also possible to discharge this water directly to the POTW after appropriate testing.*

As soon as the filter press is completely filled or has processed the target inventory of waste, the filter press is opened to create a gap between plates. An employee wearing appropriate personal protective equipment will then scrape the solids (called filter cake) into a collection tray for transfer into a roll-off box or depending on the final design of the filter press, it will discharge directly to the roll-off bin. An automated process may also be used to remove the filter cake from the filter plates.

Filter cake from the filter press can be sent directly off-site to a landfill or to a metals reclamation facility. Filter cake may require stabilization prior to landfill if it contains RCRA metals that must meet Land Disposal Restrictions or site-specific disposal facility limitations. Stabilization will occur by the addition of pozzolanic material, such as cement kiln dust (CKD) or similar pozzolanic material. The pozzolanic material may be added directly to the roll-off box containing filter cake and be stabilized in place. This usually requires the use of a backhoe, auger, or similar type mixing equipment. The stabilized material will then be tested to ensure land disposal restriction requirements have been met before transporting off-site for final disposal. Because of possible dust generation by this activity, the building area where this process occurs is vented to a fabric filter system (a baghouse) before the building air is released to the atmosphere. The ventilation and particulate emission control system will be designed and constructed in accordance with Cal/OSHA standards, certified industrial hygienist specifications, and BAAQMD requirements. The system will be operated and maintained in accordance with manufacturer and design specifications and relevant standards.

Romic may also intend to stabilize hazardous waste materials from off-site similarly to above that have not been processed in the Inorganic Treatment System. Filter cake sludges or other inorganic wastes from off-site will be placed into the roll-off bin and stabilized by the addition of pozzolanic material. Organic materials such as sludges may also be similarly stabilized by addition of pozzolanic materials to remove free liquids. These wastes would contain greater than 10% organics but would contain less than 500 ppmw of volatile organic constituents and would not be subject to controls specified by Article 28.5 of Chapter 14 of Title 22 of the California Code of Regulations.

Off-site inorganic wastes may also be consolidated into the roll-off bin with other wastes or treatment residuals from on-site processes. This may occur with or without stabilization. For off-site materials to be consolidated in the roll-off bin in Tank Farm T, they must be a homogenous material that can be adequately sampled as described in the Facility's Waste Analysis Plan (See Section C). Containerized waste that is not homogenous, will be consolidated using the sorting table as described in Section E6.

E5.2.5. Management of Residuals

Inorganic Treatment of aqueous waste streams will generate some residual materials as described above. These waste residuals and their usual disposition are:

- **Filter Cake** – Filter cake resulting from on-site treatment or from consolidation of off-site wastes, will be either land disposed off-site; stabilized at Romic and then land disposed off-site; or stabilized off-site prior to off-site land disposal. Any filter cake that contains recoverable metals may be sent for off-site reclamation.

- **Baghouse Dust** – Baghouse dust will be the same materials handled as the filter cake and other materials handled within the enclosed building and will be handled the same as filter cake described above.

- **Scrubber Water** - Scrubber water when discharged, will be sent for on-site treatment in the Wastewater Treatment System (See Section E4).

E5.2.6. Process Rate

The processing rate for this system is 15-20 gpm. Romic will limit total hazardous waste processing (fuels blending, solvent recycling, ethylene glycol recycling, and all other management methods combined) to the current permit limit of 154,512 gal per day annual average. This is consistent with the Health Risk Assessment (HRA) performed by Environ and submitted separately to DTSC.

E5.2.7. Air Emissions and Controls

E5.2.7.1. Regulatory Applicability

The waste processed in this system is inorganic in nature and contains less than an average of 500 ppmw of volatile organic compounds. Therefore, no Article 28.5 (of Chapter 14 of Title 22 of the California Code of Regulations) controls are required for the system.

E5.2.7.2. Air Emission Quantification

In preparation of the HRA document, Environ considered air emissions from these units and determined that they were de minimis.

E6 SOLIDS CONSOLIDATION (PLANNED)

Solids consolidation will be performed on certain containerized solid hazardous wastes for shipment off-site in bulk containers for subsequent treatment and disposal. The primary off-site treatment methods for which wastes will be consolidated are incineration, solid fuels, and land disposal.

Solids Consolidation involves sorting containers of solid hazardous waste to remove incidental liquids, non-uniform solid debris (e.g., rags and wipes) and non-conforming materials (e.g., non-empty containers, aerosol cans, etc.). The remaining materials with similar hazard characteristics are then placed into a larger container or roll-off bin to produce a bulk waste stream suitable for efficient off-site transfer and disposal. Waste materials that are homogenous and can be adequately sampled (e.g., filter cake) may be consolidated without sorting.

E6.1 WASTE TYPES

Waste streams will be identified as potential candidates for consolidation during the pre-acceptance (profiling) process. The particular waste types to be considered for consolidation are those wastes that are solid and destined for land disposal, incineration, or solid fuels. This can include solid hazardous wastes such as contaminated PPE, filters, rags, wipes, solid resins, grease, and wood. Typical waste codes to be managed in this process include D004-D011, and F001-F005. See Section C, Tables C-1 and C-2 for a complete list of the RCRA and California Waste Codes that may apply to these waste streams.

Once the wastes are received, the laboratory will also review profile information and drum sampling visual observation results to verify that candidate wastes are eligible for consolidation. If the following items are noted on the profile, the subject waste shall not be consolidated:

- *Oxidizers and oxidizing materials (e.g., peroxides, chromates, dichromates, permanganates, nitrates, nitric acid)*
- *Wastes dangerous when wet and/or water-reactives*
- *Mineral acids (greater than 10% acid)*
- *Caustic liquids*
- *Unreacted monomers, such as isocyanates*
- *Nitrocellulose*
- *Batteries with corrosive liquids*
- *Vinyl benzyl chloride*
- *Reactives/reactive constituents*
- *DOT flammable solids other than those characterized as "solids containing flammable liquids"*
- *Any self-heating materials*

The specific items listed below will be excluded from consolidation and the items accumulated in appropriate containers, while the remaining waste is consolidated as described in Section E6.4.

- *Wastes with free liquids*
- *Glass chemical containers*
- *Batteries*
- *Sharp objects*
- *Aerosol cans*
- *Lecture bottles, gas cylinders*

E6.2 STORAGE PRIOR TO PROCESSING

Prior to being consolidated, waste materials will be stored in the containers in which they were received. These containers would typically be 55-gallon drums, smaller drums, supersacks, or tri-wall boxes. The *capacity, design features, and certification status of all containment areas suitable for storage of waste to be consolidated are discussed in Section D2.*

E6.3 PROCESSING EQUIPMENT USED

The specialized processing equipment for consolidation is described below and is shown in Figure E-28.

- *Emission Control Enclosure – An enclosure located outside adjacent to the north wall of the North Storage Building in which consolidation activities will occur. The emission control enclosure will be 10 feet by 26 feet by 8.5 feet high and has been designed to ensure safe operation while capturing and controlling organic vapors in accordance with the RCRA Subpart CC requirements as described in Section E6.7. The enclosure will include make-up air supply fans in the ceiling and exhaust hoods that will be designed in accordance with American Conference of Governmental Industrial Hygienists (ACGIH) guidelines to maintain an air velocity of 150 feet per minute across the sorting table (for contaminants released at low velocity into moderately still air). The exhaust fan will be sized to provide a total airflow of about 4,800 cubic feet per minute at sufficient pressure to allow venting the air stream through two carbon beds in series.*
- *Sorting table - A table with a raised lip and/or sloped such that solid hazardous waste tends to remain on its top. The table also has a grate in the center of its top that allows the minimal amounts of incidental free liquids encountered to drain into a container placed underneath the sorting table. The table is roughly 4 feet wide by 8 feet long and three to four feet tall. The sorting table will be located within the emission control enclosure.*
- *Self-dumping hoppers - Hoppers designed to accommodate forklift forks and equipped with a self-tipping mechanism actuated by a lever.*
- *Roll-off bins - Bulk containers for the transportation of hazardous wastes. Roll-off bins are transported on specialized trailers.*
- *NESHAP Roll-off bins - Roll-off bins specially equipped with gaskets and closures to meet requirements to transport waste subject to 40 CFR Part 61 Subpart FF, the Benzene Waste Operations NESHAP.*
- *End dump trailers - Trailer designed to transport wastes. Waste is unloaded by tipping the waste-bearing portion of the trailer upward and opening the back door.*
- *Plastic sheeting or preformed bin liner*
- *Forklift with drum grabbing/dumping attachment*
- *Drums for non-consolidated materials*
- *Small knife (such as a carpet- or linoleum-cutting with curved blade approximately 3” in length)*
- *Non-sparking shovel*
- *Air impact tools with non-sparking sockets*
- *Non-sparking rake*

E6.4 PROCESS DESCRIPTION

A diagram that shows the location and arrangement of equipment for solids consolidation is provided in Figure E-15 and a layout is shown in Figure E-27.

The consolidation operation at Romic will involve either homogenous wastes such as filter cake or containerized wastes that would not be homogenous because they contain mixed debris or other materials that do not allow the container to be fully sampled. If a representative sample can be obtained from the full depth of the container, the waste material will be considered homogenous and it will be simply consolidated with other compatible materials in the bulk container without being placed on the sorting table.

Consolidation of non-homogenous solid wastes involves the removal of hazardous waste from one set of containers, sorting of that waste to address compatibility concerns and ultimate management facility requirements, and the placement of the excluded materials into other containers, and the remaining waste material into the consolidation bin. The specific details to allow this operation to be handled safely and properly are discussed below.

Prior to beginning consolidation operations, the Warehouse Supervisor or his designee will verify the proper operation of the ventilation system and Air Pollution Control Equipment. The Warehouse Supervisor or his designee will observe airflow through the enclosure. Additionally the exhaust from the control device will be monitored at least weekly while the consolidation operation is being conducted to verify the efficacy of the device.

Employees will examine the visual airflow indicator whenever entering the enclosure, and will cease their sorting activities and close all containers if the ventilation system ceases to operate during their work shift.

The Employees will stage containers adjacent to the emission control enclosure. Employees will examine the containers as they are staged, and set aside containers with any of the following and exclude them from the consolidation process:

- *Disposition codes other than those for incineration, solid fuels, or land disposal.*
- *Disposition code other than the one corresponding to the ultimate destination of the consolidated material (e.g., solid fuels material would not be processed and consolidated with waste destined for land disposal).*
- *Any DOT hazard class labels with a hazard class other than Class 4.1, 6.1, or 9*
- *Hazardous waste label with the "reactive" box checked under "hazardous properties"*

A single drum or pail will be placed under the hole in the center of the sorting table. This container will accept the minimal amount of free liquids that may be expressed from the solid waste. It will be managed as off-site waste, and labeling information will be affixed in accordance with 22 CCR 66262.34(f). Three or four additional drums will be placed adjacent to the sorting table, within the enclosure. These additional drums will be used for excluded materials (described below) that do not go into the consolidation container and are removed from the container being sorted.

Two self-dumping hoppers, each placed near/under each end of the sorting table, within the influence of the ventilation system. All non-excluded materials from the sorting operation will be placed into the self-dumping hopper that will then be dumped into the consolidation bin.

Prior to using a roll-off bin for consolidated waste destined for solid fuel or incineration, employees will verify that the bin is a NESHAP-compliant roll-off bin. Prior to dumping any waste into a roll-off bin, employees will line the bin with plastic sheeting or a prepared plastic liner. If waste is to be consolidated into tri-wall boxes or other intermediate bulk containers, those containers will be prepared in accordance with DOT requirements and manufacturer recommendations. Immediately before the first waste is dumped into a bulk container, employees will affix a Romic tracking label to the container. Romic's tracking label will include a tracking number that is linked to all of the container identification numbers that were consolidated into the container. The date of the container with the earliest acceptance date will be the date against which the one-year storage limitation is based.

Before initiating activities, employees will don PPE in accordance with Warehouse Supervisor instructions and in accordance with the site Injury and Illness Prevention Plan and other health and safety procedures. Three employees will normally participate in the operation, one operating the forklift and two sorting. One of the employees will have a two-way radio or there will be a phone readily available to them.

Employees will unbolt the lid(s) from one or two drums using an air impact wrench (or hand wrench/ratchet) with non-sparking socket. If dumping triwall boxes, employeeswill open box tops or cut the top and side of the boxes.

The employee operating the forklift will use a drum dumping attachment to pick up the drum. After the roll-up door on the north side of the consolidation enclosure is opened, the employee will carefully dump the contents from one to two drums onto the sorting table. If dumping triwall boxes, the equivalent of one to two drums will be dumped onto the sorting table. If necessary, the employees performing the sorting will use a shovel to remove material from the containers.

Employees will sort through the contents while the drum contents are on the sorting table. The employees will identify and segregate materials that should be excluded from consolidation (i.e., remove them from the sorting table and place them in other containers for appropriate disposal). Employees must be sure that no unacceptable materials are hidden from view. For example, any wrapped bundle must be unwrapped or cut open using a knife, and the interior of the bundle examined.

Items to be excluded will be removed from the sorting table and not placed into the roll-off bins. These items are:

- *Free liquids*
- *Intact glass chemical bottles*
- *Broken glass chemical bottles*
- *Sharp objects (e.g., needles, razor blades)*
- *Batteries*
- *Aerosol cans*
- *Lecture bottles, propane cylinders, other compressed gases*

- *PCB light ballasts*
- *Metal objects (to be excluded from solids fuel disposition only)*

These excluded items are to be placed into the appropriate drums staged near the sorting table. The excluded materials will be placed in drums and the drums labeled appropriately with hazardous waste labels (unless the material is non-hazardous or exempt). The label will contain appropriate generator and waste stream information, and a Romic tracking label will be placed on each container. Romic will determine the appropriate disposition of the containers of excluded wastes in accordance with its Waste Analysis Plan. Containers may be repackaged in the North Storage Building or West Storage Building #2, or bulked in the Lab Pack Consolidation Unit.

As wastes are sorted, further unsorted wastes may be dumped onto the sorting table. No more than two 55-gallon drum equivalents of waste will be on the sorting table at any given time.

Employees will notify facility management of any lecture bottles, propane cylinders, PCB light ballasts, or other unusual materials found during the sorting process. Romic will use the tracking label information from the source container to communicate waste discrepancies to the original generator.

Wastes acceptable for consolidation are pushed from the table by hand or using shovels into the self-dumping hoppers, or directly into tri-wall boxes (or other IBCs). The minor amounts of incidental free liquids in the waste fall through the hole in the center of the sorting table into the drum underneath.

When a self-dumping hopper, if used, is full, at the end of consolidation operations for a shift, or prior to taking a break, employees will dump the contents of the hopper(s) into the consolidation roll-off bin (or end dump trailer). The roll-off bin will be located in one of the designated roll-off storage areas. If an end dump trailer is used, it will be parked in one of the locations designated for roll-off bins or in the area east of Liquefaction. Before emptying the hopper, the employee will verify that the disposition code of the roll-off bin matches the disposition codes of the drums processed in the sorting area. Employees will even out the load in the roll-off bin using a metal rake. The roll-off bin will be closed if material will not be added within fifteen minutes, or if fifteen minutes has elapsed after material has been added.

If waste is being dumped directly into tri-wall boxes(or other IBCs), the containers, when full will be removed from the enclosure, secured in accordance with DOT and manufacturer requirements, and prepared for outbound shipment. These containers may be transferred to and stored in either the North Storage Building or the South Storage Building.

When the roll-off bin (or end dump trailer) is full, it will be closed and prepared for shipment by truck to the designated off-site facility. Prior to shipment, the roll-off bin or end dump trailer may be temporarily stored in any of the locations identified in Figure D-1.

Containers that have been emptied by the consolidation process will be managed as empty containers (if they meet the requirements of 22 CCR 66261.7) or as contaminated non-empty containers.

E6.5 MANAGEMENT OF RESIDUALS

Solids consolidation generates some residual materials as described above. These waste residuals and their usual disposition are:

- **Waste Liquids** – Waste liquids that drain from the sorting table into the accumulation container will be sampled by Romic and assigned an appropriate on-site or off-site disposition code. If the waste is handled on-site, it may go to fuel blending or aqueous treatment. The waste will be placed into an appropriate containment area with compatible wastes prior to on-site processing or off-site management.
- **Containers** – Containers in which the waste was originally received will either meet the definition of "empty" per 22 CCR 66261.7) or they will not. If empty, they will be sent for reuse, reclamation, or used for scrap value. Containers that are not empty will be either processed further on-site or sent off-site to a permitted facility for processing or disposal. Alternatively, plastic, fiber, or cardboard containers may be managed in the debris shredder on-site (see Section E7).
- **Roll-off Bin/End Dump Trailer –** The roll-off bin (or end dump trailer) will be managed by sending it off-site to the appropriate disposition of incineration, alternate fuels, or to a landfill.
- **Segregated Waste Streams –** The waste streams segregated from the waste destined for the consolidation roll-off bin such as aerosol cans, batteries, and other wastes will be managed by sending them off-site to the appropriate disposition or to appropriate on-site processing.

E6.6 PROCESS RATE

There are no equipment limits that establish a processing rate for solids consolidation. The rate will depend on the time it takes the employees to properly sort the incoming waste material. The process will most likely be limited only by the container storage limits, especially with the roll-off bins on-site. Romic will limit total hazardous waste processing (fuels blending, solvent recycling, ethylene glycol recycling, and all other management methods combined) to the current permit limit of 154,512 gal per day annual average. This is consistent with the Health Risk Assessment (HRA) performed by Environ and submitted separately to DTSC.

E6.7 AIR EMISSIONS AND CONTROLS

E6.7.1. Regulatory Applicability

The requirements of Article 28.5 (of Chapter 14 of Title 22 of the California Code of Regulations) will apply to the waste storage in containers prior to consolidation provided the waste contains 500 ppmw or more of volatile organic compounds as defined by Article 28.5. Compliance with these provisions is described in Section O. Waste containers would meet Level 1 controls or Level 2 controls for containers greater than 121 gallons that are used in "light material service" as defined by the regulations. (This is based on the vapor pressure of the waste materials). Roll-off containers used for Article 28.5-regulated materials will be equipped with gaskets to make them vapor-tight. Other containers will comply with applicable DOT requirements.

The air emissions enclosure is classified as a permanent total enclosure and is designed and operated to meet the requirements of Procedure T in 40 CFR 52.741, Appendix B, in compliance with Article 28.5. This enclosure is vented to an emission control device consisting of two vessels of activated carbon in series. Each vessel will be 6 feet in diameter and 10 feet high. Romic is also evaluating the use of water, caustic, or diesel scrubbers to be used in conjunction with or in place of the carbon adsorption unit.

E6.7.2. Air Emission Quantification

Because of the installed control device, emissions from the consolidation process are expected to be negligible.

E7 DEBRIS SHREDDING (PLANNED)

Shredding is the physical processing of contaminated solids to reduce particle size to facilitate consolidation, transportation, and handling. Shredding is accomplished through the use of a mechanical shredder system. Solid materials are passed through the shredder system where they are reduced in size and collected. After processing, contaminated solid materials may be consolidated with other wastes and sent off-site for disposal, treatment, or for use as solid hazardous waste fuel.

E7.1 WASTE TYPES

Wastes to be shredded include hazardous and/or non-hazardous wood, cardboard, paper products, polyvinylchloride (PVC) pipe, personal protective equipment (PPE), plastic articles, absorbent socks and pads, rags, and metal, including aerosol cans that have been depressurized by Romic and verified to be punctured.

Typical RCRA waste codes to be managed in the Debris Shredder include F001, F002, F003, F004, F005, D001 (excluding oxidizers), D004-D011, D018, D019, D021-D030, D032-D036, D038-D040, and D043. See Section C, Tables C-1 and C-2 for a complete list of the RCRA and California Waste Codes that may apply to these waste streams.

Waste codes that will specifically be prohibited from being processed in the Debris Shredder are D002, D003. Other materials that are excluded from debris shredding are unreacted monomers.

E7.2 STORAGE PRIOR TO PROCESSING

Prior to being shredded, waste materials will be stored in the containers in which they were received. These may include any type or size of container including roll-off boxes as specified in Section D2. Paper, cardboard, or wood wastes or packagings targeted for debris shredding could be incompatible with very strong oxidizers . Accordingly, Romic will not place strong oxidizers in the same containment areas as combustible wastes or wastes with combustible packagings. Unless contaminated with specific chemicals of sufficient volume, waste to be shredded would not be expected to be incompatible with other wastes routinely handled by Romic. The capacity, design features, and certification status of all containment areas suitable for storage of waste to be shredded are discussed in Section D2.

E7.3 PROCESSING EQUIPMENT USED

The equipment for debris shredding is housed in the Drum and Debris Processing Building. The equipment includes a three-stage shredder from SSI Shredding Systems and utilizes two 75 hp motors and one 50 hp motor. The complete assembly includes the inlet hopper/feed system, screw conveyors and discharge chute. Both the inlet side of the grinder and the discharge side include overpressure vents. These are normally closed but are designed to function like a relief valve and open in an overpressure situation.

E7.4 PROCESS DESCRIPTION

The process flow diagram for the Debris Shredder System is shown in Figure E-16.

The automated shredding system reduces contaminated debris particle size to facilitate consolidation, transportation, and handling. The shredder system consists of bins, a bin dumper, three shredders in series, a transfer screw auger, and a conveyor system for incoming and outgoing bins.

Materials to be shredded are placed in the bin dumper. The bin dumper is transported on a roller conveyor that connects to an elevator. The elevator locks on to the bin, then hoists and dumps the bin into the primary shredder. The primary shredder reduces the materials down to a size of 1½ inch or less. A ram intermittently cycles to force any solids through that cannot be grabbed by the shredder teeth. The material is then gravity fed into an auger that elevates and feeds the material into the secondary shredder. The material is reduced to ¾ inch or less and falls directly into the tertiary shredder that reduces the material to a final particle size of ½ inch. The final product falls directly into an empty hopper placed under the tertiary shredder. Once the shredding is complete, the system interlocks require that an empty hopper replace the full outgoing one before another incoming hopper can be processed. Shredded material is then consolidated in bulk or containers and is sent off-site for final disposal.

Volatile organic compound (VOC) emissions from the debris shredder are routed to the site VOC abatement system that is shared with the Liquefaction System. This includes a diesel scrubber, a condenser and two-stage activated carbon system. (See Section E3.2 for the Liquefaction Unit).

E7.5 MANAGEMENT OF RESIDUALS

The output of the debris shredder is the same waste stream that entered the shredder, except in reduced particle size. The shredded waste may be managed by sending off-site for further treatment or disposal, by consolidation with other wastes (see Section E6), or if the waste material has sufficient BTU value (5,000 BTU/lb or more) it may be sent for use as a solid fuel to an authorized processor such as an appropriately permitted cement kiln.

The VOC abatement system residuals are described in Section E3.2 for the Liquefaction Unit.

E7.6 PROCESS RATE

Each bin can hold a maximum of 30 cubic feet of solid waste up to a weight of 2,000 pounds. The maximum processing rate for the debris shredder is 30 bins per day. Romic will limit total hazardous waste processing (fuels blending, solvent recycling, ethylene glycol recycling, and all other management methods combined) to the current permit limit of 154,512 gal per day annual average. This is consistent with the Health Risk Assessment (HRA) performed by Environ and submitted separately to DTSC.

E7.7 AIR EMISSIONS AND CONTROLS

E7.7.1. Regulatory Applicability

The requirements of Article 28.5 (of Chapter 14 of Title 22 of the California Code of Regulations) will apply to waste storage in containers prior to shredding provided the waste contains 500 ppmw or more of volatile organic compounds as defined by Article 28.5. Compliance with these provisions is described in Section O. Waste containers would meet Level 1 controls. Article 27 provisions do not apply to the shredding process, as it is not an identified process under that rule. Article 28 provisions do not apply to the shredder unit, as it does not contact hazardous waste with 10% by weight volatile organics. Article 28.5 provisions do not apply to the shredder unit itself, as it is not a tank, container, etc.

E7.7.2. Air Emission Quantification

Because emissions are vented to an installed control device (a scrubber followed by carbon adsorption) that is shared with the Liquefaction System, emissions from the consolidation process are expected to be negligible.

E7.8 SAFETY MEASURES FOR THE DEBRIS SHREDDING PROCESS

E7.8.1. System Grounding

The debris shredding system steel structure is bonded to the building, which in turn is grounded to reduce sparking potential.

E7.8.2. Nitrogen Purge During Operation

During the operation of the debris shredding system, once the waste hopper is placed into the first-stage shredder, the system is purged with nitrogen and the system is continuously maintained under inert atmosphere.

E7.8.3. Fire Suppression and Overpressure System

At the shredder No.1 location and also above Shredders No.2 and No.3, there are overpressure relief systems that will vent to atmosphere if there is an overpressure in the system.

The system is also inerted with nitrogen to less than 10% oxygen to eliminate the potential of fire during processing. In the event of a fire, the system is equipped with a CO_2 suppression system with dual-point *manual controls. The shredding chambers are equipped with video cameras to view the shredding activity. Airlock doors ensure the shredding chamber maintains a low oxygen concentration in the primary shredder.*

E8 MISCELLANEOUS MANAGEMENT PROCESSES

There are a number of processes used at Romic for handling miscellaneous waste materials. These may be auxiliary processes to other waste management methods or they may be independent processes. These processes include: small container management; *drum crushing; aerosol depressurization; and truck washing*. These are discussed below.

E8.1 MANAGEMENT OF SMALL CONTAINERS

Small containers are accepted at the facility as-is (e.g., five-gallon pails), in lab packs, or in loosepacks. Lab packs are packages, typically prepared in accordance with 49 CFR 173.12(b) and/or 22 CCR 66264.316, consisting of small inner containers within an outer DOT-compliant container including sufficient compatible absorbent to absorb the contents of the inner containers. Loosepacks are packages consisting of smaller inner containers within an outer DOT-compliant container. Loosepacks may or may not include sufficient quantities of compatible absorbent to absorb the contents of the inner containers. Lab packs and loosepacks may be generated by various types of generators, including laboratories, educational institutions, industrial, commercial, and retail establishments, and household hazardous waste collection events/facilities.

Small Container Management encompasses both repackaging and bulking activities. Repackaging entails removing inner containers from lab packs and loosepacks and placing them in other outer containers without opening the inner containers. Repackaging also includes the placement of small containers received as-is in larger containers (e.g., 5-gallon pails packed in 55-gallon drums). Bulking consists of the removal of inner containers from lab packs or loosepacks, opening of the inner containers, and pouring of their contents into larger containers. Bulking also includes pouring off small containers received as-is.

E8.1.1. Waste Types

Typical waste lab packed at the Romic facility may include lab wastes, household wastes, discarded chemical products, etc. See Section C, Tables C-1 and C-2 for a complete list of the RCRA and California Waste Codes that may apply to these waste streams.

E8.1.2. Storage Prior to Processing

Lab pack, loosepack, and small container shipments are received in DOT-compliant packagings. Waste Tracking checks the manifest and accompanying inventory records for any materials that are prohibited at Romic. The truck is then unloaded in front of West Storage Building #2 or into the Sampling Area. Shipments of certain materials may be offloaded directly at other containment areas.

Lab packs, loosepacks, and small containers will be stored in the containers in which they were received. These containers would typically be 55-gallon drums, smaller drums, pails, or other small containers such as shipping boxes. The containers would be held in authorized storage areas, including either of the two locations where small container management will be performed -- the North Storage Building and West Storage Building #2. The capacity, design features, and certification status of these containment areas are discussed in Section D2.

E8.1.3. Processing Equipment Used

Repackaging will occur in either the North Storage Building or the West Storage Building #2. There is no specific process unit associated with repackaging.

Bulking will be conducted in the Lab Pack Consolidation Unit in the northwest corner of the Field Services Warehouse portion of West Storage Building #2. Bulking may also be performed in the North Storage Building.

E8.1.4. Process Description

The process flow diagram for Small Container Management is shown in Figure E-17.

Romic may transfer some lab pack wastes to other off-site facilities without removing the chemical containers from the outer packaging. For other wastes, Romic will unpack the lab pack drums received and then consolidate compatible materials either by placing small bottles of similar chemicals into an outer packaging, or by transferring compatible chemicals from small containers into a single larger container. Lab pack wastes will either be sent to on-site processing or off-site shipment depending on the nature of the wastes. Other hazardous wastes in smaller containers (e.g., 5-gallon pails) may be consolidated into larger containers (e.g., 55-gallon drums) for on-site processing or off-site transfer. Materials that are transferred off-site may be stored on-site for a period of time, not to exceed one year.

Containers received at Romic can vary in size and type and may require consolidation and/or compaction prior to on-site treatment or off-site shipment for final disposal. Waste materials may be consolidated into drums, bulk, or other DOT-compliant containers. Before consolidating containers, compatibility tests will be performed on all materials to be combined that are not known to be compatible. (For example, containers of chemicals identified and verified as being identical would be compatible). This is intended to ensure that an adverse reaction will not occur prior to treatment or during shipping and/or storage.

Containers are sampled after consolidation and evaluated for the appropriate management method in accordance with Section C.

Employees performing consolidation processes work within the ventilated enclosure and use the appropriate personal protective equipment, which depends on the specific wastes handled. The enclosure is vented to a water scrubber located just outside and west of the lab pack area in West Storage Building No. 2. This scrubber is designed to remove water-soluble contaminants such as acid gases and organic compounds. Prior to shipment, absorbent materials (e.g. sawdust, Floor-Dri®) may be used to remove any residual free liquids present in containers. This process is usually performed to satisfy requirements of the receiving facility.

E8.1.5. Management of Residuals

Lab Packing and consolidation may generate some residual materials as described above. These waste residuals and their usual disposition are:

- **Containers –** Containers in which the waste was originally received will either meet the definition of "empty" (per 22 CCR 66261.7) or they will not. If empty, they will be sent for reuse, reclamation, or used for scrap value. Containers that are not empty will be either processed further on-site or sent off-site to a permitted facility for processing or disposal. Alternatively, plastic, fiber, or cardboard containers and/or liners may be managed in the debris shredder on-site (see Section E7).

- **Consolidated Materials –** Consolidated wastes will be managed by sending off-site to the appropriate disposition or for authorized treatment on-site.

- **Absorbent Materials** – Absorbent materials such as vermiculite used in lab packs, will be collected and reused onsite either in lab packs or to solidify residual liquids in other wastes that are to be sent off-site.

E8.1.6. Process Rate

There are no equipment limits that establish a processing rate for lab packing. The rate will depend on the time it takes employees to properly sort and repackage the incoming waste material. The process will most likely be limited only by the container storage limits. Romic will limit total hazardous waste processing (fuels blending, solvent recycling, ethylene glycol recycling, and all other management methods combined) to the current permit limit of 154,512 gal per day annual average. This is consistent with the Health Risk Assessment (HRA) performed by Environ and submitted separately to DTSC.

E8.1.7. Air Emissions and Controls

E8.1.7.1. Regulatory Applicability

The requirements of Article 28.5 (of Chapter 14 of Title 22 of the California Code of Regulations) will apply to the waste storage in containers prior to consolidation provided the waste contains 500 ppmw or more of volatile organic compounds as defined by Article 28.5. Compliance with these provisions is described in Section O. Waste containers would meet Level 1 controls. However, the requirements of Article 28.5 do not apply to containers with a capacity less than 0.1 m^3 (about 26 gallons).

During the consolidation operation of lab pack wastes, the containers being consolidated into will not be open for more than 15 minutes at a time, except when adding waste to or removing waste from the containers.

E8.1.7.2. Air Emission Quantification

The Health Risk Assessment document prepared by Environ addresses emissions from lab pack processing. These emissions comprise a small percentage of the total from the facility.

E8.2 DRUM CRUSH (PLANNED)

Drum Crushing is an existing process unit used to manage California-empty drums and therefore is not regulated. There are two units: a fixed drum crusher located in the North Container Storage Building and a portable drum crusher (the Portable Drum Crusher). *Romic wishes to expand the waste types handled by these units to include RCRA-empty (i.e., non-RCRA hazardous waste containers). These containers may originate from off-site or may also originate from waste that is generated on-site.*

E8.2.1. Waste Types

Drums that will be crushed will originate from drums that may still contain residual amounts of waste material and therefore do not meet the definition of a California-empty container. These drums can carry almost any of the non-RCRA waste codes received at the facility as shown in Section C, Table C-2 except for the following California Waste Codes: 791 (liquids with pH < 2), 792 (liquids with pH < 2 with metals), or 801 (waste potentially containing dioxins).

E8.2.2. Storage Prior to Processing

Prior to being crushed, non-empty containers may be located in any of the authorized container storage areas on-site, with which the residues in the container would be compatible with other stored wastes. The capacity, design features, and certification status of all containment areas suitable for storage of such wastes are discussed in Section D2.

E8.2.3. Processing Equipment Used

The fixed drum crusher system consists of a 65-foot long chain driven roller, an automatic drum turner, the crusher comprised of a hydraulic piston that compresses a 55-gallon drum from 35 inches to 2.5 inches in height, and a conveyor to take crushed drums to a roll-off bin or end dump trailer. The drum crusher system will be located in the North Container Storage Building.

The Portable Drum Crusher will be a portable unit and may be used within any permitted container storage unit except for the Sampling Area (i.e., North Storage Building, South Storage Building, , West Storage Building #1 or West Storage Building #2) that contains compatible waste materials. This unit has an integral hydraulic power unit.

E8.2.4. Process Description

The generalized flow diagram for the drum crush process is included as Figure E-19 and a layout is shown in Figure E-26 for the Fixed Drum Crusher located in the North Container Storage Area.

The Fixed Drum Crusher system consists of a 65-foot long chain driven roller that feeds drums to the crusher. The automatic drum turner receives the drums, turns them over, and places them onto the in-feed conveyor. The drums continue down the conveyor until they reach the drum crusher. The drums are *then automatically fed into the crusher. The drum crusher uses a hydraulic piston to compresses a 55-gallon drum from 35 inches to 2.5 inches in height. After they are crushed, the drums are mechanically fed onto the outgoing conveyor that automatically transfers the crushed drums into a roll-off bin or end dump trailer. This roll-off bin/end dump will be a non-hazardous accumulation container when California empty drums are crushed and the resultant crushed drums are sent to a scrap metal recycler. When California hazardous waste drums are crushed, the roll-off bin/end dump will be managed as a hazardous waste accumulation container. It will be labeled with the date of the container with the earliest receipt date. Containment trays are placed under the full length of the conveyor to contain residue that may fall from the drums. The residues will be managed as discussed in Section E8.2.5, and will also be labeled (on the Romic tracking label) with the date of the container with the earliest receipt date.*

Drums would be placed into the Portable Drum Crusher assembly one at a time. A hydraulic piston then compresses a 55-gallon drum to about 2½ inches in height. The crushed drum is then placed into a hopper or other accumulation container before being placed into a roll-off, end-dump trailer, or tri-wall box or other IBC for off-site transportation and management.

E8.2.5. Management of Residuals

Drum crushing generates some residual materials as described above. These waste residuals and their usual disposition are:

- **Containers** – Compressed containers will be sent for off-site management as non-RCRA hazardous waste or as scrap metal if the load contains only California-empty drums.
- **Residues** –Residues from what was left inside the drums will be collected and placed into the hazardous waste roll-off bin and sent for off-site management or placed with other compatible wastes and managed on-site.

E8.2.6. Process Rate

The processing rate for the Fixed Drum Crusher is 25 drums per hour and about 20 drums per hour for the Portable Drum Crusher. Romic will limit total hazardous waste processing (fuels blending, solvent recycling, ethylene glycol recycling, and all other management methods combined) to the current permit limit of 154,512 gal per day annual average. This is consistent with the Health Risk Assessment (HRA) performed by Environ and submitted separately to DTSC.

E8.2.7. Air Emissions and Controls

E8.2.7.1. Regulatory Applicability

The drums handled in both the Fixed or Portable Drum Crusher will be contaminated either by solid wastes or by liquid wastes not subject to Title 22 of the California Code of Regulations Article 28.5. Therefore, there are no air emission controls required under Article 28.5 (See Section O) for the drum crush process.

E8.2.7.2. Air Emission Quantification

The air emissions are considered to be negligible since the drums are empty or nearly empty and contain solid residue or liquids with less than 500 ppmw of volatile organic compounds (VOCs). Roll-off bins used to store crushed RCRA-empty drums with greater than 500 ppmw of VOCs will be equipped with Container Level 1 controls in accordance with 22 CCR 66264.1086. This entails a continuous cover that minimizes exposure of hazardous waste to the atmosphere.

E8.3 AEROSOL DEPRESSURIZATION [PLANNED]

This activity involves processing commercial aerosol containers to remove propellant and container contents. The propellant would be managed by passing through an air emission control unit. The container contents would be collected and transferred to the on-site fuel blending operation or other appropriate waste treatment process.

E8.3.1. Waste Types

Waste types include flammable and non-flammable aerosols such as paints, degreasers, household hazardous waste, and solvents. These would be transported to the Facility either as RCRA hazardous waste, non-RCRA hazardous waste, or as universal waste. See Section C, Tables C-1 and C-2 for a complete list of the RCRA and California Waste Codes that may apply to these waste streams. Aerosol cans may also be received onsite as Universal Waste.

E8.3.2. Storage Prior to Processing

Prior to being processed in the aerosol can depressurization system, waste materials will be stored in the containers in which they were received and placed in authorized waste storage areas. The capacity, design features, and certification status of all containment areas suitable for storage of this waste are discussed in Section D2.

E8.3.3. Processing Equipment Used

The system consists of an airtight vacuum chamber, a vacuum pump, and a collection vessel. This is a planned process and exact specifications are unavailable at this time. It is anticipated that Romic will use either a DTSC Certified system or functionally equivalent system.

E8.3.4. Process Description

The process flow diagram for Aerosol Depressurization is shown in Figure E-21. Aerosol depressurization will be a portable unit, and may be used within any permitted area (i.e., within North Storage Building, South Storage Building, Sampling Area, West Storage Building #1, or West Storage Building #2) that is more than 50 feet from the property line and that contains compatible waste materials.

The aerosol depressurization process equipment is used to simultaneously depressure a number of miscellaneous aerosol cans and separate the resultant liquids and propellant gases. The system is fully *enclosed to eliminate the potential for vapors escaping to the surroundings. Aerosol cans are placed in a negative pressure chamber where they are mechanically punctured. The negative pressure is maintained by a vacuum pump that is capable of consolidating vapors into pressurized storage vessel. Vapors in the vessels are condensed into liquids that can be recycled or blended as alternative fuels. After a can is punctured, the employee opens the chamber and removes the empty cans. The cans are consolidated for disposal or reclamation off-site. The resulting liquid will be accumulated in a container labeled in accordance with 22 CCR 66262.34(f) and managed as off-site waste. The vessel will be equipped with a float-type level indicator to inform the employee when the vessel is full and needs to be emptied or changed.*

E8.3.5. Management of Residuals

Aerosol can depressurization may generate some residual materials. These waste residuals and their usual disposition are:

- **Depressurized Containers –** Employees will verify that aerosols have been punctured and depressurized. Depressurized containers may be managed in the debris shredder on-site (see Section E7) or placed in containers for off-site disposal or recycle.
- **Accumulated Materials** – Liquids accumulated in this process will be managed by being transferred to the on-site Fuel Blending operation (see Section E3.1) or other appropriate waste treatment process. This includes condensed liquids from aerosol vapor emissions.
- **Spent Carbon –** Spent Carbon used in the vapor treatment system will be either sent off-site for recycling or managed on-site in a DTSC authorized waste management unit.

E8.3.6. Process Rate

The maximum anticipated process rate is 20 cans per minute. Romic will limit total hazardous waste processing (fuels blending, solvent recycling, ethylene glycol recycling, and all other management methods combined) to the current permit limit of 154,512 gal per day annual average. This is consistent with the Health Risk Assessment (HRA) performed by Environ and submitted separately to DTSC.

E8.3.7. Air Emissions and Controls

E8.3.7.1. Regulatory Applicability

Containers of universal waste aerosols will meet the requirements in California Health & Safety Code Section 25201.16(f).

Containers used to store hazardous waste aerosol cans with greater than 500 ppmw of volatile organic compounds and subject to Title 22 of the California Code of Regulations Article 28.5, will be equipped with Container Level 1 controls. This would apply to the residual liquids or waste in the container that also contains aerosol cans. Since the requirements of Article 28.5 do not apply to containers with a capacity less than 0.1 m^3 (about 26 gallons), the individual aerosol cans would be exempt from Article 28.5.

E8.3.7.2. Air Emission Quantification

Because Romic will use a DTSC certified technology or equivalent, and that the process will control potential air emissions, the actual air emissions are considered to be de minimis.

E8.4 TRUCK WASH (PLANNED)

This activity will wash bulk tanker or vacuum trucks to meet the definition of empty per 22 CCR 66261.7.

E8.4.1. Waste Types

Trucks and/or tankers may contain any water compatible liquid and sludges that have been received by the facility. . These can carry almost any of the waste codes received at the facility as shown in Section C, Tables C-1 and C-2, except for D003 (reactive wastes), which are not processed on-site. Romic will also be able to clean hazardous material or hazardous waste transfer vehicles that have not made a delivery to the facility.

E8.4.2. Storage Prior to Processing

Prior to being washed, tanker and vacuum trucks that require washing will be stationed outside in the truck parking area south of Tank Farm K.

E8.4.3. Processing Equipment Used

The truck wash unit is located just south of Tank Farm K. This system includes the following equipment items:

- *Spray nozzle capable of providing water at 200°F and 180 psig maximum*
- *50-hp TEFC centrifugal pump (for spray nozzles)*
- *2,000 gallons (500 gallons each compartment) tank washer system that is skid mounted and constructed of carbon steel*
- *Steam coil unit to heat the wash water (on skid mounted stem)*
- *10-hp explosion proof centrifugal pump for tanker offload (Alternately, a portable air-operated pump may be used)*
- *All hard piping is 2-inch carbon steel schedule 40*
- *In-line basket filter*
- *Air blower*
- *1,700 gallon polyethylene rinse tank*

E8.4.4. Process Description

The process flow diagram for the Tanker Truck Wash System is shown in Figure E-18 and a layout is shown in Figure E-24.

The Tanker Truck Wash System is designed and built to remove residual liquids and sludges from bulk containers such as tanker trucks. All water compatible residues can be rinsed by the system. The system consists of a remote controlled spray nozzle, a four-compartment tank washer mounted on a skid unit, a pre-rinse tank and two pumps.

Tanker trucks that have offloaded materials typically require an internal washout before they can reload. Empty tankers requiring a washout at Romic are parked in the Truck Washout Area where a top dome is opened. An employee then lowers a remote-controlled spray nozzle into the dome. The spray nozzle is fed up to 200°F high-pressure water from one of the compartments of the tank washer skid. The nozzles are designed to spin 360 degrees horizontally and vertically to remove liquid and solid residuals from inside. The initial spray water is pumped and collected in a pre-rinse polyethylene tank to isolate sludges and concentrated rinsate. If the tanker has more than one dome, this process is repeated until all domes have been opened and rinsed. After the primary rinse, a second rinse with detergent (optional) from another compartment of the tank washer skid is sprayed into the tanker. This rinsate is returned to the same compartment in the tank skid and recirculated back into the tanker. This process is continued until each dome has been washed and the employee has ensured all residuals have been removed. The third and final rinse consists of cold potable water to ensure all soapy residuals have been rinsed. The final rinse also cools the shell of the tanker prior to transport or reloading. Depending on the circumstances, only one, two, or three rinses may be required.

Solids and sludges that cannot be removed from tankers using the truck wash system may require removal using physical means. This may entail permit-required confined space entry as described under the heading, "Tank Entry Procedures" in Section F2.4 of this application. Solids and sludges removed using physical means will be transferred to drums for subsequent management. Drums of solids and sludges will be labeled in accordance with 22 CCR 66262.34(f) and managed as off-site waste. A Romic tracking label including the date of the container with the earliest date of receipt will also be affixed to such drums.

All wash waters (including entrained solids/sludges) generated are stored in tank TW-1, subsequently transferred to storage tanks using yard tankers (see Section E10), and are evaluated for processing through the onsite Wastewater Treatment System. Solids and sludges collected may be processed on-site before being sent off-site for final disposal.

E8.4.5. Management of Residuals

Tanker truck washing generates some residual materials as described above. These waste residuals and their usual disposition are:

- **Dirty Wash Water** – Wash water will be placed into the appropriate hazardous waste tank on-site prior to processing through the Facility's Wastewater Treatment system (See Section E4).
- **Sludges/Solids –** Sludges and solids are collected and analyzed. They are then assigned an on-site disposition code for processing (such as Fuels Blending or Solids Consolidation) before being sent off-site for further treatment or disposal.

E8.4.6. Process Rate

Maximum of 24 trucks per day, or 168 trucks per week.

E8.4.7. Air Emissions and Controls

E8.4.7.1. Regulatory Applicability

Trucks to be cleaned would meet the definition of empty under 22 CCR 66261.7(p)(1). Therefore, the requirements of Article 28.5 of Title 22 do not apply.

E8.4.7.2. Air Emission Quantification

Air emissions were estimated by Environ for use in the HRA document.

E8.5 OFF-SITE TRANSFER

Off-site transfer is the collection and storage of various containers of hazardous waste that have been manifested to Romic but will not be processed by the facility. Off-site transfer includes the temporary storage of such wastes in containers and tanks. Containerized waste will be stored in any of the authorized containment areas that have compatible waste materials. This will be determined from waste profiles, shipping papers, and/or post-receipt laboratory analyses. Container storage areas are discussed in Section D2. Containerized waste may also be transferred directly from an incoming truck onto an outbound truck without intermediate storage in a container storage area.

Tank storage may also be used for those wastes that will be shipped off-site in bulk. If the waste was originally received in bulk, but cannot be processed by the facility, it can be placed in a tank that is compatible with the waste. This will be determined from waste profiles, shipping papers, and/or post-receipt laboratory analyses. Similarly, containers may be emptied by pumping them directly into a tank, or by using a yard tanker to empty the drums and then pumping the yard tanker into an on-site storage tank within 24 hours. Romic will assure that wastes are compatible with all handling and storage devices.

Romic may accept a manifested bulk or containerized shipment of hazardous waste, terminate the incoming manifest(s), remanifest the shipment (with Romic as the designated generator), and ship the hazardous waste to another authorized off-site facility. Romic may also transfer waste from a bulk shipment into another bulk truck (e.g., tanker). If such a transfer involves liquid waste, the transfer will take place in accordance with the provisions for liquid transfers described in Section E10.

Any waste type identified in the Part A of this permit application may be received and managed via off-site transfer.

There is no design-based process rate for these wastes. The amount of these waste streams onsite at any given time will be based on the permitted storage capacities of the container and/or tank storage units in which the material will be stored.

Containers that are received that store materials subject to Title 22 of the California Code of Regulations Article 28.5, will be managed in the original containers and will meet Container Level 1 controls. Containers that do not appear to meet the Level 1 requirements will be rejected or repackaged. If tank storage is involved, wastes subject to Title 22, Article 28.5 will be managed in a fixed roof tank.

E8.6 TEN-DAY TRANSFER

This activity is for wastes that are not manifested to Romic, but that are stored at the facility for ten days or less as authorized by 22 CCR 66263.18. Since Romic is a registered hazardous waste transporter located in an area zoned industrial, the ten day limit applies. There are no limitations on hazardous waste codes for ten-day transfer. However, radioactive and bio-hazardous wastes would not be received for ten-day transfer.

Wastes managed under ten-day transfer will be maintained in their original containers, and will not be transferred to other containers or otherwise managed. The condition of the container and label information is inspected upon receipt for wastes destined for Ten-Day transfer; containers found to be damaged or leaking will be placed inside of an overpack drum. Containers that are labeled with information not consistent with the corresponding manifest will be segregated and the generator contacted to resolve the discrepancy.

Containerized waste may be stored in any area, provided the area does not contain any incompatible materials. The Isolation Row in the South Storage Building (see Figure D-3) may be used to accomplish segregation of incompatibles. Incompatibility will be determined from waste profiles or shipping papers. These wastes will not be sampled and analyzed by Romic. The ultimate receiving facility will be responsible for waste acceptance analyses. Container storage areas are discussed in Section D2.

If Romic is not the delivering transporter on the manifest accompanying a transfer waste shipment, it will take custody as the next transporter. Upon taking custody, Romic will sign the manifest and give a signed copy to the delivering transporter before he/she leaves the facility. If Romic transfers custody of the transfer waste shipment to a subsequent transporter, Romic will obtain the subsequent transporter’s handwritten signature and date of delivery on the manifest accompanying the shipment upon transfer of custody.

E9 CONTAINER MANAGEMENT PROCEDURES

This section covers the waste management techniques used to handle containerized hazardous wastes on-site.

E9.1 UNLOADING AND LOADING OF CONTAINERS

A containerized waste shipment must first clear the Romic document inspection process when it arrives at the facility. The truck is then directed to the container unloading area east of the South Storage Area Warehouse (or east of West Storage Building #2 for receipts by Romic Field Services as described in Section E8.1). Containers are inspected during the unloading process for signs of leakage and for proper closure of lids. If there are no signs of leakage or loose fittings, the containers of waste are unloaded from the transport vehicles by facility employees, typically using a forklift with a drum handling attachment. This attachment can pick up two drums at one time. Containers are staged in or near the Sampling Area to await verification and the assignment of a waste tracking number. Other containers such as tote bins, tri-wall boxes, or supersacks will be unloaded using the appropriate forklift attachment.

Romic may also unload shipments of containerized hazardous wastes near each of its container storage areas. This would especially be true for wastes that are best separated from other materials or wastes. Such containers will be visually inspected and sampled within those areas.

Romic loads shipments of containerized wastes for off-site shipment at locations near each of its container storage areas.

E9.2 MOVING AND STACKING CONTAINERS (ROUTINE)

Once the waste has been sampled, analyzed, and assigned a disposition code, the containers are transferred to an assigned compatible storage location or process area. The containers are transferred from the sampling area by forklift to the appropriate storage or process location. The forklift sets the containers down, backs away, and returns to the staging area to repeat the process. 55-gallon drums are stacked no more than two-high. Tri-wall boxes and tote bins may also be stacked no more than two-high, provided the arrangement is stable, and Romic can demonstrate that the containers are designed to be stacked. Containers that are five-gallons or less and can easily be lifted by hand may be stacked on top of other containers, provided they do not exceed the height of two 55-gallon drums.

Drums are stacked in rows with a minimum of 36 inches of aisle space between rows, except in the planned Drum Pumping Area, where containers will be staged with a minimum of 24 inches of aisle space between rows. Each row consists of up to two drums stacked side-by-side. Drums may be double-stacked (except in the Sampling Area and the Drum Pumping Area), typically with the top layer of drums offset in relation to the bottom layer, provided the arrangement is safe and stable. Pallets may also be used.

The forklift drum-handling attachment is designed to safely transport two drums at a time without creating unnecessary stress or strain on the drums. This handling method guards against drum ruptures and leaks. Tote bins, tri-wall boxes, or supersacks will be picked up by the forks on a forklift. Supersacks normally arrive at the facility on pallets. To handle these loads, the forklift operator will carefully lift the pallet making sure that the forks are below the supersack. Supersacks may also be handled by the integral straps provided on such containers.

Drum dollies and pallet jacks are also used for safely moving drums within the facility. Facility personnel are trained in the proper handling of drums and containers. Forklift operators are instructed to yield to truck and pedestrian traffic within the facility.

Drum stacking arrangements and capacities are described in Section D2.

Container management practices to prevent spills and leakage include keeping containers closed (except when adding to, removing from, inspecting, or sampling the waste) and using the appropriate tools when opening containers. Containers are inspected during unloading for signs of leakage and for proper closure of lids. The container storage area sumps and containment are inspected at least weekly for evidence of leaks, spills, and accumulated liquids.

E9.3 EMPTYING CONTAINERS

Containerized liquid wastes that have been verified to be compatible with each other and that will be managed using a common management option (e.g., solvent recovery, fuels blending) are pumped from the containers they were received in. This is generally accomplished using a vacuum tanker truck, but Romic may also pump drums using a fixed or portable pump. Container emptying will take place within the planned Drum Pumping Area and two loading and unloading areas, one between Tank Farm MNO and Tank Farm CLR, and the other between Tank Farm CLR and Tank Farms A & B. The wastes are either transferred to a storage/processing tank from the tanker truck (within 24 hours) or directly from the containers. Employees will verify that the disposition codes of the waste drums are the same and will record and electronically scan the waste tracking numbers of each.

Containers may, after emptying using the conventional means described in the preceding paragraph or through the Liquefaction process, still hold some residual material. If a container is destined for disposal, recycling, or reconditioning, such residual material may prevent the container from being considered "empty" under 22 CCR 66261.7. Alternately, if a container (e.g., a "tote" or intermediate bulk container) is destined for reuse, the residual material may need to be removed, and/or the container further decontaminated. Such containers may be further treated through rinsing with water, rinsing with detergent or other solutions, physical scraping, and/or positioning in different physical orientations and pumping material using pumps and/or vacuum trucks. These activities may be conducted in any area provided with secondary containment, such as the truck unloading area between Tank Farms C and MNO.

Empty containers will be managed as follows:

- Totes: RCRA-empty totes will typically be reused. They may be returned to the generator or sent to another generator for reuse. If they are to be used for other than hazardous waste service, they will be rinsed to remove any hazardous waste constituents.

E9.4 HANDLING RELEASES

Romic manages all containers in such a manner that it will not cause them to leak or rupture. This policy begins with training, not only for our personnel who work at the facility, but Romic's drivers, outside transporters, and the generators of the waste.

Specific procedures for handling spills and leaks from containers are described in the Contingency Plan for the Facility (see Section G).

E9.5 INSPECTIONS AND RECORDKEEPING

The Environmental Health and Safety Manager or a designee inspects all containers weekly. These inspections look for leaking containers and for deterioration of the containers or the containment system. In addition, containers are routinely observed by the personnel who are present in the storage areas. Any regulatory deficiencies observed will be either corrected immediately or, if needed, a work order will be issued. All sumps and containment structures within container storage areas are examined on at least a weekly basis for evidence of leakage, spills or accumulated liquids.

Recordkeeping is maintained in accordance with Section I, Management Practices.

E9.6 PREVENTION OF REACTION OF IGNITABLE, REACTIVE, AND INCOMPATIBLE WASTES IN CONTAINERS

The following sections contain information on the measures taken by the Romic Facility to prevent the reaction of ignitable, reactive, and incompatible wastes in containers.

E9.6.1. Ignitable and Reactive Wastes

Ignitable and reactive wastes specified in the Part A of the application are accepted for storage in containers at the facility. Waste characteristics are identified and documented through customer (generator) analyses and waste acceptance procedures as described in the Waste Analysis Plan (see Section C).

A 50-ft. buffer zone from the property line is maintained for all containers that contain ignitable wastes.

Reactive wastes exhibiting the characteristics identified for explosives in 22 CCR 66261.23(a)(6), (7), & (8) are specifically restricted from storage or treatment at the facility as stated in Section C3.2, Identification of Wastes and Restricted Wastes.

Per 22 CCR 66264.17, ignitable and reactive wastes are prevented from accidental ignition or reaction in that they are protected from open flames and smoking is prohibited in the active areas of the facility. No open flames, cutting or welding is allowed within 50 feet of any waste treatment, storage, handling, loading, and unloading areas where ignitable or reactive wastes are present unless a second employee is providing fire watch by standing ready with a compatible fire extinguisher. This activity is conducted in accordance with the Romic Facility's Hot Work Program. Wherever a hazard exists from ignitable or reactive wastes, signs are posted prominently that say "Danger - No Smoking" or equivalent wording.

Ignitable and reactive wastes are stored with compatible wastes in segregated secondary containment systems. Section F5 discusses procedures to prevent generation of extreme heat or pressure, fire, explosion, or violent reaction, uncontrolled mists, fumes, or gases, and to prevent structural damage to the storage area from storage of ignitable or reactive wastes.

E9.6.2. Incompatible Wastes

Incompatible wastes are not placed in the same container or in a container that previously held an incompatible waste. Incompatible wastes are stored in a separate storage area or on a separate containment pallet.

The majority of the wastes received by Romic are compatible with one another. When a waste is received that is known to be incompatible or potentially incompatible with other wastes handled by Romic, it will receive special attention as described in Section D2. Potentially incompatible wastes will be stored in a separate drum storage area segregated from the majority of drums handled by Romic or other devices will be used to avoid the potential mixing of incompatible wastes.

Container storage operations are designed to prevent the simultaneous storage of incompatible wastes within the same containment system. If liquids are present in sumps and containment systems, the liquids are removed before a waste can be stored that is incompatible with the waste previously stored on the pad.

Prior to consolidation in a tanker or tank, containerized wastes may be tested for compatibility with wastes already in the tank prior to being introduced to the tanker or tank. Waste incompatibility for all wastes is determined by the procedures described in Section C7.3. Waste profiles and check-in procedures are discussed in Section C4.

Incompatible wastes or materials are not stored in the same tanker/tank or in an unwashed tanker/tank that previously held an incompatible material. Before a tanker/tank can be used for storage of a material that is incompatible with residue in the tanker/tank, the tanker/tank is cleaned of residual waste. Incompatible wastes may be mixed during the neutralization process under controlled conditions (see Section F).

E9.6.3. Segregation

The facility primarily receives materials for processing with hazard classifications of corrosive (i.e., acidic and alkaline materials), oxidizer, and flammable. Methods utilized by the Romic Facility to segregate incompatible materials include the following:

- Separation by wall, berm, spill pallet, or other confining devices.
- Placing small containers inside larger containers (e.g., overpacks, lab packs, etc.)

Containerized oxidizers are isolated from ignitables by placing the oxidizer containers on spill containment pallets. These pallets provide secondary containment in case of release from the primary container. If strong acidic wastes are to be placed in the same containment area as alkaline materials (for example in the Sampling Area), the containers of strong acid wastes will be segregated from alkaline wastes by storage in separate containment areas (Row 80 in the Sampling Area) or by placing the acidic wastes on spill containment pallets.

Refer to the discussions of each containment area in Section D2.2 for specific waste segregation measures.

E9.7 HANDLING EMPTY DRUMS

Once the container has been emptied on-site (e.g. using the Liquefaction Process), it will be marked or labeled to identify that it has been emptied and the date on which this occurred. This container can now be managed as a non-hazardous waste. It will be sent offsite for reconditioning, reuse, or recycling within one year of the date it was emptied. If a container is to be reused, such reuse will be in accordance with applicable DOT regulations. Some containers may be crushed prior to sending off for scrap metal recovery.

E9.8 COMPUTERIZED TRACKING OF CONTAINERS

Containers of hazardous waste are currently tracked on-site using a computer-based bar code system. The facility affixes bar code labels to each container and tracks movements through the use of handheld scanners. Container movements are recorded by the computerized system, and may subsequently be retrieved and reported as necessary. Partial container movements (e.g., where half of a drum is consolidated into one container and the other half into another) will be recorded by the computerized system. Container consolidation movements, where containers are consolidated into other containers (e.g., residues after drum pumping bulked into a single drum) will be recorded by the computerized system.

The computerized system can also report on container locations, warehouse inventories, and container dispositioning. The facility’s waste tracking system may be upgraded in the future, as new technologies are developed and become feasible. Romic may deploy functionally equivalent or superior systems either with a Class 1 permit modification request in case of a change.

E10 TANK AND PROCESS VESSEL MANAGEMENT PROCEDURES

This section covers the waste management techniques used to handle hazardous wastes on-site that arrive in bulk and are managed in tanks and tank-like process vessels. The same processes would be used to manage containerized wastes once they are transferred to storage tanks.

E10.1 TRUCK LOADING/UNLOADING

Romic loads/unloads tank trucks bearing hazardous waste adjacent to any tank farm location (see Figure D-1). These primary loading/unloading locations are: the truck bay between Tank Farm A and Tank Farm C, the area adjacent to Tank Farm B, the area adjacent to Tank Farm I, and the area adjacent to Tank Farm Q. Tank trucks are unloaded directly into Romic storage tanks or process equipment after completion of the waste acceptance process.

Occasions may arise where the safest, most efficient manner of handling a bulk load is to transfer the material directly into containers (e.g., intermediate bulk containers) or portable tanks. For example, a generator may choose to use a tank truck to ship acidic or alkaline wastes destined for neutralization. In this case, Romic may elect to unload such a tank truck into neutralization portable tanks (see D2.2.4.2 of this application).

Incoming tankers are assigned a waste tracking identification number, in the same manner that Romic assigns tracking numbers to incoming containers. Romic uses its computerized waste tracking system (see E9.8 above) to track the intended processing method for bulk waste shipments, and the location to which waste is transferred.

Yard Tankers are used throughout the facility to transfer hazardous and non-hazardous wastes to appropriate tanks.

Tanker trucks that have been unloaded but contain residues in excess of 22 CCR 66261.7(p) standards will be staged in an "enhanced secondary containment" area (described in Section D5.3).

Outbound shipments will be prepared and shipped offsite within ten days, in accordance with California Health & Safety Code section 25200.19. On occasion, offsite shipment may be delayed due to circumstances beyond Romic's control; for example, if the railroad servicing Romic's Redwood City rail transfer facility fails to deliver empty rail cars as promised. In this case, the waste in the loaded tanker may be returned to tank storage if and when it becomes apparent that the tanker is approaching or will exceed the ten-day limit.

E10.2 TANK TRANSFERS

The Facility will transfer liquids in the facility between tanks or between tanks and tank trucks. In conducting such transfers, the employee will connect hoses to the appropriate pipe connection, and/or will assure that the valves on manifolds are in the proper position to transfer material to the intended location. The employee will double check connections before initiating transfer operations. The employee will also check the receiving tank, or tank truck to determine the available capacity. If the receiving vessel cannot take the full volume of the originating vessel, the employee shall monitor the transfer as needed to prevent over-filling of the receiving vessel. After starting the pump, the employee will verify that the waste or other material is indeed being added to the proper tank. The employee will also inspect the transfer hoses and connections for leaks. When the target level on the receiving vessel is reached, the transfer pump will be turned off immediately. A valve at the pump will be closed to prevent siphoning of the tank.

Cone bottom carbon steel tanks receive the majority of wastes handled by the Romic facility. These tanks are designed and operated to allow the primary settling and separation of sludges in the tank. This separation process is accomplished through three possible discharge points from the tank. Settled sludges are discharged out the bottom gate valve of the tanks. Depending upon the amount of sludge in the tank, the waste will be transferred to the process area via one of the process lines that originate from the bottom of the cone or from the shell of tank just above the cone of the tank.

Romic maintains a detailed tank inventory indicating the volume stored in each tank, which is updated each operating day. Tank charts have been developed and are used by employees to convert liquid level measurements to volumes. Prior to loading a tank, the employee is required to confirm that the tank has sufficient capacity to receive the volume to be transferred.

Pipe sizes are designed based upon pumping rates, specific gravity of the material to be transferred, viscosity, temperature and line friction losses (pressure drop). All piping is pressure tested at 125% of the maximum operating pressure using water prior to being placed in service.

The feed systems to the tanks use welded flanges, welded joints, threaded flanges and threaded joints. Galvanized, black iron or stainless steel pipes are used for solvent storage tank feed systems and PVC is used for corrosive waste feed systems. All piping runs are within the secondary containment system of the associated tank farm. Pipes connect to switch racks where flexible hoses are used to transfer from pipe to pipe. Flexible hoses may be used to connect tanks to/from tanker trucks. Transfer hoses connect to the pipes via cam lock connections. Each switch rack has a collection trough, which collects any drip and/or spills that may occur while connecting and disconnecting the hoses. The trough drains to a low point that is pumped through a pipe and valve arrangement or gravity feeds to a waste storage tank. All switch racks are located in the secondary containment systems of the hazardous waste tank farms. The facility is currently installing a closed transfer system to reduce emissions.

Ancillary equipment used by the Romic Facility is secondarily contained through the use of external liners and double piping systems. The Romic Facility utilizes portable air-driven and electrically-driven pumps or permanently installed air and electrically driven pumps to transfer material throughout the facility. The portable pumps are situated within a tank farm or process unit secondary containment system prior to transfer of material. Facility personnel monitor portable pumps while material transfers are conducted. If a portable pump leaks during material transfer the employee will cease the transfer operation. Pumps are inspected as specified in Section F, Procedures to Prevent Hazards. Spilled material will be handle in accordance with the procedures specified in Section G, Contingency Plan. Permanent pumps are located within secondary containment areas.

Piping systems within the Romic Facility are primarily situated within secondary containment structures. There is also limited aboveground piping that connects some of the tank containment and process areas. This flanged and/or welded pipe is inspected daily for leaks or other signs of deterioration. Piping systems are inspected as specified in Section F, Procedures to Prevent Hazards.

E10.2.1. OVERVIEW

As a normal, integral part of facility operations, Romic must move waste from one location to another within its plant. In addition to the use of hard piping and pumps, Romic may use tanker trucks to accomplish intra-facility transfers. Specifically, the intra-facility transfers accomplished using tanker trucks are:

- Bulking of Containerized Wastes

- Sludge Wasting
- Pumping of Truck Wash Tank
- Removal of Sludge from Tankers
- Removal of Sludge from Tanks
- Collection of Accumulated Precipitation
- Transfer of Fuels from Liquefaction to Fuel Blending Tanks
- Transfers from/to Tanks to/from Process Units
- Transfers While Equipment Is Down
- Spill Response

Each of these transfers is described further below. These transfers may also be accomplished using means other than tanker trucks.

E10.2.1.1. Bulking of Containerized Wastes

Wastes received by Romic in containers (such as 55-gallon drums) may need to be consolidated and transferred to a storage tank or process unit. Tanker trucks are used for this consolidation and transfer. Romic consolidates waste streams to be managed through fuel blending and aqueous processing in this manner.

E10.2.1.2. Sludge Wasting

During operation of the biological wastewater treatment system, microorganisms multiply and die. To maintain optimal performance of the system, excess biomass, consisting of live and dead microorganisms, must be removed. Romic will use tanker trucks to remove the excess biomass. The biomass and water removed from the system will either be reprocessed through the aqueous processing system (distillation and subsequent treatment in the biological treatment system) or transferred to the facility's sewer discharge tanks.

E10.2.1.3. Pumping of Truck Wash Tank

Romic's Truck Wash system cleans out the interior of tanker trucks using water sprayed through a high-pressure spray ball. The initial rinse is emptied into a 1700-gallon polyethylene tank. This tank must be emptied periodically and the contents transferred to a storage tank or process unit.

E10.2.1.4. Removal of Sludge from Tankers

Tankers containing hazardous waste (received from off-site or intra-plant tankers) are normally unloaded by connecting a flexible hose to a fitting after the valve on the back of the tanker. If there is heavy material (viscous and/or high solids content) in the tanker, it may remain after normal unloading. The most efficient means of removing this heavy material is through the use of a vacuum tanker. Tankers may also be used to remove liquid waste from other tankers in case of equipment problems.

E10.2.1.5. Removal of Sludge from Tanks

Heavy material, very viscous and/or laden with solids, will, from time to time, accumulate in storage and process tanks. These heavy materials are difficult or impossible to remove using ordinary means. The use of a vacuum tanker is the most feasible means of removing such materials from tanks.

E10.2.1.6. Collection of Accumulated Precipitation

Rainwater accumulates in containment areas as well as other areas in the plant. While some containment areas are equipped with hard piping, others can only feasibly be pumped using a tanker truck.

E10.2.1.7. Transfer of Fuels from Liquefaction

The Liquefaction process unit removes viscous and/or solids-laden material from drums. The removed materials are particle-sized and suspended in an organic liquid. The resulting liquid with suspended solids is managed as a hazardous waste derived fuel. The Liquefaction unit includes a 1,000-gallon holding tank for the fuel. The fuel must be transferred from this holding tank to the facility's fuel blending tanks. The Liquefaction unit was originally designed to transfer waste to a tanker truck. The unit is equipped to automatically transfer liquefied fuels to the tanker as it is blended. The unit is equipped with mechanisms to dissipate static charges on the tanker, and to create an oxygen deficient atmosphere within the tanker. The unit is programmed with interlocks that will not allow waste to be transferred to the tanker unless it is grounded and the nitrogen purge cycle has been completed. The facility has (DTSC-approved) plans to install fuel blending tanks near the Liquefaction unit, but current business conditions do not justify the capital expenditure. The only feasible way to transfer the fuel from Liquefaction to Fuel Blending is by tanker truck. The facility has evaluated the idea of installing pumps and hard-piping from the Liquefaction unit to its main fuel blending tanks in Tank Farms B and A. However, such a system would be prone to clogging, and would require a great deal of additional repair and maintenance work.

E10.2.1.8. Tank-to-Tank, Tank-to-Process Unit, Process Unit-to-Tank Transfers

Material must periodically be transferred between tanks or between tanks and process units. Most of the frequent tank-to-tank and tank-to-process unit transfers occur through a combination of piping, pumps, and flexible hoses, because the facility does not have sufficient hard piping to accomplish such transfers. There are some transfers that need to be accomplished through use of a tanker truck.

E10.2.1.9. Transfers While Equipment Is Down

Tanker trucks are necessary for use as a contingency in case of equipment breakdown. Equipment breakdown scenarios may involve plugged lines, broken pumps, excess solid accumulation in tanks, or valves in need of repair.

E10.2.1.10. Spill Response

In case of a spill involving a substantial amount of liquid material, the most effective response will generally entail recovery of as much liquid as possible. This is most easily accomplished for larger spills by using a vacuum truck.

E10.2.2. DESCRIPTION OF PRACTICE

Tank trucks and tanker trailers are used as conveyances to transfer wastes between units and between containers and units within Romic's facility. Hazardous waste will only be transferred to permitted units. Waste will not be stored in tank trucks or tanker trailers. Waste may remain in tank trucks and tanker trailers for a maximum of 24 hours.

E10.2.2.1. Equipment

The equipment to be used to accomplish intra-plant transfers consists of tank trucks and tanker trailers. These are the same vehicles that are used for over-the-road transportation of hazardous materials. Tank trucks are straight trucks mounted with a liquid-carrying compartment (tank). Tanker trailers are trailer-mounted tanks, and require a power unit (tractor) to move them.

Both tank trucks and tanker trailers may be equipped with liquid pumps to directly pump materials, or pressure/vacuum pumps to create a differential pressure within the interior of the tank. This differential pressure causes the movement of liquid materials into or out of the tank.

E10.2.2.2. Locations

Tankers to be used for intra-plant transfers will be staged near the source of the waste to be transferred or the destination of the waste. Romic will wait for analytical results, if compatibility testing is necessary, before transferring material to a tank or process unit. During this waiting period, the truck will be monitored (for signs of leakage) and/or parked in an area with full secondary containment.

E10.2.2.3. Secondary Containment

The active area of the facility is designed and constructed to provide containment for spills and releases that may occur during transfers. An independent registered professional engineer has certified the adequacy of this containment, pending certain specified improvements to be made.

In addition, Romic will provide secondary containment for transfers to and from tankers using either existing bermed areas (i.e., the bay between Tank Farm MNO and Tank Farms R, C, and L, and the bay between Tank Farms R, C, and L, and Tank Farm B.

The two existing areas currently do not have sufficient capacity to contain the contents of a full 5,000-gallon tanker. This permit renewal application includes plans for construction to increase the capacity of both areas.

E10.2.2.4. Waste Streams

The primary waste streams Romic will transfer using tanker trucks fall under four categories: aqueous wastes contaminated with organic compounds, fuels-type wastes, ethylene glycol/antifreeze, and solvents. Other wastes may be transferred in unusual situations, such as in the case of an equipment breakdown or spill response..

E10.2.2.5. Shutdown

At the end of each transfer operation, the employee will "clear the line" by continuing to operate the pump until all lines (hoses and piping) are clear. Valves will be closed in proper sequence to allow material to be removed from the line and to prevent material from flowing back into the line.

E10.2.3. Controls

E10.2.3.1. Engineered Controls

Overfill prevention. Vacuum tankers are equipped with a float valve that prevents material from entering the tanker when the liquid level reaches the designated high level.

Material Of Construction, Compatibility With Materials To Be Handled. Tankers to be used for intra-facility transfers will be constructed of carbon steel or stainless steel. Both of these materials are compatible with the organic and aqueous wastes that will be transferred.

Structural Integrity. Tankers used for intra-facility movements will meet US DOT standards for cargo tanks transporting hazardous materials. These tankers will be subject to the ongoing qualification requirements in the US DOT Hazardous Materials Regulations.

Secondary Containment. As noted above in Section E.10.2.2.3, Romic's entire plant provides adequate containment. In addition, Romic may use either existing secondary containment structures for transfers.

Spill Response Equipment. Emergency equipment is located throughout the facility, including (loaded) truck parking areas, and particularly in locations where waste transfers occur. Emergency equipment capabilities and locations are listed in the facility's Contingency Plan, Section G of the approved Operation Plan.

E10.2.3.2. Administrative Controls

Twenty-four Hour Limit. Romic will hold waste on intra-facility tankers for no longer than 24 hours during each transfer event. This comports with historical USEPA guidance directed toward recycling facilities that states that, according to some States and Regions, storage permits are not required for holding waste for up to 24 hours prior to recycling.

Compatibility, Contents/Residues. The materials to be transferred, as detailed in section E10.2.2.4 above, are generally compatible with each other. However, prior to each transfer, a Romic supervisor or manager will evaluate whether a concern of incompatibility exists. If such a concern exists, then additional steps such as bench scale testing or washing of the tanker will be taken.

Equipment Inspection. Tankers used for intra-facility transfers will be inspected prior to each use. Each inspection will be documented and will cover the following:

INSPECTION ITEM	TYPE OF PROBLEM
Tanker Shell	Damage, corrosion, leak
Pump Motor/Pump	Not operating, leaking; Fluid level low
Vacuum Gauges	Not operating
Float (level) Gauges	Not operating
Valves	Not operating, leaking
Hoses and fittings on truck	Damaged, leaking
Evidence of leaks or spills	Pooled liquids, staining of concrete, dripping liquids, visible vapors

In addition, prior to initiating a transfer, employees will be instructed to locate the appropriate spill control and emergency equipment in the vicinity of the transfer. This emergency equipment is subject to regular documented inspections in accordance with the facility's inspection plan.

E10.3 PROHIBITED ACTIVITIES

During routine operations involving a tank or tank truck, no Facility employee will be allowed to enter any of these vessels. If a vessel requires entry for cleaning, internal inspection, or any other purpose, such work will be performed by personnel trained in confined space procedures under Title 8 of the California Code of Regulations. The Facility uses appropriate lockout/tagout and confined space procedures and will ensure that the vessel is isolated from any other operations and the operation is conducted safely.

E10.4 ON-SITE GENERATED HAZARDOUS WASTES

The Facility will also be a generator of hazardous wastes. Process treatment residuals, handled as off-site wastes, are managed as discussed in each of the process descriptions. Strictly on-site generated hazardous wastes include:

- Used oil (from vehicle maintenance)
- Laboratory wastes
- Universal wastes (lights, batteries, and CRTs) generated from on-site sources
- Lead-acid batteries generated on-site
- Non-empty containers of process chemicals

The procedures described in Section I must be followed for hazardous wastes generated at the Facility. These waste streams may be managed on-site in one or more 55-gallon drums, a 40-cubic yard bin, or other containers as needed. Some on-site generated waste streams may be consolidated with off-site wastes. For example, certain laboratory wastes may be consolidated with similar wastes in the Facility for fuel blending or other processes.

E10.5 SPECIAL LOADING PROCEDURES

The Liquefaction tanker requires special loading procedures that are described here.

Once the liquefaction system has produced a liquefied fuel through the grinding, shredding and resuspension processes, the fuel is ready for transfer to a tanker truck. Prior to initiating the transfer, the truck will be purged with nitrogen to produce an inert atmosphere through an automated process. This process will also allow sufficient time to dissipate any static charges that may have developed during the particle sizing process. Unless the purge process is completed, the discharge pump from the blend tank will not operate. In addition, the pump cannot be activated, until the nitrogen flow switch and associated timer detects 10 minutes of flow of nitrogen. Once the nitrogen flow has been completed, the system will allow the discharge pump to be activated.

E10.6 SPECIAL PROCEDURES FOR IGNITABLE/REACTIVE WASTES

The purpose of this section is to describe the handling techniques employed by the Romic Facility when storing or treating ignitable or reactive wastes in tanks.

E10.6.1. Ignitable Wastes

Ignitable wastes are stored and treated in tanks at the Romic Facility.

Hazardous waste storage tanks containing potentially ignitable waste are adequately located away from (a) a property line that is or can be built upon, and (b) the nearest side of any public way or from the nearest public building, as required by the National Fire Protection Association's (NFPA) buffer zone requirements for ignitable wastes.

Ignitable wastes are accepted in tanks for storage, distillation and blended for use as alternative fuels. Ignitable wastes will be consolidated in these tanks with compatible materials (usually designated as "flammable" by DOT standards) that are destined for energy recovery as fuel. This consolidation does not render the waste non-ignitable, but ignitable storage is protected from any material or conditions that may cause the waste to ignite. In addition to meeting buffer zone requirements, all ignitable waste is stored away from ignition sources in an open area as discussed in Section F5.1, Precautions to Prevent Ignition or Reaction of Ignitable or Reactive Waste. "Danger-No Smoking, No Open Flames" signs are posted prominently in the hazardous waste fuel storage area, and smoking is confined to specific areas away from storage and treatment areas.

The following are precautions that are in place at the Romic Facility to prevent the accidental ignition of ignitable waste:

For each tank that stores or treats ignitable waste the tank is equipped with:

- Conservation vents,
- Submerged fill lines.

To prevent the generation of sparks through static electricity all steel structures are commonly grounded. This combined with transfer grounding procedures (as recommended in NFPA 77 Recommended Practice on Static Electricity) will significantly reduce the possibility of generating a static charge during pumping operations involving flammable liquids. All pumps, motors and electrical equipment are grounded at the motor control center via a grounding grid beneath the motor control foundation. All connections are welded to assure proper integrity.

Furthermore, all pump motors are explosion proof and in many situations air operated diaphragm pumps are used to eliminate the possible generation of a spark. All process equipment and storage tanks utilize standard safety equipment and design such as rupture discs and emergency venting to prevent explosions.

Condensers are used in our process area to provide subcooling, which reduces vapor emissions from the condenser vents.

In addition to the general practices above, specialized procedures may be employed at specific process areas. For example as described in Section E3.2, the Liquefaction Unit uses a nitrogen purge in the equipment to suppress the possibility of a fire.

E10.6.2. Reactive Wastes

Reactive wastes identified in 22 CCR 66261.23(a)(1)through (a)(5) are accepted at the Romic Facility in quantities of 55-gallons or less and will not be stored or treated in tanks. Reactive wastes identified in 22 CCR 66261.23(a)(6), (7), and (8) are specifically restricted from acceptance at the facility.

Reactive waste will be segregated from any incompatible material while stored at the Romic Facility. Tanks will not be used to store or treat reactive wastes.

E10.7 SPECIAL PROCEDURES FOR POTENTIALLY INCOMPATIBLE WASTES

Wastes may be tested for compatibility with wastes already in the tank prior to being introduced to the tank. Waste incompatibility for all wastes is determined by the procedures described in Section C7.3. Waste profiles and check-in procedures are discussed in Section C4.

Incompatible wastes or materials are not stored in the same tank or in an unwashed tank that previously held an incompatible material. Before a tank can be used for storage of a material that is incompatible with residue in the tank, the tank is cleaned of residual waste. Incompatible wastes may be mixed during the neutralization process under controlled conditions (see Section F).

E10.8 TANK CLEANING PROCEDURES

The storage tanks at Romic may require cleaning when the service is changed from waste to product storage, between different products, to enhance operational efficiency, and to remove any residuals that may have been stored for a period approaching one year. Romic schedules loads and assigns tank dispositions to minimize the cleaning requirements.

Tank cleaning may be accomplished by rinsing with water, steam cleaning, or pressure washing, depending upon the level of contamination. All of these methods use either water or aqueous cleaning solutions. Tanks may also require permit-required confined space entry. Requirements for tank entry are described in Section F2.4 of this application. The effectiveness of tank cleaning is usually verified through visual inspection. Residues resulting from tank cleaning are managed as hazardous waste through our Wastewater Treatment process.

Romic Environmental Technologies Corp.

CAD 009 452 657

East Palo Alto, California

Section F

Procedures to Prevent Hazards

November 2001
Rev. 4/05

CONTENTS

Tables, Figures, and Appendices are presented
in separate sections following the main body of the text.

CONTENTS

F PROCEDURES TO PREVENT HAZARDS

F1 SECURITY PROCEDURES AND EQUIPMENT

Facility security procedures and equipment are in place to prevent unknowing access by persons and to minimize the possibility of unauthorized entry of persons or livestock.

F1.1 BARRIER AND MEANS TO CONTROL ENTRY

The Facility is completely surrounded by six- to eight-foot-high chain link fence and block walls. The fence and walls are topped with three strand barbed wire. Exits and entrances are located to control traffic flow, limit access to the active area (i.e., waste and product handling area) of the facility, and provide emergency escape. Figures G-4 and G-5, Primary and Secondary Assembly Area, Evacuation Routes, and Exits, show the facility fences, gates, and escape routes. The plant is illuminated at night by automatic outdoor lighting.

The primary access/egress gate to the Facility is at Bay Road. This gate is normally closed, and can be opened by remote control. Employees are assigned garage door opener-type transmitters that activate the gate. The gate can be opened by personnel in the main office (Building 1). Visitors during normal business hours can call the Facility receptionist from a phone situated just outside the gate. The receptionist can also observe vehicles in front of the gate via closed-circuit television. Access to the active area of the facility is restricted to waste transportation vehicles, authorized personnel, and escorted visitors. Gates to the active area are typically closed and employees monitor for unauthorized personnel.

F1.2 WARNING SIGNS

Signs printed with the legend, "Caution - Hazardous Waste Area - Unauthorized Personnel Keep Out" are posted on the gates and along the perimeter fence. English and Spanish are the predominant languages in the area, and therefore warning signs are posted in these languages. The signs are visible from any approach to the facility and legible from a distance of 25 feet. They are attached to the fence and gates at a height of approximately five feet.

F2 INSPECTION PLAN

The inspection plan is intended to protect human health and the environment by detecting, preventing, and responding to malfunctions, deterioration, operator errors, and unplanned discharges. The inspection schedule, which is kept in the facility operating record, is based on operating experience and engineering knowledge.

F2.1 INSPECTION REQUIREMENTS

In general, facility inspections are conducted to prevent, detect, or respond to environmental or human health hazards. Inspections address the following items: safety and emergency equipment, security equipment, operational equipment, container storage areas, load/unload areas, and tank systems.

The inspection schedules in Table F-1 specify the items inspected, the types of problems looked for during inspections, and the frequency of the inspections. The frequency of inspection is based on the rate of possible deterioration of equipment and structures, and the probability of an environmental or human health incident if an unsatisfactory condition (e.g., deterioration, malfunction, or operator error) goes undetected between inspections. The following paragraphs generally describe the inspection schedule.

Safety and emergency equipment is checked weekly, monthly, semiannually, annually, biannually, and as used. Equipment is checked for access and operability in the event of an emergency.

Security equipment is inspected monthly to prevent unauthorized access to the facility, ensure warning signs remain posted, and ensure the facility is properly lighted.

Operational equipment is inspected before use to ensure safe operation, and regularly scheduled servicing is completed to maintain the equipment in good operational condition.

Sumps and secondary containment structures provided for all tank systems, load/unload areas, and treatment systems are visually inspected daily to detect leaks, spills, or accumulated liquids. Accumulated liquids typically will be removed by the end of the 8-hour shift in which they were detected, and will be removed within 24 hours of discovery, except as provided for below. The inspection logs will note the time accumulated liquids were discovered and removed. Removal of precipitation will be completed within 24 hours after the end of a rainstorm. All tank secondary containment systems are inspected daily to detect the presence of cracks or deterioration of concrete and the accumulation of dirt or other materials that may prevent the inspection of concrete. Container storage secondary containment systems are inspected weekly.

Hazardous waste container storage and processing areas are inspected at least weekly for leaks, spills, proper stacking arrangements, aisle spacing, and the segregation of incompatible materials. Also, containers are inspected for any signs of physical deterioration or corrosion, and labels are checked to ensure they are visible and legible.

Hazardous waste tank storage and processing systems, including tanks, process equipment, load/unload areas, secondary containment structures, and ancillary equipment, are inspected daily for signs of corrosion, weld breaks, punctures, spills, and secondary containment erosion or deterioration. Overfill control equipment is inspected to ensure good working order. Procedures to assess the structural integrity of tanks over time (e.g., corrosion, cracking, wall thinning) are addressed in Section F4, Tank Condition Assessment.

In cases where specialized outside contractors are needed to perform specific inspections (e.g., sprinkler or alarm systems), the results will be reported on the contractor's inspection forms, checked off on the Romic inspection form, and retained in the operating record.

Some equipment/units/area may be placed out of service for extended periods of time. Under these circumstances, inspections may be suspended. Inspectors will make a note on the inspection logs to indicate equipment out of service. For example, at this writing, the use of Tanks A-J has been suspended, and the tanks will be removed. Inspections will resume when the replacement Tanks A-I are constructed.

F2.2 INSPECTION LOG

Inspection forms are used to document information gathered during inspections of facility equipment and operational areas. Example inspection forms are provided in Appendix F-1. The forms are designed to ensure that all items are inspected as required by the inspection schedules in Table F-1. Each form has been developed to assess a certain aspect or area of the facility such as: safety and emergency equipment, security equipment, operational equipment, container storage areas, tank systems, and waste treatment units. The forms note the date and time of inspection and the printed name and signature of the inspector. The forms also contain a detailed list of specific equipment and areas to inspect, specific items to note during the inspection, and a space for the inspector to note whether or not the observation points are in satisfactory condition. There is also space for the inspector to note any comments and/or a maintenance work request number generated. The inspection forms are modified as necessary to accommodate operational or equipment changes (including the installation/construction of planned units) at the facility. A permit modification will be submitted prior to any form changes or operational and/or equipment changes.

F2.3 REMEDIAL ACTION

If an inspection item is found to be in an unsatisfactory condition, the following remedial action procedures are initiated.

If the employee notes an item that requires an immediate response (e.g., leaking container or tank), the situation will first be brought under control in accordance with procedures described in the contingency plan (Section G). After the situation has been controlled, the incident and the corrective action will be noted on the inspection form. A maintenance request form may also be completed if necessary.

If an immediate response is not required, the employee notes and describes any unsatisfactory conditions in the comment column of the inspection form. Upon completion, the inspection forms are reviewed by the appropriate department management or designee. Unsatisfactory conditions that do not require repair or maintenance of equipment (e.g., torn labels, fire extinguisher out of place) will be corrected by the end of the shift in which they were detected. The date and time of the corrective action will be noted on the inspection form by the Operations Manager or designee. For unsatisfactory conditions that require repair or maintenance of equipment (e.g., crack in secondary containment, damage to security fence), a priority level is determined and a numbered maintenance request form is issued which outlines the appropriate repair/remedial action. The maintenance request number is noted on the inspection form.

An emergency response level (Priority E) indicates the repair/remedial action is to be initiated immediately and closely monitored until completion. An urgent response level (Priority U) indicates the repair/remedial action is to be initiated within one day and closely monitored until completion. A routine response level (Priority R) for repair/remedial action is typically expected to be completed within six days, however physical or operational constraints (e.g., availability of replacement parts or equipment) may require longer routine repair/remediation times. A long-term response level (Priority B) is for projects that do not present an immediate threat to human health or the environment and the repair is not critical to routine operations. These projects are generally expected to be completed within 1 month.

The maintenance request forms specify corrective actions/repairs and note any supplies or equipment used to ensure replacements are ordered. An example of a maintenance request form is provided in Appendix F-2.

Copies of the inspection forms and maintenance work request forms are kept in the facility operating record for a minimum of three years.

F2.4 TANK CONDITION ASSESSMENT

Tanks used to store or treat hazardous waste are periodically assessed to ensure that they retain their structural integrity and will not collapse, rupture, or fail. The frequency of tank integrity assessments is based on several factors, including:

- The age of the tank system,
- Materials of construction,
- Type of corrosion or erosion protection used (where applicable),
- Historical and/or estimated data on corrosion rates,
- The nature of the material stored/treated, and
- The threat to public health posed by a release of the contents due to failure.

The assessment schedule and procedures are adequate to detect cracks, leaks, corrosion or erosion.

Existing regulated tanks undergo periodic integrity assessments based on engineering recommendations. . The scheduled tank integrity assessments are conducted by Romic in-house assessors or independent contractors. These assessments consist of ultrasonic shell thickness measurements as recommended by API 650 and a visual examination per CCR 66264.191 Integrity assessments will be certified by an independent engineer. Records of all tank assessments are maintained in the facility operating record.

Newly installed or upgraded tanks will be certified as fit for their intended use by an independent, qualified, professional engineer registered in the State of California prior to being placed into service. Tanks and tank systems undergoing major repairs will also be certified by a professional engineer registered in the State of California. Romic will submit a copy of each such tank system certification to the Department.

Tank Entry Procedures

When a tank is inspected or repaired from the inside, the tank must be emptied and a confined space entry procedure followed in accordance with Article 108 of Title 8 of the California Code of Regulations, Sections 5157. These procedures are outlined below.

Prior to entry all free liquids and sludges are pumped from the tank to another compatible tank. The tank is isolated by employing proper Lockout/Tagout procedures to include (but not limited to): locking, blanking or removing all directly connected fill, suction, purge treating or other lines and piping to and from the tank. Once the tank has been isolated it is cleaned and purged of all residues and air-ventilated.

Following this step, the atmosphere inside the tank is tested for oxygen deficiency, flammability, and toxicity to check for safe entry conditions. Under current practices tank entry does not proceed unless the oxygen content is $\geq$ 19.5% and < 23.5%, and the atmosphere within the tank is less than 10% of the Lower Explosive Limit (LEL). A multi-gas detector is also used to screen or check for toxic conditions in the tank. Hazardous conditions are deemed to exist if the airborne concentration of contaminants is above the OSHA-established Permissible Exposure Limit, the ACGIH-established Threshold Limit Value, or other industry- or agency-established limit. If hazardous conditions are found or suspected to exist, the Romic EH&S Department is consulted before entry proceeds.

A continuous flow of fresh air is pumped through the tank (bottom to top or top to bottom) at all times, and the air is continually monitored for oxygen deficiency, CO, H_2S, and combustibility. Personnel will exit the tank if 10% of the LEL is reached. If required, additional toxicity checks will be performed.

All employees engaged in a confined space entry shall adhere to confined space entry procedures and are required to wear protection for the eyes, face, hands and ears, either rubber or acid resistant protective clothing, and respiratory protection. Supplied air respirators may be utilized if the conditions within the tank require the use of an external breathing air source. Employees also wear a safety harness with lifeline. At all times while workers are inside the tank, an attendant, with the ability to summon emergency response personnel, is stationed outside the tank.

During tank repair, all gas cylinders or welding machines are left outside of the tank. Torches, hoses, cables and electrodes may be taken inside the tank. Electrical equipment and tools shall be selected in accordance with the hazard of the situation.

Additional equipment at the job site includes fire extinguishers, extra rope, harnesses, and supplied air respiratory protective equipment.

F3 PREPAREDNESS AND PREVENTION MEASURES

F3.1 EQUIPMENT REQUIREMENTS

F3.1.1. Internal and External Communications

The plant is equipped with a facility-wide telephone system with public address (PA) loudspeakers mounted outside near waste management areas. The system is capable of providing immediate instruction to personnel. Each telephone is capable of direct dialing to emergency response groups such as police, fire and ambulance. Intercom/paging (PA) numbers, emergency response phone numbers for police, fire and ambulance and Romic Environmental phone numbers are posted throughout the facility.

Hand-held two-way radios are available to facility personnel for communicating during waste management activities or emergency situations. Personnel will be made aware of the requirement for safe operating conditions when using the radios.

The majority of the process systems at the facility have alarm panels with audible warning alarms. The alarms will sound to alert the operator(s) when control parameters of the process equipment have deviated from preset operating conditions or reached a desired set point. This can indicate that the system may be approaching an unsafe operating condition if allowed to persist. The panels indicate the location and warning condition of the affected system. Alarms on equipment are set to allow operators sufficient time to make adjustments or shut down processing equipment before operating conditions become dangerous.

Figure G-2 indicates the locations of telephone/intercoms, speakers, and alarm panels throughout the facility.

F3.1.2. Emergency Equipment

Equipment used for response to spills and other incidents is readily available and inspected regularly for access and operability in the event of an emergency situation. Refer to Table G-2 and Figure G-2 for a description and location of incident response equipment.

Spill response equipment including absorbent materials, overpack drums, supplied air respirators, protective clothing and numerous hand tools are stored in various locations around the facility. Mobile equipment such as portable pumps and forklifts are available for use as well.

Portable multi-use fire extinguishers are placed throughout the facility, in accordance with the Uniform Fire Code (UFC). Fire hydrants are strategically located throughout the inside fence of the facility. The fire hydrants are capable of supplying sufficient water to all active process and storage areas in case of a fire. Fire suppression equipment, in accordance with minimum requirements set by the Menlo Park Fire

Protection District and the UFC, are installed in the active covered process and storage areas of the facility. Containment requirements for fire suppression systems are adequate; see Section D for containment calculations. First aid kits and incident response equipment are readily available. Emergency showers and eye wash stations are installed throughout the facility.

F3.1.3. Water and Fire Control

The facility has been equipped with adequate automatic fire suppression systems in the active covered treatment and storage areas of the facility as required by the UFC. The systems are maintained every 1 year to 5 years by a contractor service. The maintenance frequency of the fire suppression system depends on the system type. Containment systems that are subject to firewater discharge meet the containment requirements specified in the UFC.

There are approximately 30 portable fire extinguishers readily available throughout the facility. These are typically 30-lb. Dry Chemical Extinguishers and can be used on Type A, B, and C fires. Three 300-lb. Dry Chemical Extinguishers are located in strategic locations throughout the plant. All the drum storage and processing buildings (excluding West Storage Building #1 and the proposed inorganic waste treatment system) have been equipped with automatic foam sprinkler systems that also have manual override capability. Additionally, three AFFF foam hose reels are located near the drum storage areas. See Figure G-2 for types and placement of fire control equipment at the facility.

The facility has several fire hydrants in the plant (see Figure G2). These hydrants are within close proximity of all active process and storage areas and can be easily accessed during an emergency. The water system is checked to ensure that it produces an adequate volume and pressure of water to supply the facility.

F3.2 AISLE SPACE REQUIREMENTS

The facility is inspected for adequate aisle space, allowing unobstructed movement of emergency vehicles, personnel, and fire control/spill response equipment, and access to facility exits and entrances. To help assure unobstructed access and movement in an emergency, only waste transportation vehicles, intra-facility equipment (e.g., fork lifts) and service vehicles are routinely allowed in the active area of the facility. Access lanes and areas are clearly marked throughout the facility. Containers are stacked with a minimum of 36 inches of aisle space to facilitate movement of emergency equipment, except in the planned Drum Pumping Area, where containers will be staged with a minimum of 24 inches of aisle space between rows. Detailed stacking diagrams are included in Section D, Figures D-2 through D-6.

F3.3 ARRANGEMENTS WITH LOCAL AUTHORITIES

Arrangements have been made with emergency response groups as to the type of response and the nature of the hazards they may encounter at the Facility. The Facility has submitted its contingency plan to all appropriate agencies.

In general, the first responding Battalion Chief from the Menlo Park Fire Protection District would act as the Incident Commander for an emergency at Romic, the California Highway Patrol for an emergency involving a truck on a state highway, and the local police/sheriff for an emergency on local/county roads. However, in the last case, the local police/sheriff typically will give up the command to a recognized qualified HAZMAT team.

An external response is initiated by calling 9-911 or, in the case of a fire, automatically or manually by various alarms. At a minimum, the Fire Department will respond. Additionally, the Countywide Hazardous Materials Response Team may be called in via San Mateo County Communications. County Communications will dispatch units of the Countywide Hazardous Materials Response Team.

F4 PREVENTION PROCEDURES, STRUCTURES AND EQUIPMENT

F4.1 UNLOADING/LOADING OPERATIONS

Bulk waste materials are transported to and from the facility in tank trucks, and roll-off boxes, while containerized wastes are typically transported on flat beds and in vans. Facility personnel involved in the unloading/loading of waste are instructed in the proper operational procedures and use of equipment necessary to prevent hazards (see Section H, Personnel Training).

The unloading/loading procedures used to prevent hazards and contain spills of bulk materials, such as liquids in tank trucks are outlined in Section E10.1, Truck Loading/Unloading. Container unloading/loading procedures are outlined in Section E9.1, Container Management Practices.

F4.2 RUN-OFF PREVENTION

Run-off prevention procedures and procedures for removal of accumulated liquids are described in Section D.2.4.3 (container storage areas) and D.4.1.5 (tank and process containment areas). In addition, storm water from all storm drains on-site is collected. Generally, the active area of the facility is sloped to contain all precipitation falling within the area, preventing run-off. The first-flush of water is collected in a tanks and processed through the Biological Treatment System (see Section E4.2). Other storm water is collected, tested, and treated if necessary.

F4.3 GROUND AND SURFACE WATER PROTECTION

Degradation of ground and surface water quality at the facility is prevented through operation of hazardous waste management units, primarily by secondary containment systems, to prevent releases to the environment or endangerment of public health. Design specifications for secondary containment systems can be found in Section D2.4 for container storage areas and Section D4 for tank and process areas.

Romic has procedures in place to mitigate, control, and clean-up releases to the environment and to prevent contamination of water supplies (see Section G, Contingency Plan).

F4.4 EQUIPMENT AND POWER FAILURE

In the event of an electrical power failure, plant personnel are instructed to shut down all electrical operations until normal power is restored. Valves are closed and transfer pumps shut down to eliminate possible spills.

Emergency lighting is provided by hand-held flashlights placed throughout the facility. Backup power is not needed for the following safety devices because they do not have any electrical components: showers and eyewash stations, fire extinguishers, and fire suppression systems. Emergency coordinators (see Table G-1 Emergency Coordinator List) are equipped with cellular phones that allow them to contact outside support in the event of a power outage.

In the event of a power failure, liquids can be removed from containment areas and sumps utilizing a vacuum truck. The facility is equipped with an emergency generator that provides power for temporary operation of much of the plant. This emergency generator is located outside of the South Storage Building. Additional equipment is available from rental companies in near by communities, other Romic divisions, and local emergency response agencies.

F4.5 PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment (PPE) is provided to prevent undue exposure of facility personnel to hazardous waste. Personnel protection is accomplished through plant layout and design, waste management equipment and practice, employee training, and use of proper protective clothing and equipment. A medical surveillance program is utilized to monitor the employee protection.

The waste management systems are designed to minimize exposure of personnel in handling wastes. Liquid waste is stored/treated in closed-roof tanks. Waste is transferred, within tank systems, using fixed-in-place piping systems or hoses which are inspected before use. Container lids are kept closed except when adding to, removing from, or sampling the waste.

All personnel are required to complete training in the proper management and safe handling of hazardous waste and in the use, selection, and proper fit of PPE. A complete listing of training programs is described in Section H, Personnel Training.

Each employee is provided with safety equipment for their personal use. This equipment, which is kept at the facility, includes: hard hats with face shields, safety glasses/goggles, acid/organic cartridge respirators, ear protection (foam plugs), cotton and Tyvek coveralls or equivalent, full PVC rain suits, gloves (Neoprene, PVC), and steel-toed rubber boots. Emergency equipment available at the facility includes: first aid kits, eye wash and shower stations, and spill response kits (see Table G-2, Emergency Equipment List).

While engaged in loading, unloading, transfer, or cleaning operations, personnel are directed to wear steel-toed boots, chemical-resistant gloves, eye/face protection, respirators as necessary, and PVC rainsuits where a splash hazard exists. All personnel within the active portion of the facility are required to wear hard hats and eye protection.

Security measures (see Section F1) prohibit entry into the site by unauthorized personnel. Administrative activity areas not directly involved with the transfer, storage or treatment of hazardous waste are not located within hazardous waste management areas. Authorized visitors must sign in and be escorted, or under observation, by plant personnel while in the facility's hazardous waste management areas.

F4.6 PROCEDURE TO MINIMIZE RELEASES INTO THE ATMOSPHERE

The purpose of air emission control and monitoring is to minimize the releases of Volatile Organic Compounds (VOCs) to the atmosphere. The monitoring, inspection, and recordkeeping practices for minimizing emission control at the Romic facility are discussed in Sections M, N, and O in this permit application.

F5 PREVENTION OF REACTION OF IGNITABLE, REACTIVE, AND INCOMPATIBLE WASTES

Precautions to prevent the ignition or reaction of ignitable, reactive and incompatible wastes through proper handling, mixing, and treatment procedures, and the use of compatible equipment and systems, are described in the following sections.

F5.1 PRECAUTIONS TO PREVENT IGNITION OR REACTION OF IGNITABLE OR REACTIVE WASTES

Open flame and smoking restrictions, acceptable container management practices, process information, and a description of how UFC buffer zone requirements are satisfied for this material are described in Section E9.6, Prevention of Reaction of Ignitable, Reactive, and Incompatible Wastes in Containers.

Storage and treatment tank management practices, process information, and a description of how NFPA buffer zone requirements are satisfied for ignitable material are described in Section E10.6 Ignitable, Reactive, and Incompatible Wastes in Tanks. Most tanks are equipped with combination pressure/ vacuum relief vents. Should cutting or welding be needed, the tanks will be emptied, cleaned as required, and properly vented prior to beginning work (see Section F2.4, Tank Condition Assessment).

F5.2 GENERAL PRECAUTIONS FOR HANDLING IGNITABLE OR REACTIVE WASTE AND MIXING OF INCOMPATIBLE WASTE

Prior to acceptance for storage or treatment, wastes are subject to chemical and/or physical analysis to determine, based on operational constraints and permit limitations, if the waste can be safely handled at the facility. The procedures for pre-acceptance and waste profiling are described in Section C4, Procedures for Receiving Off-Site Wastes.

Before accepting a waste shipment at the facility, representative samples of the waste are analyzed to verify that the load matches its pre-approved profile. The compatibility of materials is determined, prior to consolidation or blending, by mixing representative samples of the waste streams in a prescribed laboratory procedure. Noted reactions include changes in temperature, pH and color, gas evolution, and precipitation (see Section C5, Sampling and Analysis).

In conjunction with treatment activities, waste streams are sampled and analyzed to verify safe treatment procedures, process tolerance limits, and to ensure the equipment is operated within design specifications. Sampling, analysis, treatment processes, and tolerance limits are described in Section C.

Tanks and containers are separated, based on compatibility, by secondary containment systems and appropriate distances according to UFC Tanks at the facility are labeled according to the NFPA 704 Standard System For the Identification of the Hazards of Materials for Emergency Response.

Employees who perform job duties applicable to the management of ignitable, reactive, and incompatible wastes are trained in the proper handling, operational methods, and emergency procedures of management of ignitable, reactive and incompatible wastes (see Section H, Personnel Training). In the event of an incident involving reactive materials, facility personnel will respond by staying clear of the incident until the nature of the hazard has been evaluated and the determination has been made that the area is safe to enter for response activities. For example, in the event of a spill of water reactive material into a containment pad holding precipitation or during a storm event, personnel will wait for the reaction to dissipate prior to commencing response activities. The procedures of the Contingency Plan (Section G) will be followed.

Romic Environmental Technologies Corp.

CAD 009 452 657

East Palo Alto, California
TSD Facility

Section G

Contingency Plan

November 2001
Rev. 4/05

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Tables, Figures, and Appendices are presented
in separate sections following the main body of the text.

G SECTION G CONTINGENCY PLAN

22 CCR 66264.51, 66264.53(a), 66270.14(b)(7)

The objectives of the Romic Environmental Technologies Corp. (Romic) East Palo Alto facility contingency plan are to minimize hazards to public health or the environment from fires, explosions, or any unplanned, sudden or non-sudden release of hazardous wastes or hazardous waste constituents to air, soil, or surface water. This plan also applies to the management of hazardous materials in which a release may require response actions on the part of Romic. Any elements pertaining to hazard prevention are included in Section F3 (Preparedness and Prevention Measures) of the Romic's Part B permit application to the State of California Department of Toxic Substances Control. Current copies of this plan are kept at the facility at all times and are distributed to the appropriate public agencies and emergency response providers.

G1 GENERAL FACILITY DESCRIPTION

G1.1 FACILITY IDENTIFICATION, LOCATION, AND ACCESS ROUTES

Facility Identification

Romic Environmental Technologies Corp. (Romic)
East Palo Alto Facility
2081 Bay Road
East Palo Alto, CA 94303-1316
Telephone: 650-324-1638
EPA Identification Number: CAD009452657

Romic's East Palo Alto hazardous waste management facility is located approximately 1 mile southwest of the Dumbarton Bridge (CA Highway 84) and 2 miles northeast of the Bayshore Freeway (US 101). The primary access route to the facility is from US 101 in Palo Alto. Southbound traffic on US 101 would exit at University Avenue (eastbound), then turn right on Bay Road. Northbound traffic on US 101 would exit at University Avenue (eastbound), turn left on Donohoe, right on University, then right on Bay Road. Following either route, the facility is located on the left side of Bay Road (Figure G-1, Facility Location Map).

G1.2 FACILITY OPERATIONS

The East Palo Alto facility receives a broad range of hazardous wastes for management, utilizing various process options shown in the table below:

PRIMARY PROCESSES	**MISCELLANEOUS MANAGEMENT PROCESSES**
Solvent Recycling	Consolidation of Small Containers
Ethylene Glycol Recycling	*Aerosol Depressurization*
Fuel Blending	*Tanker Truck Wash*
Liquefaction	
Wastewater Treatment	
Neutralization	
Inorganic Treatment	
Solids Consolidation	
Debris Shredding	
Off-Site Transfer	

The facility currently operates on a 24-hours-a-day, 7-days-a-week, 365-days-a-year schedule. An Emergency Coordinator (EC) is available to facility personnel at all times. The EC is familiar with all operations and activities at the facility, and is responsible for coordinating all emergency response actions.

The Facility is completely surrounded by six- to eight-foot-high chain link fence and block walls. The fence and walls are topped with three strand barbed wire. Bilingual warning signs (in English and Spanish) are in place to alert any person approaching the facility of the danger ahead. All gates are kept closed at all times. The plant is illuminated by facility-wide outdoor lighting.

All operational, security, safety, emergency, container storage area, and tank system equipment is inspected on a regular schedule. Scheduled inspections are completed using pre-printed forms that list the item/feature checks for the equipment or system to ensure proper safe operation and readiness. The contents of the inspections are itemized in the Procedures to Prevent Hazards (Section F2 of the Part B permit application).

G1.3 HAZARDOUS WASTES HANDLED AT THE FACILITY

A broad range of hazardous waste may be received for management at the East Palo Alto facility. The facility typically handles waste streams such as solvents, still bottoms, acids, caustics, lab packs, wastewaters, and sludges, although any waste listed in the Part A Application may be received for management. The facility manages wastes in containers and tank systems, utilizing various process options, including solvent recycling, alternative fuel blending, liquefaction, water treatment, and corrosive treatment. Figure G-2, Facility Site Plan, shows the location of the facility's waste management units.

G2 EMERGENCY COORDINATOR RESPONSIBILITIES

22 CCR 66264.52(d), 66264.55, 66264.56

The Emergency Coordinator (EC) is responsible for coordinating emergency response procedures in the event of a release, fire, explosion, or other emergency situation occurring at the facility. In the event of an emergency, the EC must:

- assure the safety of facility personnel,
- assess the nature and severity of the situation,
- initiate the contingency plan, if appropriate,
- coordinate facility evacuation, if necessary,
- direct containment and control operations,
- contact emergency agencies and authorities, and
- initiate clean-up and emergency equipment replenishment operations (cleaning and restocking).

The EC is thoroughly familiar with all aspects of the contingency plan, the East Palo Alto facility layout and operations, the locations and properties of wastes handled, and the location of records within the facility. The EC has the authority to commit the resources needed to carry out the contingency plan (refer to Appendix G-1, Letter of Authorization - Emergency Coordinators).

The Primary or an Alternate EC will be at the facility or on call at all times during both operational and non-operational hours. The Primary Emergency Coordinator is typically at the facility from 7:00 a.m. to 4:00 p.m. weekdays. The on-duty EC can be reached by telephone or personal pager/cell phones. Table G-1, Emergency Coordinator List, lists the names, addresses, office telephone, home telephone, and pager numbers/cell phones of the Primary EC and Alternates in the order in which they assume EC responsibilities.

G3 IMPLEMENTATION OF THE CONTINGENCY PLAN

22 CCR 66264.51

The following emergencies, which could constitute a threat to public health or the environment, would require the implementation of the contingency plan:

- Fire/explosion anywhere on premises,
- On-site and off-site releases of hazardous wastes or hazardous waste constituents, or

- The occurrence of natural disasters.

Detailed examples of these emergency incidents are presented in the following sections.

Fire or Explosion

- A fire in which the use of water and/or chemical fire suppressant could result in contaminated runoff.
- A fire that causes the release of toxic fumes.
- A fire that spreads and could possibly ignite stored materials/chemicals in other locations on or off site.
- A fire that could cause heat-induced explosions of materials/chemicals on site. The potential for explosion poses hazards of flying fragments and ignition of other hazardous materials and their release.

Material Release

- A sudden or non-sudden release which poses a threat to public health or the environment or is an uncontrolled release of a reportable quantity of a hazardous substance.
- A release on site which has been contained, yet the potential exists for contamination of soil, or of surface or groundwater.
- A release from containment, resulting in soil or surface water or potential groundwater contamination.
- An uncontrolled release originating from a damaged shipment which has arrived at the plant in such a condition.
- A release of gas to the air originating from an explosion or reaction of materials.

Natural Disaster

- A release or potential for release of hazardous materials caused by earthquake or severe flooding conditions that damages equipment, foundations, structures, or tanks.
- A release or potential for release of hazardous materials caused by a severe storm involving high velocity winds or lightning that damages tanks or containers.

G4 EMERGENCY RESPONSE PROCEDURES

G4.1 INCIDENT RESPONSE, ASSESSMENT, AND IDENTIFICATION

G4.1.1. Employee Response

Any employee, when faced with an actual or imminent emergency, will first attend to his or her own safety. Then, if and when it is safe to do so, he/she will attend to other employees requiring immediate assistance. The employee will also notify affected facility personnel by means of the PA system, voice and/or hand signals (e.g., shouting of instructions, pointing). Figure G-2 identifies the location of telephones, intercoms, and alarm panels throughout the facility.

In all emergency situations, the employee involved in or discovering the situation will contact the EC and provide information as to the location, nature, and extent of the incident (refer to Table G-1 for the EC List). Figure G-3, Emergency Response Notification Flow Chart, outlines the proper emergency notification procedures.

Section G.4.3 presents the emergency response procedures for the containment and control of emergency situations including injured or endangered employees, fires and explosions, spills and releases, and damaged shipments.

G4.1.2. Emergency Coordinator Response

The EC will assess the situation immediately after an incident occurs (or immediately upon arrival at the site if not present at the time of the incident) to determine the appropriate response actions, including implementation of the contingency plan where public health or the environment are threatened. Romic personnel will only respond to incipient fire or spills within the capability of on-site spill response personnel and resources. If the incident is beyond the incipient stages, then the emergency will be responded to by outside emergency service providers. The EC will ensure that the procedures for containment and control of emergency situations are initiated (see Section G.4.3, Containment and Control of Emergencies). If necessary, the EC will contact outside emergency service providers, and will notify the appropriate local, state, and federal agencies as required. The EC will evaluate the severity and nature of the incident, and will attempt to identify the character, source, quantity, and real extent of any released materials.

The selection of appropriate response actions is influenced by the following factors:

- The severity and nature of the incident: is it a fire, explosion or spill?
- The potential for severe consequences: what is the location of the incident, and to what extent might other areas become involved; are persons off site in danger; will surrounding property be damaged or contaminated; is there a threat to surface and groundwater?

- The current weather conditions: how will the temperature, wind direction, and velocity affect response activities?

Identification of the character, source, quantity, and areal extent of the released materials can be made through the following methods and sources of information:

- Eyewitness accounts: employee discovering emergency
- Visual inspection: real extent, noted fumes, odors, reactions
- Source: origin of leak
- Tank involved: type of waste stored or treated
- Containers involved: labels or placards
- Location of incident: operational or segregated storage area
- In-plant records: waste tracking forms, tank volume logs, manifests, generators' waste profiles.

G4.2 NOTIFICATION

22 CCR 66264.56(d)

The EC will contact the Romic Environmental Health & Safety (EH&S) Department in the event of any emergency regardless of size or extent. The EC will supply specific information as to the type, quantity, and location of released material. EH&S, in conjunction with the EC, will evaluate this information. If it is determined that the facility has had a hazardous substance release, fire, or explosion which could threaten public health or the environment outside the facility, or has had an uncontained release of a reportable quantity of a hazardous substance, the proper local, state, and federal agencies will be notified immediately. The name and phone numbers of these agencies are presented in Figure G-3, Emergency Response Notification Flow Chart. Reports to authorities will include:

- name and phone number of reporter,
- name and address of facility,
- time and type of incident (e.g., fire, release),
- name and the quantity of material(s) involved to the extent known,
- extent of injuries, if any, and
- possible hazards to public health or the environment outside the facility.

Pursuant to 19 CCR 2703, notification to the State Office of Emergency Services and the CUPA will further include, to the extent known:

- an indication of whether the substance is an extremely hazardous substance as defined by 19 CCR 2770.5, Tables 2 and 3,

- duration of the release,
- medium or media into which the release occurred,
- any known or anticipated acute or chronic health risks associated with the emergency and, where appropriate, advice regarding medical attention necessary for the exposed individuals,
- proper precautions to take as a result of the release, including evacuation, and
- names and telephone numbers of person(s) to be contacted for further information.

An example Emergency Information Reporting Form is provided in Appendix G-2.

G4.2.1. Non-Permitted Discharge to Sewer

Romic will notify the East Palo Alto Sanitary District and Regional Water Quality Control Plant as required by East Palo Alto Sanitary District Ordinance No. 42 and the facility's Industrial Waste Discharge Permit. The Regional Water Quality Control Board may also be notified.

G4.2.2. Release to Air

Romic will notify the Bay Area Air Quality Management District as required by the district's regulations.

G4.3 CONTAINMENT AND CONTROL OF EMERGENCIES

The following sections present the response procedures designed to minimize possible impacts to public health or the environment from emergency incidents. These procedures may not necessarily entail implementation of the contingency plan. Procedures are described for responding to injured or endangered employees, fires and explosions, spills and releases, and damaged shipments.

The EC will commit all necessary resources of the company and may also call an outside emergency services provider to assist in the control, containment, and cleanup of a release. The EC will coordinate the activities of the emergency response agencies.

G4.3.1. Injured or Endangered Employees

- Using the Evacuation Alarm, PA system, voice and/or hand signals, notify personnel who may be in danger and request assistance as needed.
- Use appropriate protective clothing and equipment.
- Administer first aid as necessary.
- Phone 9-911 if ambulance is needed.
- Immediately notify EC.

G4.3.2. Fires and Explosions

- Shout "FIRE" warning.
- Using the Evacuation Alarm, PA system, voice and/or hand signals, notify personnel who may be in danger and request assistance as needed.
- Control small fires with extinguishers located throughout the facility.
- If fire is not readily controlled, phone 9-911.
- Immediately notify EC.
- Attempt to contain spills or runoff with absorbent material and diking.
- Remove or isolate incompatible wastes, containers, and other materials from area of the fire when possible.

G4.3.3. Spills and Releases

<u>Load/Unload Areas</u>

- Using the Evacuation Alarm, PA system, voice and/or hand signals, notify personnel who may be in danger and request assistance as needed.
- Cut off source, close valves, shut down pumps as needed, eliminate ignition sources.
- Immediately notify EC.
- Use appropriate protective clothing and equipment.
- Attempt to contain spills or runoff by use of absorbent material or by diking with soil/sand or absorbent booms.
- Contain and prevent further migration of any visible release to the environment outside of containment, provide for removal and proper disposal of visibly contaminated soil or surface water.
- Pump sumps containing spilled material to appropriate storage/treatment tank. If material is unknown, sample from sumps and analyze for compatibility and any constituents/parameters needed to assign an appropriate treatment method prior to pumping to treatment or storage tanks.

<u>Containers</u>

- Using the Evacuation Alarm, PA system, voice and/or hand signals, notify personnel who may be in danger and request assistance as needed.
- Use appropriate protective clothing and equipment.
- Eliminate ignition sources.
- Locate source, attempt to control leak so container can be moved and isolated.
- Immediately notify EC.

- Place container in overpack drum, if necessary.
- Use absorbent materials to contain spill and prevent exposure to incompatible materials.
- After containment is assured, transfer contents of leaking container (and any spill residues and clean up materials) to an appropriate container or tank.
- Contain and prevent further migration of any visible release to the environment outside of containment; provide for removal and proper disposal of visibly contaminated soil or surface water.

<u>Tanks</u>

- Using the Evacuation Alarm, PA system, voice and/or hand signals, notify personnel who may be in danger and request assistance as needed.
- Cut off source to tank, close valves, shut down pumps as needed, eliminate ignition sources.
- Immediately notify EC.
- Use appropriate protective clothing and equipment.
- Provide for containment of spill if secondary containment berms have been damaged.
- Contain and prevent further migration of any visible release to the environment outside of containment, provide for removal and proper disposal of visibly contaminated soil or surface water.
- After quantity and character of spill has been determined, transfer remaining contents of leaking tank (and any spill residues/clean up material) to an appropriate tank or container. The contents shall be transferred within 24 hours after detection of the leak, or, if Romic determines that it is not possible within this time frame, at the earliest practicable time. This action will prevent further release of hazardous waste to the environment, and will allow inspection and repair of the tank system to be performed.
- Assess reason for leak or rupture.
- Remove tank from service if the leak cannot be repaired or the tank is unfit for use.
- Assess damage to ancillary equipment and containment structures.
- Procedures for tank repair:
    a. Transfer remaining material from tank to another compatible tank.
    b. Air ventilate and monitor tank until all confined space entry requirements have been met.
    c. Use volatile organic vapor detector to verify no volatile vapors are present. Use confined space entry procedures for internal repairs.
    d. For internal repairs, clean tank, pressure washer, or steam cleaner (for organics). Capture rinsate water for treatment.
    e. Specific repairs to a tank system must be approved by the Romic Engineering and EH&S Departments, and certified by an independent, qualified, registered, professional engineer for compliance with 22 CCR 66264.196(f).

Transfer Lines and Piping

- Using the Evacuation Alarm, PA system, voice and/or hand signals, notify personnel who may be in danger and request assistance as needed.
- Cut off flow, close valves, shut down pumps as needed.
- Use appropriate protective clothing and equipment.
- Immediately notify EC.
- After quantity and character of spill has been determined, transfer spilled material to an appropriate tank or container.
- Specific repairs to transfer lines and piping must be approved by the Romic Engineering Department and EH&S Department in compliance with 22 CCR 66264.196(f)

Releases to Air

- Using the Evacuation Alarm, PA system, voice and/or hand signals, notify personnel who may be in danger and request assistance as needed.
- Move personnel away from downwind of the release or shelter-in-place.
- Immediately notify EC.
- Use appropriate protective clothing and equipment.
- Eliminate ignition sources.
- Control emissions by cutting off source.

Seismic Event

- Using the Evacuation Alarm, PA system, voice and/or hand signals, notify personnel who may be in danger and request assistance as needed.
- Immediately notify EC.
- Use appropriate protective clothing and equipment.
- If a release has occurred, cut off source, contain and control.
- Assess damage to equipment and containment structures.
- If necessary, transfer wastes to an authorized off-site facility.

Non-Permitted Discharge to Sewer

- Cut off flow, close valves, shut down pumps as needed.
- Immediately notify EC.
- Record event, noting quantity, source, and duration of release.
- Immediately notify appropriate agencies (see Section G4.2.1)

Flooding Conditions

- Using the Evacuation Alarm, PA system, voice and/or hand signals, notify personnel who may be in danger and request assistance as needed.
- Use appropriate protective clothing and equipment.
- Eliminate ignition sources, shut down operations.
- Immediately notify EC.
- Use diking to prevent flooding of and around buildings and structures where necessary.
- Use portable pumps or tanker trucks to remove excess water from sumps and/or secondary containment areas; pump to appropriate storage/treatment tank or tank truck.
- During a severe "100-year flood", or as necessary if flood water threatens to flood West Storage Building # 1, move hazardous waste containers out of this area. Containers such as buckets, drums, and totes should be moved to other, unaffected container storage areas, using a devices such as drum dollies, hand trucks, or forklifts. Any compatibility concerns should be addressed through the use of portable secondary containment devices (i.e., spill pallets, overpacks).

Freezing Conditions

- Purge all piping that could be adversely affected by freezing with air to displace liquids and prevent freezing of pipes.
- Close valves as needed to isolate piping damaged due to freezing.
- Wrap insulation (e.g., fiberglass, cloth) around tank valves where necessary to protect against further damage.
- Provide on site tank storage capacity as needed, or arrange for temporary portable tankage.
- If a spill or release appears likely despite the foregoing preventive measures, notify EC and follow spill/release response procedures described in the preceding scenarios.

G4.3.4. Damaged Shipments

Damaged or leaking shipment control procedures will be initiated upon discovery of a leaking or damaged container, when further transportation would present a hazard to public health or the environment, and/or the shipment presents an unreasonable hazard to facility operations, or to facility personnel. Control procedures are as follows:

- Using PA system, voice and/or hand signals, notify personnel who may be in danger and request assistance as needed.
- Use appropriate protective clothing and equipment.
- Determine if leak can be readily stopped, then notify EC.

- The EC may call in contractor cleanup/control assistance as needed. Facility personnel (or the contractor) will repackage the material for transport by an appropriately-licensed transporter.
- Attempt to contain spills or runoff through use of absorbent materials.

Contain and prevent further migration of any visible release to the environment outside of containment, and provide for removal and proper disposal of visibly contaminated soil or surface water.

G4.4 PREVENTION OF RECURRENCE

22 CCR 66264.56(e),(f)

The EC will take all necessary steps to ensure that a secondary release, fire, or explosion does not recur after the initial incident. The EC will ensure that no wastes that may be incompatible with the released material will be treated or stored in the affected area. Following an emergency incident, the EC will monitor the situation until normal operations can resume.

The EC, with assistance from Romic's EH&S Department will evaluate the incident to understand why and how the incident occurred and determine if modifications are needed to prevent a recurrence. Evaluations will include equipment design, operational procedures, response tactics, and personnel safety.

G5 EMERGENCY RESPONSE DRILLS

22CCR 66264.16(a)(3)(A), 22 CCR 66264.33

The Facility will conduct emergency response drills at least annually to enhance Facility personnel's familiarization with the provisions of the contingency plan. The drills will also assist in ensuring that applicable Facility personnel can respond effectively to emergencies through the implementation of defined emergency procedures, and the proper use of available emergency equipment and emergency systems, including, where applicable:

- Key parameters for waste feed cut-off systems;
- communication and alarm systems;
- response to fires or explosions;
- spill response; and
- shutdown of operations.

The Menlo Park Fire Department will be invited to attend these drills.

G6 EMERGENCY EQUIPMENT

22 CCR 66264.52(e)

Table G-2 and Figure G-2 lists the location, physical description, and a brief explanation of the capabilities of the emergency equipment maintained at the facility. Table G-2 and Figure G-2 lists the location, physical description, and a brief explanation of the capabilities of the fire control equipment at the facility.

G7 POST-EMERGENCY PROCEDURES

G7.1 STORAGE AND TREATMENT OF RELEASED MATERIALS

22 CCR 66264.56(g), 66264.56(h)(1)

Once the emergency situation is under control, the EC will initiate the proper cleanup, storage, and treatment of the released material and residues as soon as possible in order to minimize potential danger to public health or the environment. The EC will also ensure that incompatible wastes are not treated or stored in the affected area while cleanup and decontamination procedures are underway.

Leaking containers will be segregated and placed in overpack drums if necessary. All collected materials (e.g., spill residues, fire control water, absorbents, protective equipment) will be transferred to appropriate containers or tank for management on site or transported off site for further management.

G7.2 EQUIPMENT DECONTAMINATION AND MAINTENANCE

22 CCR 66264.56(h)(2)

The EC is responsible for initiating and overseeing post-emergency equipment replenishment, maintenance, and inspection prior to resuming operations in the affected area. The entire facility will be inspected after a seismic event measured at greater than 7.0 on the Richter scale.

All equipment used during the emergency will be decontaminated and readied for future use. Decontamination procedures can include steam cleaning, triple rinsing, or washing with an appropriate cleaner. All rinsate will be contained and treated on-site or off-site, as appropriate. Fire extinguishers will be recharged and personnel protective equipment and absorbent materials replenished.

The emergency equipment available on site is listed in Table G-2. The EH&S Department or the EC will ensure that minimum stock quantities are replenished prior to resuming normal operations.

G7.3 REACTIVATION OF ACTIVITIES IN THE AFFECTED AREA

22 CCR 66264.56(i)

Before operations resume, the EH&S Department or the EC must notify the Department of Toxic Substances Control that no released material is incompatible with the wastes stored or processed in the area, or that the cleanup has been completed; and that all emergency equipment listed in the contingency plan has been cleaned and is fit for its intended use.

G7.4 PERSONNEL DEBRIEFING

The EC, with assistance from the Romic EH&S Department, will conduct debriefings of plant personnel and local authorities to assess the effectiveness of the preparedness and prevention measures, response activities, control, and evacuation procedures related to the incident. Based on this review, the contingency plan will be evaluated and updated as needed.

G8 COORDINATION AGREEMENTS

22 CCR 66264.37, 66264.52(c), 66264.53(b)

The organizations listed below are provided current copies of the contingency plan so they will be familiar with the properties of the hazardous waste handled at the facility, the associated hazards, places where facility personnel would normally be working, entrances to and roads inside the facility, and possible evacuation routes.

The Menlo Park Fire Department is expected to assume the role of primary responder in the event of an emergency incident at Romic's East Palo Alto facility. Medical response, hospital, and police are contacted as needed via the 9-911 system for injury or evacuation emergencies. In the event that the area hospitals are unable to respond to a medical emergency (for example, during an area-wide crisis that results in unavailable ambulance services), employees will be taken to the nearest hospital. Figures G-6 and G-7 show the location and routes to the nearest area hospital and contracted clinic, respectively. In the event of an emergency requiring evacuation, such decisions will be made and implemented by the fire department after consultation with the EC.

Included in Appendix G-3 is an example letter of arrangement inviting the emergency response agencies/organizations listed below to tour the facility. Unsigned or non-returned copies of current arrangement letters are filed in the facility operating record.

PUBLIC AGENCIES AND HOSPITALS

Menlo Park Fire Department	DIAL 9-911 - EMERGENCY
East Palo Alto Substation	650- 323-2404
300 Middlefield Road	
Menlo Park, CA 94025	
East Palo Alto Police Department	DIAL 9-911 - EMERGENCY
2415 University Avenue	650-321-1112
East Palo Alto, CA 94303	
Office of Emergency Services	800-852-7550 or
Chemical Emergency Planning and Response Commission	916-262-1621
2800 Meadowview Road	
Sacramento, CA 95832	
CUPA	650-363-4305
San Mateo County Environmental Health Services	
455 County Center, Fourth Floor	
Redwood City, CA 94063	
San Mateo County Emergency Services	650-363-4790
401 Marshall Street	
Redwood City, CA 94063	
U.S. Coast Guard	510-437-3073
Marine Safety Office	
San Francisco Bay	
Building 14	
Coast Guard Island	
Alameda, CA 94501	
Department of Toxic Substances Control	510-540-2122
Northern California Region	
700 Heinz Avenue	
Berkley, CA 94710	
Bay Area Air Quality Management District	415-749-4787
939 Ellis Street	after hours fax number
San Francisco, CA 94109	415-928-0338

East Palo Alto Sanitary District | 650-325-9021

901 Weeks Street
P.O. Box 51686
East Palo Alto, CA 94303

Regional Water Quality Control Plant | 650-329-2598

City of Palo Alto
2501 Embarcadero Way
Palo Alto, CA 94303

Stanford Hospital Emergency Department | 650-723-5111

300 Pasteur Drive
Stanford, CA 94035

Fremont Urgent Care Clinic | 510-651-5500

39500 Fremont Boulevard
Fremont, California 94538

PRIVATE EMERGENCY RESPONSE CONTRACTORS

Foss Environmental Services | 510-749-1390

1610 Ferry Point
Alameda, CA 94501

Philip Services Corp (PSC) | (800) 321-1030

12475 Llagas Ave.
San Martin, CA

Decon Environmental | (510) 732-6444

23490 Connecticut St.
Hayward, CA

G9 EVACUATION PLAN

22 CCR 66264.52(f)

In the event a fire or release of a hazardous material could endanger the lives of persons in and outside the facility premises, evacuation will occur according to procedures outlined below.

- All personnel will be immediately notified by the Evacuation Alarm, PA system, voice and/or hand signals of an emergency requiring evacuation to the primary or secondary assembly area or shelter-in-place.
- The primary assembly area is located to the east of the administrative offices and main parking area. If this area is downwind of potentially hazardous emissions, the EC may, in consultation with emergency response authorities, direct personnel to the secondary assembly area, which is in the southwest corner of the facility behind the maintenance building. Primary and secondary assembly areas are shown on Figures G-4 and G-5.
- At the assembly area, the EC or designee will account for all facility personnel. A sign-in form for visitors will be maintained at the reception desk. The receptionist or designee will take the lists to the assembly area for conducting the headcount.
- Call 9-911 - Emergency.
- The Menlo Park Fire Department, in conjunction with the EC, will determine the need to evacuate beyond the facility premises.
- No one will re-enter the facility during evacuation conditions without the permission of the EC and without the proper protective clothing and equipment.
- Approval to return to the facility may only be provided by the EC, in consultation with the responding emergency service agencies.

G9.1 SHELTER-IN-PLACE GUIDELINES

In the case of an air release shelter-in-place procedures may be utilized rather than evacuation. Shelter-in-place will occur according to procedures outlined below.

- Stay inside designated building - unless instructed to evacuate by the Building Coordinator.
- The assigned Building Coordinator will isolate the building from all outside air sources, (i.e. turn off air conditioning, close doors, etc.)
- The assigned Building Coordinator shall determine the number of people sheltering in place and report the information to the Emergency Coordinator.
- Listen for emergency announcements over the public address system and/or radio (Channel 2) for incident status updates.

G10 INCIDENT REPORTS

22 CCR 66264.56(j), 66264.196(b)(5)(C)

After an emergency episode requiring the implementation and notification outlined in the contingency plan, Romic will complete the following notification requirements.

a. The EC, in conjunction with the EH&S Department, will immediately notify appropriate agencies of a reportable release, as described in Section G.4.2. This includes required notification of a reportable quantity release to the State Office of Emergency Services and the CUPA as required by 19 CCR 2703.

b. The EC will note in the operating record the time, date, and details of any incident that requires implementing the contingency plan. Romic will submit to the Department, within 15 days of the incident (if required), a written report detailing the following:

- Name, address, and telephone number of the owner or operator;
- Name, address, and telephone number of the facility;
- Date, time, and type of incident (e.g., fire, explosion);
- Name and quantity of material(s) involved;
- The extent of injuries, if any;
- An assessment of actual or potential hazards to human health or the environment, where this is applicable; and
- Estimated quantity and disposition of recovered material that resulted from the incident.

c. Romic will submit in writing as soon as possible, information as outlined in 19 CFR 2705(b) to the Chemical Emergency Response and Planning Commission (CERPC), if required. The information shall include an update regarding:

- The chemical name of substance released,
- Whether the substance is an Extremely Hazardous Substance,
- An estimate of the quantity released into the environment,
- The time and duration of the release,
- The medium or media into which the release occurred,
- Any known or anticipated acute or chronic health risks associated with the emergency and (where appropriate) advice regarding medical attention necessary for exposed individuals,
- Proper precautions to take as a result of the release, including evacuation,
- Names and phone numbers of persons to contact,
- Summary of actions taken to respond to and contain the release,
- Summary of any known acute or chronic health risks, and
- Any advice regarding medical attention necessary for exposed individuals.

d. In the event of a release of hazardous materials to the environment from a tank system (as defined under 22 CCR 66264.196(b)(5)(A)), the DTSC will be notified of the release within twenty-four hours and the release will be reported and logged. In the event of release of a reportable quantity, the Facility is responsible for notifying DTSC that cleanup is complete in accordance with 22 CCR Section 66264.56(i) and (j) and 66264.196(b)(7), if appropriate. Any implementation of this Plan will be placed in the operating record and will note date, time, and details of incidents, which required implementation of this Plan.

e. Romic will submit to the Department (as applicable) within 30 days of detection of release from the tank system to the environment (as described under above), a written report detailing the following.

- Characteristics of the surrounding soil (soil composition, geology, hydrology, climate),
- Results of any monitoring or sampling conducted in connection with the release (if available). If sampling or monitoring data relating to the release are not available within 30 days, these data shall be submitted to the Department as soon as they become available,
- Proximity to downgradient drinking water, surface water, and populated areas, and
- Description of response action taken or planned.

e. Before operations resume, the EH&S Department or the EC must notify the Department of Toxic Substances Control that no released material is incompatible with the wastes stored or processed in the area, or that the cleanup has been completed; and that all emergency equipment listed in the contingency plan has been cleaned and is fit for its intended use.

f. Romic maintains a log of all emergency incidents requiring implementation of the contingency plan and associated investigations. A reporting form equivalent to that shown in Appendix G-2 is completed for each type of event specified above.

G11 AMENDMENTS TO CONTINGENCY PLAN

22 CCR 66264.54

The contingency plan will be reviewed and amended, if necessary, whenever:

- The facility permit is revised;
- The plan fails in an emergency;
- The facility changes in its design, construction, operation, maintenance, or other circumstances in a way that materially increases the potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents, or changes the response necessary in an emergency;
- The list of emergency coordinators changes; or
- The list of emergency equipment changes.

Copies of the updated contingency plan will be distributed to the emergency agencies listed in Section G.7, Coordination Agreements, and to Romic personnel responsible for its implementation. A master distribution list is maintained at the facility office for verification that each organization has received the current version of the plan.

TABLE G-1

EMERGENCY COORDINATOR LIST

TABLE G-1
EMERGENCY COORDINATOR LIST

	Telephone Numbers			
Emergency Coordinators	**Work**	**Home**	**Pager / Cell**	**Home Address***
<u>Primary</u>				
Eric Fuller	650-462-2310	[redacted]	650-280-9229	[redacted]
<u>Alternates</u>				
1. Randy Hunsperger	650-462-2434	[redacted]	650-537-1196	[redacted]
2. Christopher Erickson	650-462-2390	[redacted]	650-444-4085	[redacted]
3. Vijaya Chand	650-462-2387	[redacted]	650-280-9147	[redacted]
4. Namki Yi	650-462-2346	[redacted]	650-333-6647	[redacted]

* The work address for all Emergency Coordinators is the Romic facility at 2081 Bay Road, East Palo Alto, California, 94303

TABLE G-2

EMERGENCY EQUIPMENT LIST

TABLE G-2
EMERGENCY EQUIPMENT LIST

EQUIPMENT	DESCRIPTION	LOCATION
<u>Emergency Response Equipment</u>		**Figure G-2**
1. Absorbent pads	Oil absorbent/water repellent or liquid absorbent, 20 x 20 inch	Maintenance shop, container storage area, drum sampling area, laboratory, production area
2. Floor sweep	Super fine," free liquid adsorption, diking, spill containment	Maintenance shop, drum storage, drum sampling area, laboratory, production area
3. Lime or sodium carbonate	Absorption, neutralization of acids	Tank Farm J, Sampling Area, West Storage Building #1, West Building #2
4. Spill clean up tools	Brooms, shovels, squeegees, non-sparking tools	North Storage Building, Sampling Area/South Storage Building, West of Tank Farm I, West Storage Building #1, West Storage Building #2
5. Dikes and sumps	Tank farms and container storage areas	Secondary containment
6. Open top drums	Overpack leaking containers and consolidation of spill clean up material	West of South Storage Building, North of West Storage Building #1
7. Portable transfer pumps	Transfer liquid bulk spills from contained area to tanks	Equipment shed
8. Personal protective clothing (PPE)	Hard hats, gloves, boots, rain suits, safety glasses, etc.	Locker room, boiler shed, maintenance shop, EH&S Supply Closet (2nd floor, building 1), laboratory
9. Respiratory protection	Respirators, respirator cartridges	Equipment shed
	SCBAs, 5 minute escape bottles, extra SCBA supply tanks	Equipment shed, maintenance shop, laboratory, production area
10. First aid supplies	Immediate first aid for cuts, burns, and other minor injuries	Maintenance shop, men's locker room
11. Emergency eyewash and shower stations	Immediate water wash/flush from chemical exposure	Various locations throughout facility, laboratory, maintenance shop

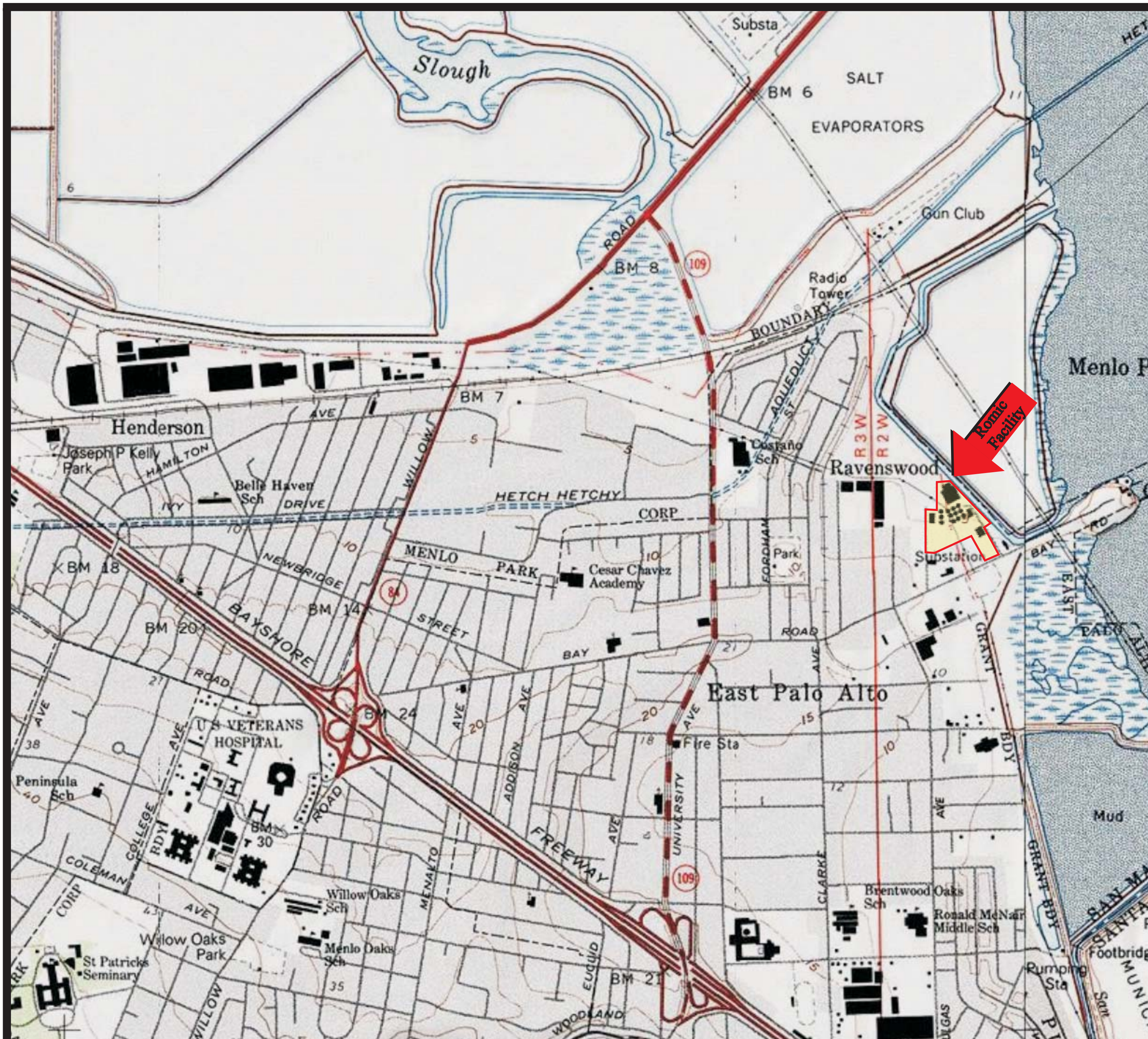
TABLE G-2
EMERGENCY EQUIPMENT LIST

EQUIPMENT	DESCRIPTION	LOCATION
12. Spill kits	Absorbent, lime or neutralizer, PPE, and clean up tools	Various location throughout facility
<u>Fire Control Equipment</u>		**Figure G-2**
1. Fire hydrants	Fire control equipment supply water	Various locations throughout facility
2. Fire extinguishers abc – 15/30 POUNDS	For immediate response to small BC fires; range 20-30 feet	Various locations throughout facility per the NFPA and local fire department
3. 300 LB portable, wheeled fired extinguisher	For immediate response to medium BC fires; range 30 feet	East drum sampling, west drum sampling, south of Production
4. Portable 6% AFFF foam generators	For fighting solvent fires, both polar and non-polar solvent	East of Sampling Area; west of Sampling Area; east of North Storage Building; Production
5. Fixed location 6% AFFF foam hoses	For fighting solvent fires, both polar and non-polar solvent	East side of drum storage, west side of drum storage
6. Automatic 6% AFFF foam system	For fighting and extinguishing solvent fires, both polar and non-polar solvent	Production, liquefaction area, drum storage buildings
7. Water hose bib stations	Standard 3/4” hook ups for immediate water source	Various locations throughout facility
8. Water hose reels	Standard 3/4” hook ups for immediate water source	Various locations throughout facility
9. Water sprinkler systems	Automatic heat activated water spray system	Various covered locations throughout facility as required by NFPA
10. Decontamination equipment	Tools and cleaning materials to clean/decon fire and spill response equipment after use	Sea container

TABLE G-2
EMERGENCY EQUIPMENT LIST

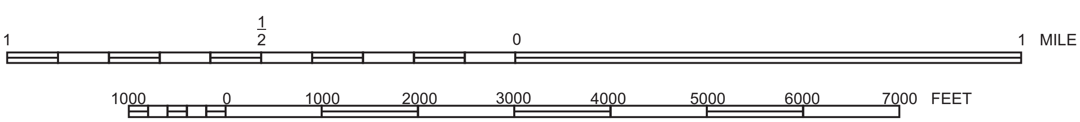
EQUIPMENT	DESCRIPTION	LOCATION
Telephones, Intercoms, Alarms and Communication Tools		**Figure G-2**
1. Activated fire alarms	Hand activated alarms that sound to notify all plant personnel of an emergency	Adjacent to transfer manifold in process area and adjacent to lunchroom
2. Telephones (internal)	In plant communication between process areas and main office	Drum storage building, maintenance shop and lunchroom.
3. Telephones (external)	Call for outside emergency assistance	Offices, maintenance shop, lunchroom, main drum warehouse.
4. 2-Way radios	Internal communication devices between active portions of the facility and offices	Key operations personnel and supervisors
5. Alarm panels	Alarm sounds when operational conditions approach critical parameters	Various tank farm locations
6. Orange traffic cones	Reroute traffic, isolate area	Sea container
7. Yellow caution tape	Reroute traffic, isolate area	Sea container
8. Megaphone	Announcements, directions	Sea container
9. Emergency personnel safety vests and EC "red" hard hat	Identify personnel responsible for controlling and directing emergency response activities	Sea container
10. Contingency Plan	Reference information for responding to emergencies	Sea container
11. MSDS	Reference information for responding to emergencies	Environmental, Health and Safety Office (2nd floor, Building 1)
12. Wind socks	Identify wind direction for planning evacuation routes and assembly	Top of distillation column

FIGURES



Map Source: TOPO! © 2000 National Geographic Holdings

Note: Boundaries and Location Information is Approximate



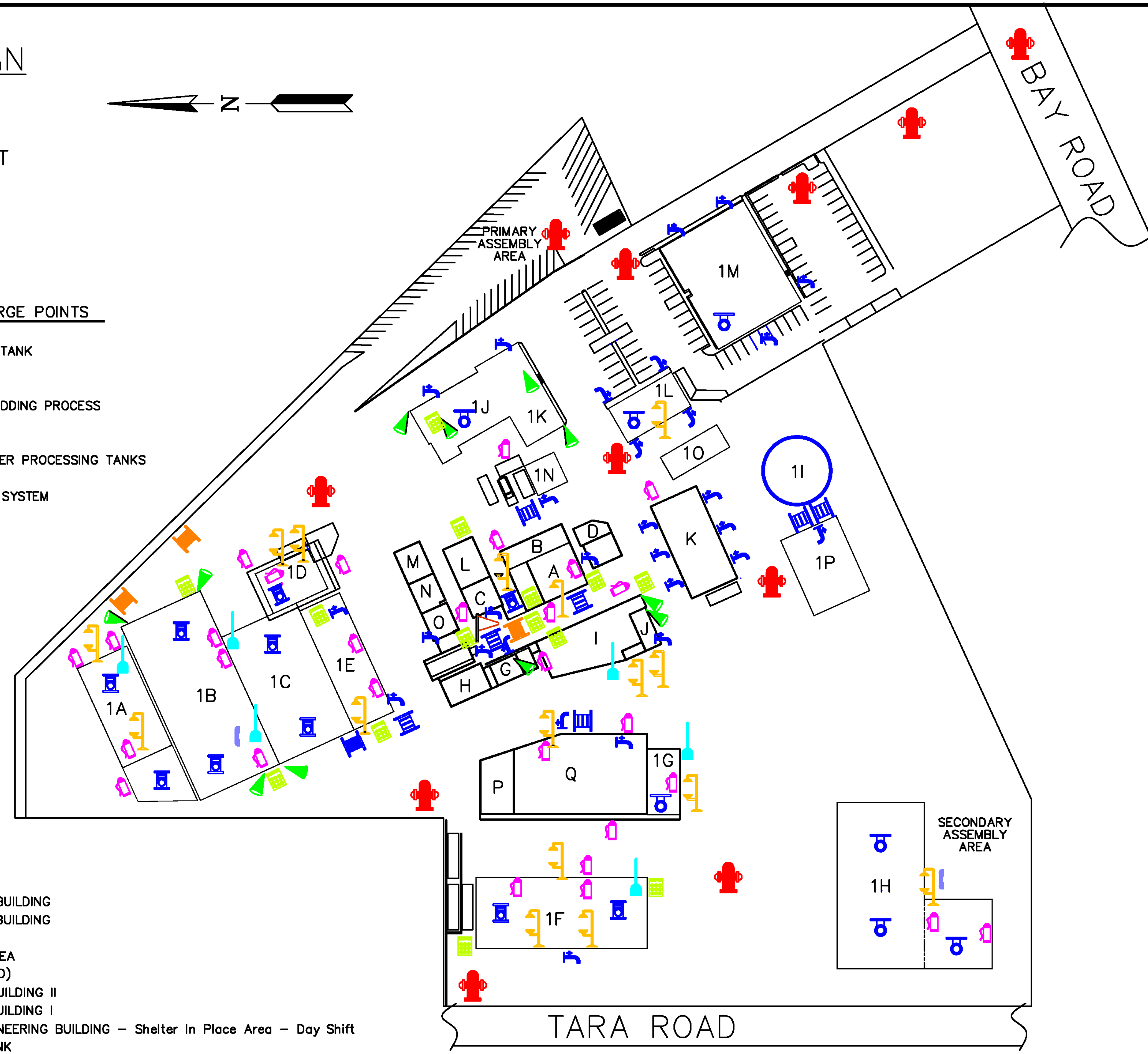
Portion of the 7.5-Minute Series Palo alto, California
Quadrangle Topographic Map (Datum: NAD 27)
United States Department of the Interior
Geological Survey
1997

N

FACILITY LOCATION Romic Environmental Technologies 2081 Bay Road East Palo Alto, California Clayton Project No. 70-01789.00	Figure G-1	Clayton GROUP SERVICES

SITE PLAN

0 60 120
SCALE IN FEET



WATER SYSTEM DISCHARGE POINTS

A. INTERMEDIATE PROCESS TANK
B. BLEND TANKS
C. WASTE TANKS
D. BLEND TANKS FOR SHREDDING PROCESS
G. PRODUCT TANKS
H. PROCESS REBOILERS
I. PROCESS REBOILER WATER PROCESSING TANKS
J. NEUTRALIZATION TANKS
K. BIOLOGICAL TREATMENT SYSTEM
L. PRODUCT TANKS
M. PRODUCT TANKS
N. PRODUCT TANKS
O. PRODUCT TANKS
P. PRODUCT TANKS
Q. PRODUCT TANKS

STRUCTURES

1A. NORTH DRUM STORAGE BUILDING
1B. SOUTH DRUM STORAGE BUILDING
1C. DRUM SAMPLING AREA
1D. SHREDDING PROCESS AREA
1E. MAINTENANCE SHOP (OLD)
1F. WEST DRUM STORAGE BUILDING II
1G. WEST DRUM STORAGE BUILDING I
1H. PLANT MAINTENANCE/ENGINEERING BUILDING – Shelter In Place Area – Day Shift
1I. RAINWATER HOLDING TANK
1J. PRODUCTION OFFICES
1K. ADMINISTRATIVE OFFICES
1L. LABORATORY – Shelter In Place Area – After Hours
1M. OFFICE BUILDING – Shelter In Place Area – Day Shift
1N. BOILER BUILDING
1O. TRAILER OFFICES
1P. TRUCK WASH

LEGEND

FIRE HYDRANTS

WATER HOSE REELS
1.5" Auxiliary Water Source with 75–100 ft. Hoses @ 75–100 PSI

AFFF FOAM HOSE REELS
1.5" Positive Pressure (75PSI) System with 67 Gallons of 3 x 6 Ansulite Foam

WATER HOSE BIBS
3/4" Faucets with 22–25 GPM Water Source (Hose may or may not be attached)

AFFF FOAM SYSTEM (AUTOMATIC
300 Gallon Foam Deluge System

WATER SPRINKLER SYSTEM (AUTOMATIC)

FIRE EXTINGUISHER

EYE WASH, SHOWER STATION

OUTSIDE PA SPEAKER

WIND SOCK

PHONE

ALARM PANEL

SPILL KIT
Contents Stored In A Overpack Drum May Include Absorbent, Neutralizer, PPE etc..

SEA CONTAINER
Orange Cones
Fire Jackets
SCBA'S
Oxygen Emergency Unit
Emergency Eyewash
Red ROMIC Hard Hat
"Emergency Personnel" Safety Vests
Megaphone
Walkie–Talkie
First Response Kit
Personnel Accountability Sheets & Shift Rosters
MSDS
Facility Site Plan
Hazardous Materials Management Plan
Safety Gloves
14–55 gallon drums AFFF
Decon. Equipment

REV	DATE	REVISION	BY	APP
3	8–00	Color Coding	JS	KM
2	6–00	Addition of Sea Container Spill Kits	LE	KM
1	6–00	Addition of last 6 legend details	LE	KM
0	3–00		JS	KM

BY: Jessie M. Salonga

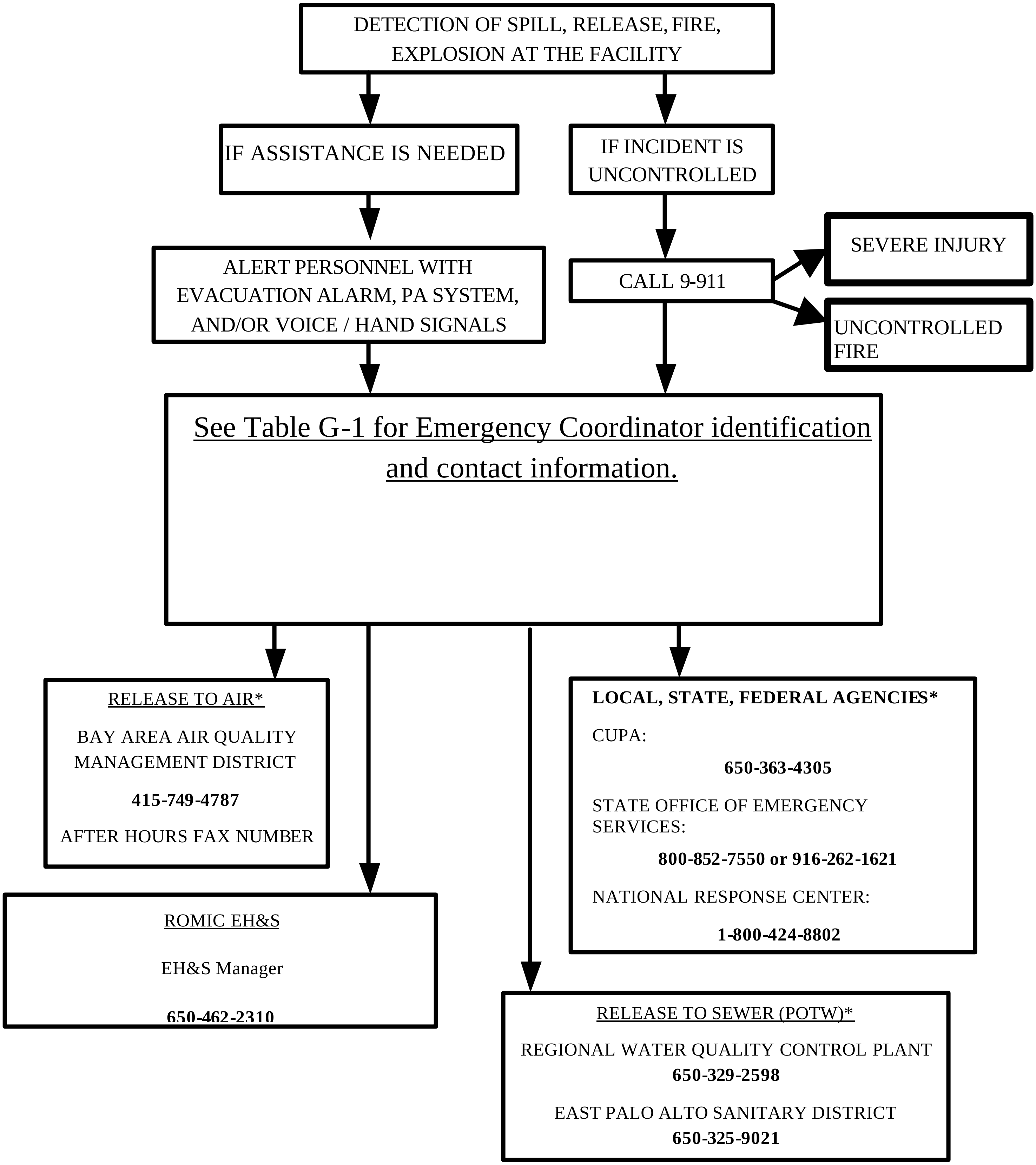
ROMIC
ENVIRONMENTAL TECHNOLOGIES
ENGINEERING DEPARTMENT

FACILITY SITE PLAN
EAST PALO ALTO, CA
WATER SYSTEM DISCHARGE POINTS
EMERGENCY RESPONSE PLAN

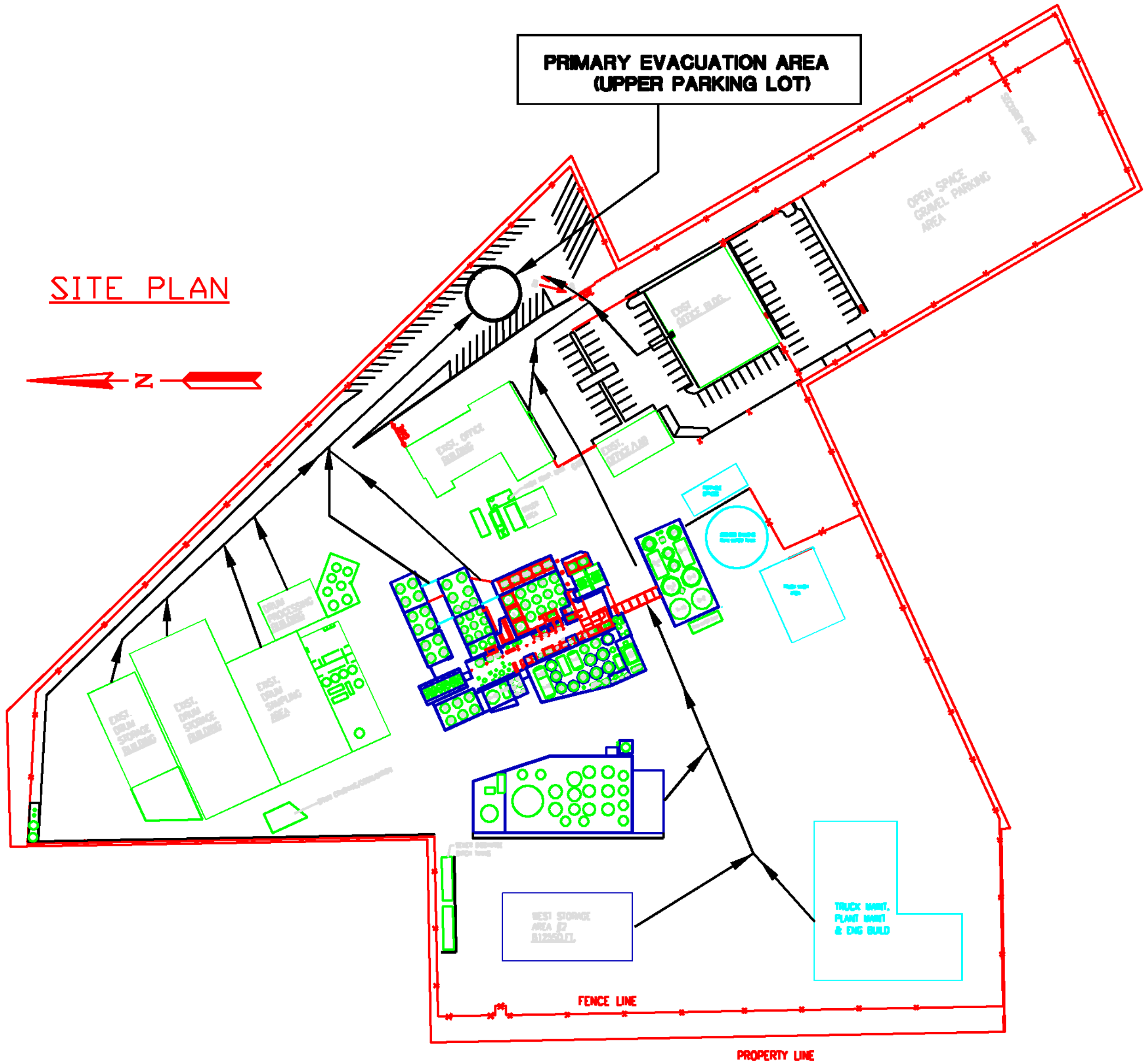
DATE: 3–28–00
DRAWING NO.
G–2

I:\Common\Part–B–2000\Site Plans\Clayton Group\G–2

FIGURE G-3 EMERGENCY RESPONSE NOTIFICATION FLOW CHART



* The Emergency Coordinator will contact these agencies if it is readily apparent that the emergency threatens public health or the environment outside the facility; otherwise, EH&S will contact these agencies.



0			JS	JS	KH
REV	DATE	REVISION	BY	CHK	APP

DESIGN/DRAWN BY:

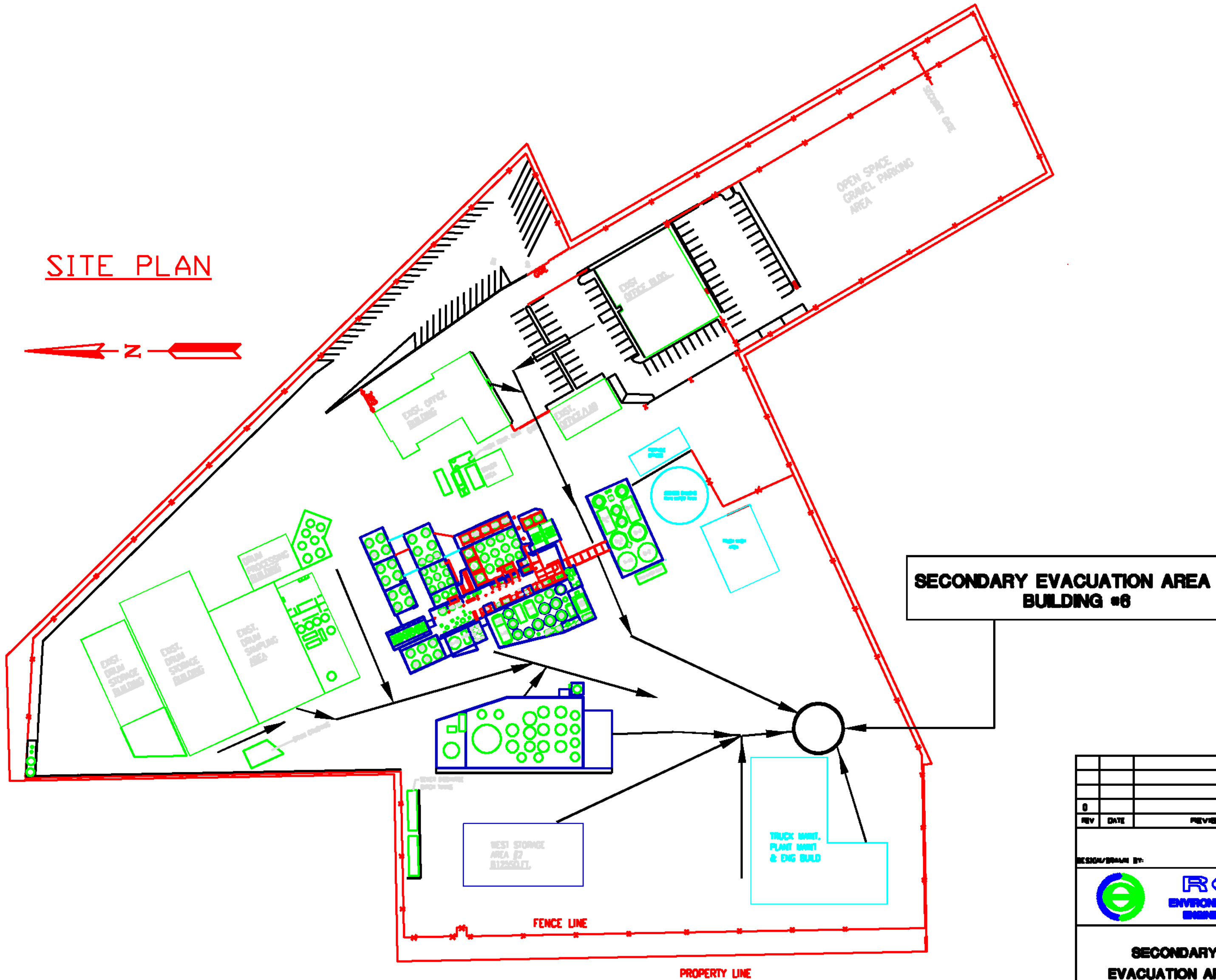
ROMIC
ENVIRONMENTAL TECHNOLOGIES
ENGINEERING DEPARTMENT

PRIMARY
EVACUATION AREA

DATE:

Figure No.
G-4

I:\COMMON\PART-B-2000\SITE PLANS\CLAYTON GROUP\G-4 PRIMARY EVACUATION



0			JS	JS	KH
REV	DATE	REVISION	BY	CHK	APP

DESIGN/DRAWN BY:

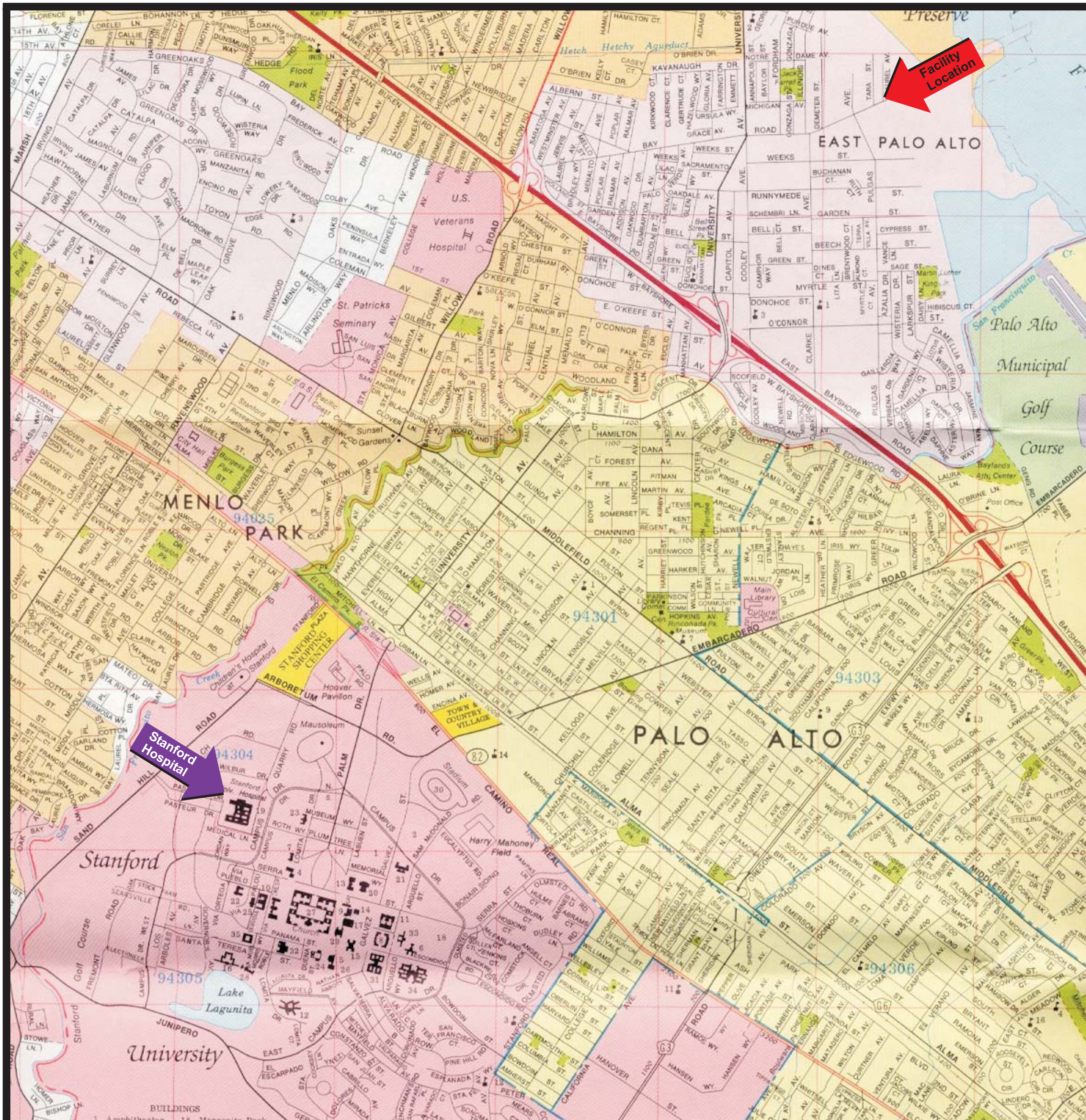
ROMIC
ENVIRONMENTAL TECHNOLOGIES
ENGINEERING DEPARTMENT

SECONDARY EVACUATION AREA

DATE: 09-09-01

Figure No. G-5

I:\COMMON\PART-B-2000\SITE PLANS\CLAYTON GROUP\G-5 SECONDARY EVACUATION



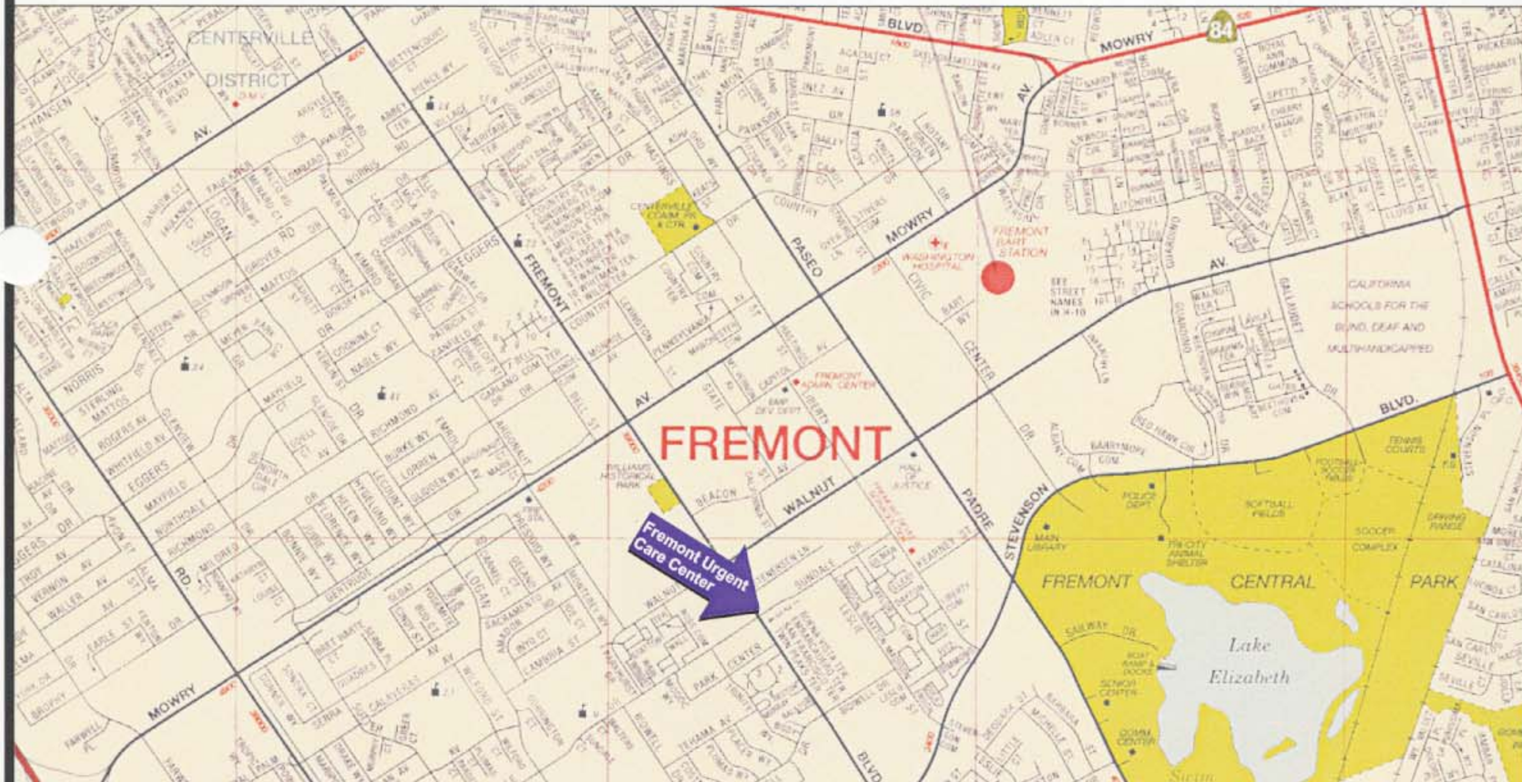
HOSPITAL LOCATION AND ROUTE MAP
Romic Environmental Technologies
2081 Bay Road
East Palo Alto, California

Clayton Project No. 70-01789.00

Figure

G-6

Clayton GROUP SERVICES



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HOSPITAL CLINIC ROUTE MAP
Romic Environmental Technologies
2081 Bay Road
East Palo Alto, California

Clayton Project No. 70-01789.00

Figure

G-7

Clayton GROUP SERVICES

APPENDIX G-1

LETTER OF AUTHORIZATION -

EMERGENCY COORDINATORS

November 2001

To Whom it May Concern:

Romic Environmental Technologies Corp. (Romic) hereby grants to the individuals designated as "Emergency Coordinators" or their designees, authority to commit such resources of Romic as are needed to carry out the contingency plan.

Sincerely,

Namki Yi
General Manager
Romic Environmental Technologies Corp.

APPENDIX G-2

EXAMPLE EMERGENCY INFORMATION

REPORTING FORM

(This form is provided as an example only. The information contained on the form will be included on any versions of the form used for the same purpose, although the form itself may change in appearance.)

EMERGENCY INFORMATION REPORTING FORM

LOCAL CUPA: 650-363-4305
STATE OFFICE OF EMERGENCY SERVICES: 800-852-7550 or 916-262-1621
NATIONAL RESPONSE CENTER: 800-424-8802

____

NAME AND ADDRESS OF FACILITY | NAME OF REPORTER AND PHONE # WHERE REPORTER MAY BE LOCATED

____

NAME AND PHONE NUMBERS OF ADDITIONAL CONTACTS FOR INFORMATION

____

DATE TIME

____

TYPE OF INCIDENT (SPILL, GAS RELEASE, ETC.) | MEDIA INTO WHICH RELEASE OCCURRED (WATER, AIR, SOIL, ETC.)

____

IDENTIFICATION OF MATERIAL

____

IS MATERIAL AN EXTREMELY HAZARDOUS SUBSTANCE?
(REF:19 CCR 2770.5, TABLES 2 AND 3) | QUANTITY AND DURATION OF RELEASE

____

POSSIBLE HAZARDS TO THE ENVIRONMENT

____

ASSOCIATED ACUTE OR CHRONIC HEALTH RISKS (KNOWN OR ANTICIPATED)

____

PRECAUTIONS TO BE TAKEN

____

EXTENT OF INJURIES

____

OTHER COMMENTS

APPENDIX G-3

LETTERS OF ARRANGEMENT,

COORDINATION AGREEMENTS

Date

Emergency Service Provider
Address
City, State, Zip

Enclosed is the Emergency Contingency Plan for Romic's East Palo Alto facility. This plan provides information for mitigating and controlling the effects of an uncontrolled fire, explosion or spill originating from the facility.

You are invited to tour the facility at your earliest convenience. Please indicate that you have received this plan by signing and returning this letter in the addressed envelope provided.

If you have questions, please contact me at (650) 462-2347.

Sincerely,

Namki Yi
General Manager
Romic Environmental Technologies Corp.

______________________________ has received a copy of the contingency plan. We have reviewed the capabilities described in Section G.7, and agree that we are capable of providing these services.

______________________________ ______________________________
Date Signature

____
Title

Romic Environmental Technologies Corp.

CAD 009 452 657

East Palo Alto, California

Section H

Personnel Training Programs

November 2001

Rev. 4/05

CONTENTS

Tables and Appendices are presented in separate sections following the main body of the text.

Tables

Appendices

H.1 PURPOSE

22 CCR 66264.16, 66270.14(b)(12)

Romic Environmental Technologies Corp. (Romic) is committed to continued leadership and stewardship in protecting human health and the environment. Personnel training is the foundation of operating a safe, efficient waste management facility. Romic's training program, developed by professionals with many years of experience managing hazardous waste facilities, increases personnel awareness of Romic's governing environmental, health and safety laws and regulations as well as complementary facility permits, policies, procedures and operating plans. Protection of human health and the environment is a primary management and staff responsibility and an important measure of employee performance. Every employee is responsible for environmental protection in the same manner he or she is for safety.

Romic maintains a rigorous and extensive training program for our facility personnel. The documented training consists of classroom instruction and on-the-job training, given to all facility personnel to enhance their capability as it pertains to their positions. Facility personnel learn how to perform their duties in a way that ensures the facility's compliance with environmental and health & safety requirements. The training program ensures that facility personnel respond effectively to emergencies by familiarizing them with emergency procedures, emergency equipment and emergency systems, including the following information, where applicable:

1. Procedures for using, inspecting, repairing and replacing facility emergency and monitoring equipment;
2. Key parameters for automatic waste feed cut-off systems;
3. Communication or alarms;
4. Response to incipient stage fires or explosions;
5. Evacuation procedures;
6. Response to groundwater contamination incidents; and
7. Shutdown of operations.

H.2 PROGRAM DESCRIPTION

22 CCR 66264.16(a) & (c), 66270.14(b)(12)

Romic identifies training requirements for job titles based on core job responsibilities. These core job responsibilities are outlined on position descriptions. The position descriptions also include necessary qualifications (e.g., education, aptitude) for filling the position. These position descriptions meet the content requirements of 22 CCR 66264.16(d)(2). Appendix H-1 contains the position descriptions used by the facility. Note that these position descriptions may not correspond exactly to the position descriptions (including job titles) used for personnel (Human Resources) purposes.

Training requirements are developed for each job description based on assigned duties and responsibilities. The job descriptions in Appendix H-1 list the required training elements associated with each job title. The training elements required for each job title upon hire are identified as “initial” and “supplemental.” The required initial training requirements identified meet the requirements of 22 CCR 66264.16(a), and allow employees to conduct their assigned duties safely and in compliance with (22 CCR Div. 4.5) Chapter 14 standards. Supplemental training enhances the employee’s ability to complete job duties, and ensures compliance with other regulatory and policy standards. Supplemental training will be given during the employee orientation period, and is thusly noted on the job description listing of indicated training.

All courses listed as required initial training subjects will be reviewed on an annual basis. Review frequency for supplemental courses will be determined by the complexity of the subject matter, the extent to which the subject matter is reinforced with employees on an ongoing basis, either through practice or informal training, and other regulatory standards that may apply.

Example : The US DOT requires hazmat employees to receiving recurrent training at least once every three years.

In addition to core job responsibilities, employees may be eligible to receive optional training in additional, specialized skills. Specialized skills include task-related skills, such as permit-required confined space entry, or job assignment-related skills, such as operation of the Liquefaction process system. Employees will not perform specialized skill tasks or job responsibilities unsupervised until they satisfactorily complete specialized skill training. Romic identifies the specialized skill training each job title is eligible to receive. These are listed on the job descriptions in Appendix H-1. Some job descriptions may incorporate specialized skills as core skills; when this is the case, the associated training will be represented as required training. Review frequency for specialized skill training is specified in Table H-1.

Table H-1 lists the training subjects included as required initial training, supplemental training, and specialized skill training on the various job descriptions. The table includes a discussion of training objectives and specified recurring frequency.

Course content incorporates practical examples of situations commonly found at Romic. The content of training courses may be revised frequently in response to changes in facility operations, technology or regulations and standards. Programmatic changes, such as changes in training course objectives, training frequency, or the amount of required training specified will be made subject to the Department’s permit modification process.

H.3 TRAINING SCHEDULE

22 CCR 66264.16(b) & (c), 66270.14(b)(12)

Facility personnel must successfully complete the required initial training within six months after the date of their employment or assignment to the facility or to a new position at the facility. Supplemental training will also be delivered during this orientation period. This training may be combined with other appropriate training (e.g., Hazardous Waste Operations and Emergency Response, or "HAZWOPER" training).

Prior to any person beginning work unsupervised, he or she must complete and demonstrate necessary competence for all required training associated with their position title. In some cases, the initial training or parts thereof may be waived if the new employee has documentation of previous work training equivalent to the initial training or part thereof and successfully demonstrates his or her competence.

Annual refresher training shall consist of a review of the required initial training elements and may be conducted in conjunction with HAZWOPER refresher training. The refresher course curriculum will be determined by the senior EH&S Manager depending upon facility needs or significant regulatory changes that have occurred since the previous training was conducted. Some recurring training will occur on a less than annual frequency, as described above in section H.2.

H.4 TESTING

22 CCR 66264.16, 66270.14(b)(12)

Reasonable understanding of training content will be demonstrated by completion of examinations at suitable intervals and/or at conclusion of the training period. Participants will be required to sign and date their tests.

H.5 TRAINERS

22 CCR 66264.16(a)(2), 66270.14(b)(12)

The training program course instructors are professionals trained in hazardous waste management, health and safety management, emergency response, or facility operations. Generally, the training program courses are instructed or overseen by the Environmental, Health & Safety Department with the help of other employees (e.g. Lab Manager, Operations Manager) in their respective fields of expertise. Trainer qualification files will be maintained. Whenever outside trainers are used, Romic will ensure those instructors are highly qualified and are able to train Facility employees at the high level this company demands.

H.6 RECORDKEEPING

22 CCR 66264.16(d)&(e); 66270.14(b)(12)

The training program records for facility personnel will be kept by the Environmental, Health & Safety (EH&S) Department until closure of the facility. Facility training records, which may be maintained electronically or via paper or other media, include at a minimum the following:

1. The position title at the facility related to hazardous waste management (Note: the position title and/or category designations in the training records may not correspond to position titles in personnel files);
2. The written position description for each position title consisting of the requisite skill, education, or other qualifications and the duties of the facility personnel. Position title descriptions are provided in Appendix H-1.
3. The written description of the type and amount of both introductory and continuing training that will be given to the facility personnel filling each position.
4. The name(s) of the facility personnel filling each position; and
5. The documentation (e.g., certificates of completion, sign-in sheets) that the training has been given and completed by the facility personnel.

Training records for personnel transferred to other Romic facilities or locations will follow those employees.

Table H-1 Core Training Course Matrix

Course Title*	Training Frequency* Recommend category is based on Romic's Best Management Practices.	Initial*	Supplemental	Annual*	Biennial*	Triennial*	Course Objectives*
Bonding and Grounding	Required during new employee orientation training or whenever a new physical or health hazard is introduced. Recommend biennial refresher training.		X		X		Instruction is provided on the necessity to bond and ground during various processes as well as the techniques to assure a proper bond and/or ground. Additional instruction is provided on the correct use of grounding-type receptacles, cord connectors, and attachment plugs.
Confined Space Awareness Level I	Required during new employee orientation training or whenever a new physical or health hazard is introduced. Annual review of initial training required.	X		X			The Confined Space program at Romic is a comprehensive program that is not only designed to meet but exceed Federal and Cal Occupational Safety and Health requirements to protect employees and contractors while making their jobs easier in the process. Level I outlines hazards and policies associated with confined space operations.
Contingency Plan	Required during new employee orientation training or whenever a new physical or health hazard is introduced. Annual refresher training is required.	X		X			This training session is intended to instruct the employee about the role of the Hazardous Material Responder versus the evacuee in the event of an emergency including evacuation procedures, alarm activation, prevention, activation of contingency plan, regulatory reporting, incident notification, spill response, etc.
Determining Compatibles and Incompatibles	Required during new employee orientation training or whenever a new physical or health hazard is introduced.	X		X			Training session includes review of container and tank compatibility with wastes, proper segregation, adverse consequences of combining / mixing incompatible waste and examples of incompatibles.
DOT General Awareness/Familiarization	Requirement: Initial training must be completed within ninety (90) days followed by a refresher every three (3) years. As an interim measure, a hazmat employee may perform a required function under the direct supervision of a properly trained and knowledgeable Hazmat employee for a period of 90 days, or until the required training is provided, whichever comes first. Refresher training required every three years.		X			X	General Awareness / Familiarization training includes instruction on how to recognize and identify hazardous materials consistent with the hazard communication standards. In addition the employee will receive safety training specific to emergency response information required by subpart G, measures to protect themselves from the hazards associated with hazardous materials to which they may be exposed in the workplace, methods and procedures for avoiding accidents.
Emergency Response Drills	Required annually.			X			An emergency response drill and testing of the alarm and communication equipment will be conducted annually. The test may include use of communication equipment, Fire Department notification, a staged chemical reaction, fire drill, etc. After completion of the drill, evaluations will be made in conjunction with the Fire Department and presented to all personnel along with any changes to the contingency plan.
Environmental Compliance Techniques	Required during new employee orientation training. Annual refresher training is required.	X		X			This session includes instruction on identifying environmental non-compliance issues, work habits, housekeeping techniques, overview of preventative measures to ensure compliance, review of previously identified issues and opportunities for continuous improvement.

Table H-1 Core Training Course Matrix

Course Title*	Training Frequency* Recommend category is based on Romic's Best Management Practices.	Initial*	Supplemental	Annual*	Biennial*	Triennial*	Course Objectives*
Fire Extinguisher Use (Incipient Stage Fire)	Required during new employee orientation training. Annual refresher training is required. Recommend periodic hands-on drill.	X		X			Understanding proper use and limitations of Class A, B, C, D, fire extinguishers and techniques to put out an incipient stage fire including approaching a fire, (PASS) Point, Aim, Squeeze and Sweep, etc.
General Tank and Container Standards	Required during new employee orientation training. Annual refresher training is required.	X		X			This session covers the general management standards for hazardous waste in tanks and containers, 22CCR Division 4.5, Chapter 14, Articles 9 and 10, Romic's Hazardous Facility Permit, and internally developed policies and procedures.
Hazard Communication Standard	Required during new employee orientation training or whenever a new physical or health hazard is introduced.		X				Employees are trained on their rights as well as the location and availability of the H&S written program, MSDS, training requirements, labeling requirements, existence of carcinogens, protective measures Romic has in place (engineering, administrative and PPE controls), methods and observations that may be used to detect the presence or release of a hazardous substance. Additionally a review of Romic's responsibility to the Community and a review of Proposition 65. In addition the employee will receive safety training specific to emergency response information required by Department of Transportation, Subpart G, measures to protect themselves from the hazards associated with hazardous materials to which they may be exposed in the work place, methods and procedures for avoiding accidents.
Hazardous Waste Regulatory Overview	Required: Training is to be completed within six months after time of assignment. Facility personnel must take part in an annual review of initial training.		X		X		Training session includes review of RCRA, Non-RCRA, and universal waste applicable laws, regulations and the agencies that govern a Hazardous Waste Facility and its operations. Additional topics include review of definitions, acronyms, abbreviations, regulatory review and updates, recordkeeping and reporting, hazardous waste determination, waste minimization, classification, labeling, Land Disposal Restrictions and California regulations.
HAZWOPER 24-Hour	Required during new employee orientation training.	X					Employees will receive training designed to meet the standards outlined in California Code of Regulations, Title 8 General Industry Safety Orders and 29 Code of Federal Regulations 1910.120 (e), (p) and (q).
HAZWOPER 8-Hour	Required annually.			X			Employees will receive training designed to meet the standards outlined in California Code of Regulations, Title 8 General Industry Safety Orders and 29 Code of Federal Regulations 1910.120 (e), (p) and (q).
Inspection Plan	Required during new employee orientation training. Annual refresher training is required.	X		X			Recording of monitoring data, inspection criteria of container storage areas including but not limited to identification of leaks, container labeling, stacking, placement of ignitables and reactive wastes stored a minimum of 50 feet from property line, storage of incompatibles, condition of secondary containment, accessibility to emergency equipment, location of designated permitted storage area and housekeeping.

Table H-1 Core Training Course Matrix

Course Title*	Training Frequency* Recommend category is based on Romic's Best Management Practices.	Initial*	Supplemental	Annual*	Biennial*	Triennial*	Course Objectives*
Lockout/Tagout for Affected Employee (Control of Hazardous Energy)	Required prior to assignment or whenever a new physical or health hazard is introduced. Recommend biennial refresher.		X		X		This session covers activities during the servicing and maintenance of machines and equipment in which the unexpected energization or start up of the machines or equipment, or release of stored energy could occur. The session includes a review of the purpose of the lockout/tagout standard and program, identification of potential hazardous energy sources and a description of Romic's specific lockout/tagout program.
Personal Protective Equipment	Required prior to assignment or whenever a new physical or health hazard is introduced. Annual refresher training is required.	X		X			This section covers the four levels of PPE, selection criteria, types of materials, limitations, degradation, penetration and permeation, donning and doffing procedures, discarding methods, inspection and maintenance.
Respiratory Protection Program (Air Purifying Respirator)	Required during new employee orientation training. Subsequent annual refresher or whenever a new physical or health hazard is introduced.	X		X			Romic's respiratory protection program is based on PELs, NIOSH recommendations, ACGIH TLVs and internal action levels. As a conservative employee protection measure, Romic requires the use of respirators when performing certain tasks or operations, even though exposures are typically below PELs. All operations employees undergo training regarding potential respiratory hazards, types of respirators, proper selection and use of respiratory protection, why respirators are necessary, when they are to be used, and their capabilities and limitations . Additional topics include medical requirements, monitors, fit testing methods, preventive maintenance and Change-Out-Schedule.
Waste Acceptance Procedures	Required during new employee orientation training. Annual refresher training is required.	X		X			This session includes a review of the Waste Analysis Plan and instruction on identifying manifest discrepancies, load verification, generator notification procedures, waste codes, non-acceptable wastes, etc.

* Initial denotes training to be delivered as part of the initial training required by 22 CCR 66264.16(a). Supplemental denotes additional training to be delivered during orientation period. Annual denotes review to take place at least every year. Biennial denotes review to take place at least every other year. Triennial denotes review to take place at least once every three years.

Table H-1 Specialized Skill Training Course Matrix

Specialized Skill	Training Frequency Recommend category is based on Romic's Best Management Practices.	Prior to Assignment	Annual	Biennial	Course Objectives
Biosystem (Waste Water) Operation	Required prior to assignment. Annual refresher training is required.	X	X		This module addresses a specific process. Completion of the on-the job elements are noted in the training records by the signature of both the trainer (typically the supervisor) and the employee with the completion date on the prescribed form. Specialized skill training includes a review of equipment maintenance and monitoring; chemical or physical hazards that are associated with the use of the treatment process, to ensure the safety of the treatment method and its effectiveness in treating hazardous waste streams. In addition this session includes procedures for using, inspecting, repairing, and replacing emergency and monitoring equipment; safety essentials; PPE; operating parameters; overfill prevention (Alarms and Tank level indicators); key parameters for automatic waste feed cut-off systems, etc. Class time is minimal.
Confined Space Entry and Attendant (Level II)	Required prior to assignment. Once employee has completed Level II training, any subsequent completion of Level III or IV will meet the recommended refresher training requirement.	X	X		The Level II program identifies the responsibility of the Attendant and Entrant. The course instruction outlines regulations, safe practices, procedures, permit system, and hazard identification. Hands-on use of instrumentation, communication, setting up of non-entry retrieval and external equipment. The policy is continually reviewed to update the confined space program as an effective safety tool.
Confined Space Supervisor - (Level III)	Required prior to assignment. Recommended biennial training.	X		X	Level III program outlines the responsibility for the Entry Supervisor. Course content includes a review of Level II training components with additional emphasis on atmospheric hazards, instrumentation, how-to-fill out a confined space permit, rigging, understanding limitations routine and emergency communication, CS Rescue requirements and a review of safe work habits. The policy is continually reviewed to update the confined space program as an effective safety tool.
Confined Space Entry Rescue (Level IV)	Required prior to assignment and satisfactory completion of annual extraction exercise will allow Rescuer to maintain certification.	X	X		A review of rescue procedures as required by OSHA Standard 29 CFR 1910.146 Permit Required Confined Space Entry - Appendix F - Rescue team or rescue service evaluation criteria (non-mandatory), Cal/OSHA General Industry Safety Orders 5156, 5157,and 5158 Confined Space Regulations, Cal/OSHA General Industry Safety Orders 5144 Respiratory Protection Equipment, and NFPA 1670 Operations and training for Technical Rescue Incidents - Chapter 2 General Requirements and Chapter 5 Confined Space, including but not limited to notification, rapid entry, victim packaging, simulated space or entry of actual spaces, retrieval of person(s) or weighted dummy.
CPR/First Aid	Romic offers CPR/First Aid training every year: Recertification is required biennially.	X		X	First Aid and/or Cardiopulmonary Resuscitation for First Responders for Confined Space and Hazardous Energy Regulations
Emergency Coordinator	Required for persons on designated primary/alternate Emergency Coordinator list. Annual refresher training is required.	X	X		Training session includes review and implementation of Contingency Plan, emergency equipment and evacuation procedures. Review of communication, command and control skills.

Table H-1 Specialized Skill Training Course Matrix

Specialized Skill	Training Frequency Recommend category is based on Romic's Best Management Practices.	Prior to Assignment	Annual	Biennial	Course Objectives
Ethylene Glycol Production	Required prior to assignment. Annual refresher training is required.	X	X		This module addresses a specific process. Completion of the on-the job elements are noted in the training records by the signature of both the trainer (typically the supervisor) and the employee with the completion date on the prescribed form. Specialized skill training includes a review of equipment maintenance and monitoring; chemical or physical hazards that are associated with the use of the treatment process, to ensure the safety of the treatment method and its effectiveness in treating hazardous waste streams. In addition this session includes procedures for using, inspecting, repairing, and replacing emergency and monitoring equipment; safety essentials; PPE; operating parameters; overfill prevention (Alarms and Tank level indicators); key parameters for automatic waste feed cut-off systems, etc. Class time is minimal.
In-Plant Driver	Required prior to assignment. Annual refresher training is required.	X	X		This module addresses a specific process. Completion of the on-the job elements are noted in the training records by the signature of both the trainer (typically the supervisor) and the employee with the completion date on the prescribed form. Specialized skill training includes a review of equipment maintenance and monitoring; chemical or physical hazards that are associated with the use of the treatment process, to ensure the safety of the treatment method and its effectiveness in treating hazardous waste streams. In addition this session includes procedures for using, inspecting, repairing, and replacing emergency and monitoring equipment; safety essentials; PPE; operating parameters; overfill prevention (Alarms and Tank level indicators); key parameters for automatic waste feed cut-off systems, etc. Class time is minimal.
Lab Pack Operation	Required prior to assignment. Annual refresher training is required.	X	X		This module addresses a specific process. Completion of the on-the job elements are noted in the training records by the signature of both the trainer (typically the supervisor) and the employee with the completion date on the prescribed form. Specialized skill training includes a review of chemical and physical hazard associated with lab packing operations including chemical reactives, fire hazards, spills and accidental releases, chemical inventorying procedure, chemical handling and packaging procedures, load storage and securement, site safety analysis, manifesting and shipping, use of exemptions, packaging of reactive materials, etc. Class time is minimal.

Table H-1 Specialized Skill Training Course Matrix

Specialized Skill	Training Frequency Recommend category is based on Romic's Best Management Practices.	Prior to Assignment	Annual	Biennial	Course Objectives
Liquefaction Operation	Required prior to assignment. Annual refresher training is required.	X	X		This module addresses a process-specific on-the-job training aspects for an employee based on their assigned work tasks. Class time is minimal. Completion of the on-the job elements are noted in the training records by the signature of both the trainer (typically the supervisor) and the employee with the completion date on the prescribed form. Specialized operator training includes a review of equipment maintenance and monitoring; chemical or physical hazards that are associated with the use of the treatment process, to ensure the safety of the treatment method and its effectiveness in treating hazardous waste streams. In addition this session includes procedures for using, inspecting, repairing, and replacing emergency and monitoring equipment; safety essentials; PPE; operating parameters; overfill prevention (Alarms and Tank level indicators); key parameters for automatic waste feed cut-off systems, etc.
Lockout/Tagout for Authorized Employee (Control of Hazardous Energy)	Required prior to assignment or whenever a new physical or health hazard is introduced. Recommend biennial refresher.	X		X	This session covers activities during the servicing and maintenance of machines and equipment in which the unexpected energization or start up of the machines or equipment, or release of stored energy could occur. The session includes a review of the purpose of the lockout/tagout standard and program, identification of potential hazardous energy sources and a description of Romic's specific lockout/tagout program. Completion of this class session allows the employee to perform lockout
Neutralization Operation	Required prior to assignment. Annual refresher training is required.	X	X		This module addresses a specific process. Completion of the on-the job elements are noted in the training records by the signature of both the trainer (typically the supervisor) and the employee with the completion date on the prescribed form. Specialized skill training includes a review of equipment maintenance and monitoring; chemical or physical hazards that are associated with the use of the treatment process, to ensure the safety of the treatment method and its effectiveness in treating hazardous waste streams. In addition this session includes procedures for using, inspecting, repairing, and replacing emergency and monitoring equipment; safety essentials; PPE; operating parameters; overfill prevention (Alarms and Tank level indicators); key parameters for automatic waste feed cut-off systems, etc. Class time is minimal.
Respiratory Protection Program (Powered Air Purifying Respirators)	Required prior to assignment. Subsequent annual refresher or whenever a new physical or health hazard is introduced.	X	X		Understanding on use of Powered Air Purifying Respirators, limitations, seal check, sanitation, maintenance, and storage.
Respiratory Protection Program (Self Contained Breathing Apparatus / Supplied Air Line)	Required prior to assignment. Subsequent annual refresher or whenever a new physical or health hazard is introduced.	X	X		Understanding the use of Supplied Air Respirators, limitations, seal check, sanitation, maintenance, and storage.

Table H-1 Specialized Skill Training Course Matrix

Specialized Skill	Training Frequency Recommend category is based on Romic's Best Management Practices.	Prior to Assignment	Annual	Biennial	Course Objectives
Thin Film Operation	Required prior to assignment. Annual refresher training is required.	X	X		This module addresses a specific process. Completion of the on-the job elements are noted in the training records by the signature of both the trainer (typically the supervisor) and the employee with the completion date on the prescribed form. Specialized skill training includes a review of equipment maintenance and monitoring; chemical or physical hazards that are associated with the use of the treatment process, to ensure the safety of the treatment method and its effectiveness in treating hazardous waste streams. In addition this session includes procedures for using, inspecting, repairing, and replacing emergency and monitoring equipment; safety essentials; PPE; operating parameters; overfill prevention (Alarms and Tank level indicators); key parameters for automatic waste feed cut-off systems, etc. Class time is minimal.
Warehouse Operation	Required prior to assignment. Annual refresher training is required.	X	X		This module addresses a process-specific on-the-job training aspects for an employee based on their assigned work tasks. Class time is minimal. Completion of the on-the job elements are noted in the training records by the signature of both the trainer (typically the supervisor) and the employee with the completion date on the prescribed form. Specialized operator training includes a review of equipment maintenance and monitoring; chemical or physical hazards that are associated with the use of the treatment process, to ensure the safety of the treatment method and its effectiveness in treating hazardous waste streams. In addition this session includes procedures for using, inspecting, repairing, and replacing emergency and monitoring equipment; safety essentials; PPE; operating parameters; overfill prevention (Alarms and Tank level indicators); key parameters for automatic waste feed cut-off systems, etc.

Note: Terms used above do not necessarily reflect Romic job titles; they derive from regulatory or other standards.

Romic Environmental Technologies Corp.

CAD 009 452 657

East Palo Alto, California

Section I

Management Practices

November 2001
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CONTENTS

I MANAGEMENT PRACTICES

The purpose of this section is to describe operational practices to ensure appropriate control of hazardous waste at the Facility. This section describes: waste manifest receiving procedures; on-site waste tracking; outgoing shipments of hazardous wastes; Facility operating records; and reporting and recordkeeping requirements at the Facility.

I1 MANIFEST RECEIVING PROCEDURES

All shipments of hazardous waste received by the Facility must be accompanied by hazardous waste manifests. The driver of each vehicle transporting hazardous waste to the Facility will provide Facility personnel with copies of the manifest(s) associated with the waste(s) being delivered to the Facility. Prior to unloading the vehicle, Facility staff will review the manifests with respect to completeness and accuracy regarding:

- Generator phone and mailing address;
- Generator EPA ID No.;
- Transporter Name and ID No.;
- Designated facility information;
- DOT shipping descriptions;
- EPA and State Waste Code Numbers;
- Special handling instructions; and
- Signatures of the generator and transporter(s), including dates of signatures;

In addition to the review of the manifests, wastes will be inspected and samples may be collected for analysis as provided in Section C of this application.

The Operations manager or his designee will sign and date all copies of the accepted manifest. Incoming manifests will be signed no later than the earliest of the following occurrences:

- The departure of the delivery vehicle from the facility,
- The end of the calendar day the delivery vehicle is unloaded; or
- Noon on the first operating day following the date of arrival of the delivery vehicle at the facility.

I1.1 HAZARDOUS WASTES OF CONCERN

Hazardous wastes of concern are defined at 22 CCR 66261.111 as those hazardous wastes classified under US DOT regulations under the following hazard class divisions:

- Division 1.1, 1.2, and 1.3 explosives
- Division 6.1 toxic materials, Packing Group I and II
- Division 2.3 toxic gases

Discrepancies involving hazardous wastes of concern are identified and handled differently from those involving other hazardous wastes. Reportable discrepancies involving hazardous wastes of concern are:

- Quantity discrepancies, which, for bulk shipments, are quantity variations of 3 percent or greater, in weight or volume.
- Quantity discrepancies, which, for containerized shipments, are variations in piece count of one or more.
- Waste type discrepancies, which are obvious differences that can be discerned through observation, inspection, or waste analysis.

The facility will attempt to reconcile such discrepancies with the generator or transporter.

Reportable discrepancies involving hazardous wastes of concern must be reported immediately if they remain unreconciled 24 hours after discovery in accordance with 22 CCR 66264.72(c). A written report will be submitted to DTSC within five days of discovery of a reportable discrepancy that remains unreconciled 24 hours after discovery, in accordance with 22 CCR 66264.72(d).

Discrepancies involving hazardous wastes other than hazardous wastes of concern will be handled as described in the following paragraphs.

I1.2 SIGNIFICANT DISCREPANCIES

Any significant discrepancy will be noted in the "Discrepancies" space on the manifest. Discrepancies mean differences between the quantity or type on the manifest or shipping paper and the quantity or type actually received.

Significant discrepancies in quantity are:

1. For bulk waste, variations greater than 10% in weight.
2. For batch waste, any variation in piece count such as a discrepancy of one drum in a truckload.

Significant discrepancies in type are:

1. Obvious differences which can be discovered by inspection or waste analysis such as waste solvent substituted for waste acid.
2. Toxic constituents not reported on the manifest.

Upon discovering a significant discrepancy, the Facility will attempt to reconcile the discrepancy with the generator or transporter. If the waste is still in the same container in which it was originally shipped, (i.e., a drum shipment), the Facility may elect to reject the shipment or a portion thereof and return it to the generator. The reason for the rejection and the date which the drum is shipped back to the generator will be designated in Box 19 on the original manifest which was used to ship the waste to the Facility. A copy of the original manifest will be used as the shipping paper which will accompany the shipment returned to the generator.

If the discrepancy cannot be resolved within 15 days after receiving the waste, the Facility will submit a letter to the Department of Toxic Substance Control (Department) describing the discrepancy and attempts to reconcile the discrepancy. A copy of the manifest will accompany this letter.

I1.3 MANIFEST COPIES

Give to the transporter at least one copy of the signed and dated manifest. Within 30 days of receiving delivery, send a copy of the manifest to the generator and the Department of Toxic Substances Control. Retain at the Facility a copy of each manifest for at least three (3) years from the date of delivery.

I1.4 WASTE RECEIVED FROM OUTSIDE OF CALIFORNIA

The Facility's policy regarding out-of-state waste is to require the out-of-state generator to ship their hazardous waste using a California uniform manifest.

I1.5 WASTE REJECTION PROCEDURES

The Facility may find it necessary to reject a waste shipment or partial waste shipment due to factors including:

- Unacceptable waste type,
- Incomplete or nonexistent preacceptance information,
- Unresolved discrepancy, and
- Business considerations.

The facility will conduct waste rejection in compliance with current applicable statutes and regulations. The facility will strive to complete waste rejections as expeditiously as possible. However, the facility's ability to contact and come to resolution with generators, make logistical arrangements, and other factors may affect the time frame within waste shipments to be rejected are shipped off-site. The facility will prepare a written notification to DTSC of any rejections that occur more than ten days after receipt. The notification will include the following information:

- Waste generator name, EPA ID Number,

- Manifest number, if received on manifest,
- Description of waste rejected,
- Reason for rejection, and
- Reasons for delay of shipment.

I2 ON-SITE WASTE TRACKING

The Facility uses a computerized bar tracking system to track the movement of all hazardous waste which enters the Facility. Manifest information from all incoming waste shipments is recorded in the computerized system. The system assigns a unique individual tracking number to each container (drum, tanker, or other container). This number serves as the key by which all waste movements are recorded. The tracking number is printed on a bar code label that can be affixed to drums or totes, or onto a form for use with tanker trucks and similar vessels.

The Romic waste tracking system maintains records of the following types of waste movements:

- Physical container movements within container storage units (e.g., move drum # 330 from South Storage Building row # 2 to row # 10).
- Physical container movements between container storage units (e.g., move drum # 330 from South Storage Building row # 2 to North Storage Building row #3).
- Repackaging of container contents into another/other container/containers (e.g., repack contents of drum # 350 into drum # 600; repack contents of drum # 330 into drum #s 501 and 502; move contents of drum # 430 into drum #s 450, 451, and 452).
- Pouring of container contents into another/other container/containers (e.g., pouring contents of drum #350 into drum # 600; pouring contents of drum # 330 into drum #s 501 and 502). Note that this type of movement will be tracked in the same manner as the previous listed type of movement.
- Repackaging or pouring of multiple containers into a single container (e.g., repack contents of drum #s 350, 355, and 356 into drum # 500; pouring contents of drum #s 400, 401, and 403 into drum # 400, consolidation of drum #s 400-450 into tanker # 601).
- Transfers from containers to tanks (e.g., transfer from tanker # 601 to Tank R95; transfer from drums 300-350 to Tank L).
- Movement of containers off-site (e.g., shipment of tanker # 601 to the Romic Redwood City Rail Transfer Facility; shipment of drum #s 200-280 to an off-site TSDF).

Waste movements can be entered into the computer system using bar code reading scanners or computer terminals. Waste movements are entered into the system as soon after they are made as practicable. If there are delays in data entry due to system problems, training issues, etc., movements will be recorded on paper and entered as soon as possible after the problems are addressed.

The waste tracking system will be able to report on the following:

- Waste containers in inventory.
- Incoming waste containers making up a consolidated container.
- Linkage between inbound container manifest and outbound container manifest for those wastes managed in containers.
- Movements for a particular container.

This information will be available by tracking number, which ties back to the incoming manifest number or numbers.

The waste tracking system tracks containers of waste until they are shipped off-site or transferred to a storage or processing tank. Once wastes are transferred to the tank systems for further processing the movements are tracked on a number of logs and production records. Each day the levels in all tanks are measured and recorded. The operations manager or his designee develops a production schedule which details all activities to be completed by each shift. This includes which tank to process in each treatment or recycling system. The production log is used by the shift operators to record actual activities conducted.

I3 OUTGOING SHIPMENT OF WASTES

No wastes listed in Subpart C of 40 CFR 268 or Title 22 §66268 of the California Code of Regulations will be stored over one year unless such storage is justified per the requirements of Title 22 CCR §66268.50.

All wastes generated on-site shall be designated by the Facility as either a hazardous or non-hazardous waste. Such a determination shall be made in accordance with the requirements in 22 CCR 66261. In the absence of such testing, or the appropriate use of generator knowledge, the waste streams shall be assumed to be hazardous. On-site generated wastes may be treated on- or off-site, depending on the nature and Facility permit-acceptability of the waste.

Hazardous waste may be placed in a container that is compatible with the waste and meets the requirements for shipping under the US DOT. (Look for a UN stamp showing it meets US DOT transportation requirements). An empty container from an offsite generated hazardous waste may be used if it has been emptied. An empty container which previously held a hazardous waste or hazardous material is empty if:

- For Liquids/pourable materials - No material can be poured or drained from the container when it is held in any orientation (e.g., tilted, held upside down, etc.).

- For Non-liquid/pourable materials such as solids - No material or waste remains in the container that can be feasibly removed by physical methods including scraping and chipping. The top, bottom, and sidewalls of the container should not have adhered or crusted material remaining in the container after material removal. (A thin uniform layer of dried material or powder is acceptable).

- For Aerosol cans/compressed gas cylinders - The container pressure approaches atmospheric pressure; the container was emptied through normal use; and the spray mechanism was not damaged.

Hazardous wastes must be placed in containers that are suitable for storage and transportation. A container holding any amount of hazardous waste must have a hazardous waste label placed on the container.

Container storage areas for on-site generated waste must be inspected at least weekly for leaking or damaged containers. This weekly container area inspection is performed at the same time as the container area inspection performed for offsite received wastes. Containers holding hazardous waste must always remain closed, except when it is necessary to add or remove waste from the container. Closed means that all latches or bolts are tightened so that the container is vapor tight and will not leak regardless of the position of the container (e.g., tipped over). Containers that hold non-dispersable waste solids such as rags, empty cans, gloves, and other materials that are non-volatile and can be picked up when spilled must only be kept covered and need not be bolted.

The Facility will follow standard waste profiling procedures with the selected TSD facility. These waste profiles shall accurately describe the waste including physical and chemical properties and how it is generated.

Hazardous wastes shall be sent offsite using a California Hazardous Waste Manifest (or that of the receiving state if the TSD facility is not located in California). The Production Manager or authorized Facility representative shall sign the manifest. Before signing, the waste descriptions and quantities shall be verified. The transporter will then sign the manifest and return two copies of the California manifest to the Facility. The manifest copies should be inspected before release of the shipment to confirm that all copies are legible.

All outgoing shipments of hazardous waste must be accompanied by a manifest and properly executed land disposal restriction (LDR) notification/certification, if necessary. The LDR form notes all applicable waste codes and treatment categories.

I3.1 PRE-TRANSPORT REQUIREMENTS

All hazardous waste offered for shipment is packed in accordance with all applicable DOT regulations on packaging under 49 CFR Part 173, 178 and 179.

Each package offered for transport is labeled in accordance with 49 CFR 172. Each package with a capacity under 450 liters (i.e., DOT non-bulk) must be marked or labeled with the following information displayed in accordance with the requirements of 49 CFR 172.304 and Title 22 Section 66262.32:

> HAZARDOUS WASTE - State and Federal Laws Prohibits Improper Disposal. If found, contact the nearest police or public safety authority, the U.S. Environmental Protection Agency, or the California Department of Toxic Substances Control.
>
> Generator's Name______________________.
>
> Generator's Address_____________________.
>
> Manifest Document Number_______________.

Before transporting a hazardous waste the transporting vehicle must display the appropriate placard as designated in 49 CFR Part 172, Subpart F.

I3.2 EXCEPTION REPORTING - FOR WASTES SHIPPED OFF SITE BY THE FACILITY

If the Facility does not receive a copy of the manifest with a handwritten signature by the owner or operator of the designated facility with 35 days of the date of acceptance by the hazardous waste transporter, the Facility will contact the transporter and/or designated facility to determine the status of the hazardous waste.

If the Facility has not received a signed copy of the manifest within 45 days, an Exception Report will be prepared and sent to the Department. The Report will include:

1. A legible copy of the manifest.

2. A cover letter signed by an authorized representative of the Facility explaining the efforts taken to locate the hazardous waste and the results of those efforts.

I4 OPERATING RECORD

The Facility maintains an operating record in accordance with the requirements of 22 CCR 66264.73. The operating record is available at the Facility for inspection by authorized personnel during normal working hours and will be maintained there until closure of the Facility. The operating record includes the following data, reports, and analyses:

1. A description of the wastes received.

2. The quantity of wastes received.

3. The method and date of treatment, storage and disposal.

4. The location of the hazardous wastes in storage areas cross-referenced to specific manifest document numbers.

5. Tank level logs.

6. A production log recording waste management activities conducted.

7. Manifests of outgoing shipments are recorded in the Facility Operating Record.

8. Results of waste analyses as required in the Facility Waste Analysis Plan.

9. Any summary reports resulting from the implementation of the Contingency Plan.

10. Unmanifested Waste Reports. The unmanifested waste report must be submitted in the form of a letter to the Department. It should be titled "Unmanifested Waste Report" and include the following:

    - The Facility's EPA Identification Number, name and address;
    - The date the Facility received the waste;
    - The EPA identification number; name, and address of the generator and the transporter, if available;
    - A description and the quantity of waste received;
    - The method of storage; treatment and/or disposal;
    - The certification must be signed by the owner or operator of the facility or his authorize representative; and
    - A brief explanation of why the waste was unmanifested.

11. The inspection schedule forms. (These forms need to be maintained at the facility for three (3) years from the date of inspection).

12. All notices to and from generators including:

    - Written notification that the Facility has the appropriate permits for, and will accept, the waste the generator is shipping.

    - Generator notifications regarding shipments of wastes restricted from land disposal and the information contained in the notice.

- All written and signed notices from facilities which burn or market hazardous waste as a fuel as required by 40 CFR 266.34.

13. All closure cost estimates.

14. All annual and biennial reports.

15. All personnel training records.

16. All process vent compliance documentation (See Section M).

I5 ANNUAL REPORT

The Facility will collect and record relevant information, as it becomes available, to submit single copies of an annual report to DTSC by March 1 of each year as required. The Annual Report will be submitted as required on forms provided by the Department, EPA Form 8700-13A/B, 5-80 or more recent forms as appropriate. The report shall cover activities during the previous calendar year and will provide the following information.

- The Identification Number, name and address of the Facility;
- Name of the Facility;
- Address of the Facility;
- The calendar year covered by the report; and
- The Identification Number, name and address of each hazardous waste generator from which the Facility received a hazardous waste during the year (for imported shipments, the report shall give the name and address of the foreign generator);
- A description, including any applicable EP A hazardous waste number, California Hazardous Waste Number, and DOT hazard class, and the quantity of each hazardous waste the Facility received during the year. Wastes that are classified as non-RCRA wastes shall be described by indicating a generic name of the waste and the phrase "Non-RCRA Hazardous Waste." When possible, the generic name shall be obtained from chapter 11, Appendix X, subdivision (b) of division 4.5, title 22, California Code of Regulations. If the generic name is not listed, the commonly recognized industrial name of the waste shall be used. This information shall be listed by Identification Number of each generator.
- The method of transfer, treatment or storage for each hazardous waste;
- The most recent closure cost estimate under section 66264.142, and, for disposal facilities, the most recent post -closure cost estimate under section 66264.144;
- The environmental monitoring data specified in section 66264.73;

- The certification signed by an authorized representative of the Facility. The certification will include the following:

  "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

I6 ADDITIONAL REPORTS

In addition to submitting the annual reports and unmanifested waste reports described above, the Facility shall also report to the Department:

- Releases, fires, and explosions as specified in 22 CCR 66264.56
- Facility closures specified in 22 CCR 66264.115;

I7 RETENTION OF RECORDS

A copy of records showing waste disposition locations and quantities will be submitted to the DTSC upon closure. In our case, closure will be completed by removing all hazardous waste from the site, therefore, those records will show that no wastes are disposed of on site.

All records which constitute the operating record will be maintained on site until the facility has completed full closure, unless otherwise specified in the preceding section.

All records, including plans, will be made available upon request at all reasonable times for inspection by any officer, employee or representative of the DTSC who is duly designated to inspect such documents.

Romic Environmental Technologies Corp.

CAD 009 452 657

East Palo Alto, California

Section J

Closure Plan

November 2001

Rev. 4/05

J1 CLOSURE PLAN

In accordance with the requirements of 22 CCR 66264.110 et seq., 40 CFR part 264, Subpart G, and related guidance, a Closure Plan has been prepared for the Facility. The Closure Plan is presented in Appendix 3 to the application.

The Closure Plan was prepared for use by Romic to close the Facility in a manner that: 1) minimizes the need for further maintenance and controls, and 2) minimizes or eliminates to the extent necessary to protect human health and the environment, the post-closure release of hazardous constituents, leachate, contaminated rainfall and runoff or hazardous waste decomposition products to the ground, surface waters, or to the atmosphere.

In accordance with regulatory guidance, the closure cost estimate (See Appendix 4) was prepared assuming that closure will be performed by an independent third party.

The Closure Plan may be amended any time prior to the notification of partial or final closure of the Facility as provided by 22 CCR 66264.112(c). Amendments will be made:

- Whenever changes in the Part B Permit or design of the Facility affect the Closure Plan, or
- There is a change in the expected year of closure, or
- Unexpected events occur while performing partial or final closure activities that require a modification of the approved Closure Plan.

Additional procedures relating to amending the Closure Plan are discussed in Section 1.3 of the Closure Plan document.

Romic Environmental Technologies Corp.

CAD 009 452 657

East Palo Alto, California

Section K

Financial Assurance

November 2001

Rev. 4/05

K FINANCIAL ASSURANCE

K1 SUDDEN ACCIDENTAL OCCURRENCES

Romic will demonstrate continuous compliance with the requirements of 22 CCR 66264.147(a) to have and maintain liability coverage for sudden accidental occurrences in the amount of at least $1 million per occurrence, with an annual aggregate of at least $2 million, exclusive of legal defense costs. A copy of the required documentation is provided in Appendix K-1.

Romic shall comply with 22 CCR 66264.148, whenever necessary.

K2 NONSUDDEN ACCIDENTAL OCCURENCES

The Department requires facilities with land disposal units to demonstrate financial responsibility for bodily injury and property damage to third parties arising from nonsudden accidental occurrences. Romic does not operate any land disposal units.

K3 CLOSURE

Romic will demonstrate continuous compliance with the requirements of 22 CCR 66264.143 to have and maintain financial assurance for closure of the facility. This financial assurance will be for an amount equal to or greater than the current closure cost estimate. The closure cost estimate will be updated at least annually in accordance with 22 CCR 66264.142(b). A copy of documentation demonstrating financial assurance for closure is included in Appendix K-2.

APPENDIX K-1

CERTIFICATE OF LIABILITY INSURANCE

ACORD™ CERTIFICATE OF LIABILITY INSURANCE

DATE 09/15/2004

PRODUCER 877-945-7378

Willis North America, Inc. - Regional Cert Center
26 Century Blvd.
P. O. Box 305191
Nashville, TN 372305191

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW.

INSURED

Romic Environmental Technologies Corporation
2081 Bay Road
East Palo Alto, CA 94303

INSURERS AFFORDING COVERAGE

INSURER A: American International Specialty Lines In	26883-904
INSURER B: Commerce and Industry Insurance Company	19410-901
INSURER C: American Home Assurance Company	19380-302
INSURER D:	
INSURER E:	

COVERAGES

THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. AGGREGATE LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YY)	POLICY EXPIRATION DATE (MM/DD/YY)	LIMITS	
A	GENERAL LIABILITY X COMMERCIAL GENERAL LIABILITY ☐ CLAIMS MADE X OCCUR X Pollution Legal Liab. X (Fac.) $10MM ea loss GEN'L AGGREGATE LIMIT APPLIES PER: X POLICY ☐ PRO-JECT ☐ LOC	EG3112828	7/31/2004	7/31/2005	EACH OCCURRENCE FIRE DAMAGE (Any one fire) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 1,000,000 $ 100,000 $ 5,000 $ 1,000,000 $ 2,000,000 $ 2,000,000
B	AUTOMOBILE LIABILITY X ANY AUTO X ALL OWNED AUTOS ☐ SCHEDULED AUTOS X HIRED AUTOS X NON-OWNED AUTOS X $5000. Ded. Comp. X $5000. Ded. Collision	EGA3112831	7/31/2004	7/31/2005	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
	GARAGE LIABILITY ☐ ANY AUTO				AUTO ONLY - EA ACCIDENT OTHER THAN AUTO ONLY: EA ACC AGG	$ $ $
A	EXCESS LIABILITY X OCCUR ☐ CLAIMS MADE ☐ DEDUCTIBLE X RETENTION $ 10,000	EGU3112829	7/31/2004	7/31/2005	EACH OCCURRENCE AGGREGATE	$ 10,000,000 $ 10,000,000 $ $ $
C C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY	(AOS) WC 1241840 (AOS) (CA) WC 1241841 (CA)	7/31/2004 7/31/2004	7/31/2005 7/31/2005	X WC STATU-TORY LIMITS ☐ OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 1,000,000 $ 1,000,000 $ 1,000,000
A	OTHER Pollution Legal (CA Only)	PLS1348894	7/31/2004	7/31/2005	PLL - Per Occurrence PLL - Policy Aggregate	$10,000,000 $10,000,000

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/EXCLUSIONS ADDED BY ENDORSEMENT/SPECIAL PROVISIONS

See Below

CERTIFICATE HOLDER ☐ ADDITIONAL INSURED; INSURER LETTER: ____

For Information Purpose Only

CANCELLATION EXCEPT TEN DAYS FOR NONPAYMENT

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, THE ISSUING INSURER WILL ENDEAVOR TO MAIL 30 DAYS WRITTEN NOTICE TO THE CERTIFICATE HOLDER NAMED TO THE LEFT, BUT FAILURE TO DO SO SHALL IMPOSE NO OBLIGATION OR LIABILITY OF ANY KIND UPON THE INSURER, ITS AGENTS OR REPRESENTATIVES.

AUTHORIZED REPRESENTATIVE

Bernard Wallace McIntyre

Willis	CERTIFICATE OF LIABILITY INSURANCE Page 2 of 3	DATE 09/15/2004

PRODUCER 877-945-7378 Willis North America, Inc. - Regional Cert Center 26 Century Blvd. P. O. Box 305191 Nashville, TN 372305191	THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. **INSURERS AFFORDING COVERAGE**
INSURED Romic Environmental Technologies Corporation 2081 Bay Road East Palo Alto, CA 94303	INSURER A: American International Specialty Lines In 26883-904 INSURER B: Commerce and Industry Insurance Company 19410-901 INSURER C: American Home Assurance Company 19380-302 INSURER D: INSURER E:

DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/EXCLUSIONS ADDED BY ENDORSEMENT/SPECIAL PROVISIONS

Marine Liability:

Policy #: 342ZT5891
Policy Period: 09/04/2003 to 12/31/2004
Insurance Company: St.Paul Mercury Insurance Company.

Aggregate Limit: $2,000,000.00
Per Occurence: $1,000,000.00
Deductible: $50K Pollution/$20K Other

APPENDIX K-2

CLOSURE FINANCIAL ASSURANCE

INCREASE RIDER

To be attached to and form part of Bond Number ESD5297214 effective ______ issued by the National Union Fire Insurance Company of Pittsburgh, PA ______ in the amount of One Million, Five Hundred Forty Two Thousand, Three Hundred Forty Eight and no/100---------------------------- DOLLARS ($ 1,542,348.00), on behalf of Romic Environmental Technologies Corporation, as Principal and in favor of State of California - Department of Toxic Substance Control, as Obligee.

Now therefore, it is agreed that:

We, National Union Fire Insurance company of Pittsburgh, PA, Surety on the above bond, hereby stipulate and agree that from and after the effective date of this Stipulation, the Penalty of said Bond shall be Increased

FROM: One Million, Five Hundred Sixty Eight Thousand, One Hundred Fifty Five and no/100 ($ 1,568,155.00)

TO: Five Million, Four Hundred Seventy Five Thousand, Five Hundred Eighty One and no/100 ($ 5,475,581.00)

It is further understood and agreed that all other terms and conditions of this bond shall remain unchanged.

This rider is to be effective the 3 Day of January, 2005.

Signed, Sealed and Dated this 13 Day of December, 2004.

Romic Environmental Technologies Corporation
(Principal)

By:

National Union Fire Insurance Company of Pittsburgh, PA
(Surety)

By: D. Gregory Stitts Attorney-In-Fact

WC-2126/EP 8/90

PRINTED IN U.S.A

American Home Assurance Company
National Union Fire Insurance Company of Pittsburgh, Pa.
Principal Bond Office: 70 Pine Street, New York, N.Y. 10270

POWER OF ATTORNE

No. 09-B-14083

KNOW ALL MEN BY THESE PRESENTS:

That American Home Assurance Company, a New York corporation, and National Union Fire Insurance Company of Pittsburgh, Pa. Pennsylvania corporation, does each hereby appoint

---Rosemary Weaver, D. Gregory Stitts, Jeff McIntosh: of Dallas , Texas---

its true and lawful Attorney(s)-in-Fact, with full authority to execute on its behalf bonds, undertakings, recognizances and other contracts indemnity and writings obligatory in the nature thereof, issued in the course of its business, and to bind the respective company thereby.

IN WITNESS WHEREOF, American Home Assurance Company and National Union Fire Insurance Company of Pittsburgh, Pa. have e executed these presents

this 30th day of April, 20

Michael C. Fay, Vice President

STATE OF NEW YORK }
COUNTY OF NEW YORK }ss.

On this 30th day of April, 2002 before me came the above named officer of American Home Assurance Company and National Union Fire Insurance Company of Pittsburgh, Pa., to me personally known to be the individual and officer described herein, and acknowledged that he executed the foregoing instrument and affixed the seals of said corporations thereto by authority of his office.

DOROTHY L. PARKER
Notary Public, State of New York
No. 01PA6060631
Qualified in Richmond County
Commission Expires June 25.

CERTIFICATE

Excerpts of Resolutions adopted by the Boards of Directors of American Home Assurance Company and National Union Fire Insurance Compan Pittsburgh, Pa. on May 18, 1976:

"**RESOLVED**, that the Chairman of the Board, the President, or any Vice President be, and hereby is, authorized to appoint Attorneys-in-Fact to repre and act for and on behalf of the Company to execute bonds, undertakings, recognizances and other contracts of indemnity and writings obligatory ir nature thereof, and to attach thereto the corporate seal of the Company, in the transaction of its surety business;

"**RESOLVED**, that the signatures and attestations of such officers and the seal of the Company may be affixed to any such Power of Attorney or to certificate relating thereto by facsimile, and any such Power of Attorney or certificate bearing such facsimile signatures or facsimile seal shall be valid binding upon the Company when so affixed with respect to any bond, undertaking, recognizance or other contract of indemnity or writing obligatory i nature thereof;

"**RESOLVED**, that any such Attorney-in-Fact delivering a secretarial certification that the foregoing resolutions still be in effect may insert in certification the date thereof, said date to be not later than the date of delivery thereof by such Attorney-in-Fact."

I, Elizabeth M. Tuck, Secretary of American Home Assurance Company and of National Union Fire Insurance Company of Pittsburgh, Pa. do hereby ce that the foregoing excerpts of Resolutions adopted by the Boards of Directors of these corporations, and the Powers of Attorney issued pursuant theretc true and correct, and that both the Resolutions and the Powers of Attorney are in full force and effect.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the facsimile seal of each corporation

this 13 day of December,

Elizabeth M. Tuck, Secretary

65166 (4/96)

Romic Environmental Technologies Corp.

CAD 009 452 657

East Palo Alto, California

Section L

Corrective Action

November 2001

Rev. 4/05

L CORRECTIVE ACTION

L1 GROUNDWATER REMEDIATION ACTIVITIES

Groundwater remediation measures have been conducted at the Facility involving the onsite treatment of contaminated shallow groundwater. The treatment of this water is conducted under the oversight of the USEPA, the Regional Water Quality Control Board (RWQCB), and the State Water Resources Control Board (SWRCB), as permitted under two National Pollutant Discharge Elimination System (NPDES) permits. Under USEPA RCRA Consent Order # 09880015, over 3.5 million gallons of water have been extracted from the ground and treated since the remediation measures began in 1993. Additional final remediation treatment methods of these waters is currently being evaluated.

Remediation methods may include continued extraction and treatment of groundwater from the impacted zones beneath the site, or may involve in-situ bioremediation to reduce groundwater contamination. The latter technology does not require removal of water from the ground to achieve contaminant reduction. A pilot study is currently underway at the Facility to evaluate the effectiveness of this technology.

Several groundwater monitoring wells are located at the Facility. These wells are associated with the groundwater investigation and corrective actions being conducted at the Facility under a RCRA Section 3008(h) Consent Order issued by the USEPA.

Previous investigations at the Facility identified chemicals of concern (COCs) in the soil and groundwater from three primary source areas: the central processing area, the former pond area beneath the drum storage warehouse, and an off-site area southwest of the Facility. Soil and groundwater contamination occurred through past releases of solvent waste materials and recycled pure phase product. The releases resulted from discontinued historical practices resulting in spills, tank and container overfills, flooding events, breaks in transfer pipes and waste materials leaching through the former wastewater receiving ponds.

L2 SOLID WASTE MANAGEMENT UNITS

Table L-1 lists the Solid Waste Management Units (SWMUs) at the Romic facility. The locations of the SWMUs are illustrated on Figures L-1 and L-2.

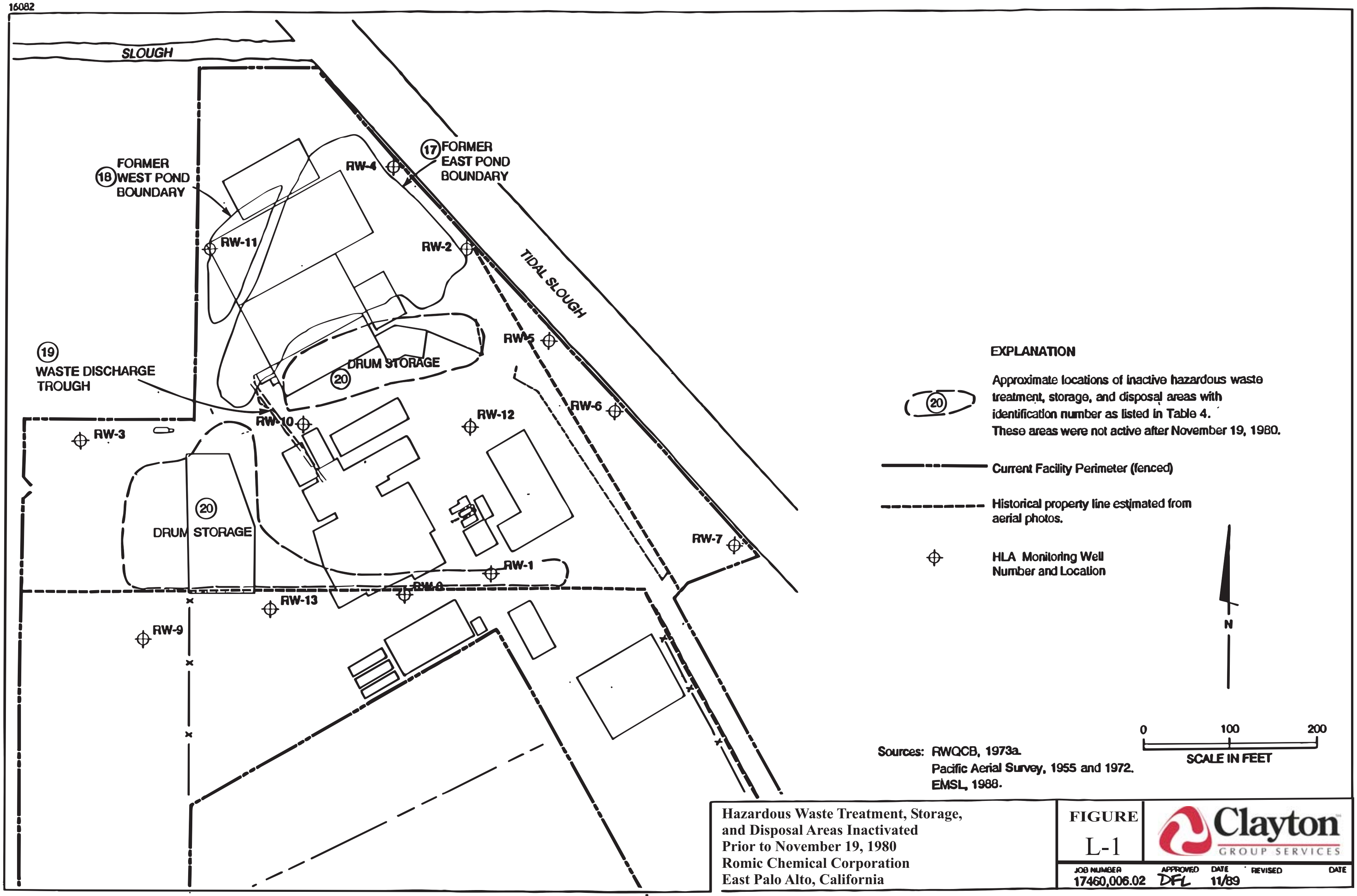
TABLE L-1

ACTIVE, INACTIVE, AND PROPOSED SOLID WASTE MANAGEMENT UNITS

#	Consent Order Description	Part B Description	Status	Wastes Managed
1.	South Drum Storage Bldg.	Sampling Area	Active (RCRA)	Spent solvents, flammable liquids
2.	North Drum Storage Bldg.	South Storage Building	Active (RCRA)	Same as above
3.	CSR Drum Storage Bldg.	North Storage Building	Active (RCRA)	Same as above
4.	Bulk Waste Storage Tanks (green)	Tank Farm MNO	Active (RCRA)	Same as above
5.	Bulk Waste Storage Tanks (brown)	Tank Farms A, B, C, G, H, I, J	Active (RCRA)	Same as above
6.	Surge Tank	-	Inactive (SWMU)	Process and sanitary sewer wastewater
7.	Surge Tank Separator	-	Inactive (SWMU)	Same as above
8.	West Storage Lot	[now site of Romic Building 6]	Inactive (SWMU)	Equipment storage, previously an automobile dismantler
9.	Truck Parking Area	Truck Parking/Staging Area	Active (SWMU)	Oily waste (auto dismantler)
10.	Runoff Sump Separator	General facility stormwater low point	Active (SWMU)	Facility rainfall runoff & drain
11.	Process Area Sump	Area between Tank Farms B and C	Active (SWMU)	Runoff
12.	Drum Crushing Area	-	Inactive (SWMU)	Empty solvent drums

#	Consent Order Description	Part B Description	Status	Wastes Managed
13.	Drum Staging Area	Old Maintenance Shop/planned Inorganic Treatment	Active (SWMU)	Spent solvents & flammable liquids
14.	Centrifuge	-	Inactive (SWMU)	Process wastewater
15.	Septic Tank	-	Inactive (SWMU)	Domestic wastewater
16.	Centrifuge Roll-off Bins	-	Inactive (SWMU)	Process wastewater solids
17.	East Pond	-	Inactive (SWMU)	Dimethylsulfoxide salts, process wastewater
18.	West Pond	-	Inactive (SWMU)	Vinyl lining material, process wastewater
19.	Waste Discharge Trough	-	Inactive (SWMU)	Same as East and West Ponds
20.	Past Drum Storage Areas	-	Inactive (SWMU)	Spent solvents (multiple)
21	-	Tank Farm K	Active (RCRA)	Process wastewater
22	-	West Storage Building #1	Active (RCRA)	Acids, bases
23	-	West Storage Building #2	Active (RCRA)	Spent solvents, flammable liquids, inorganics

16082



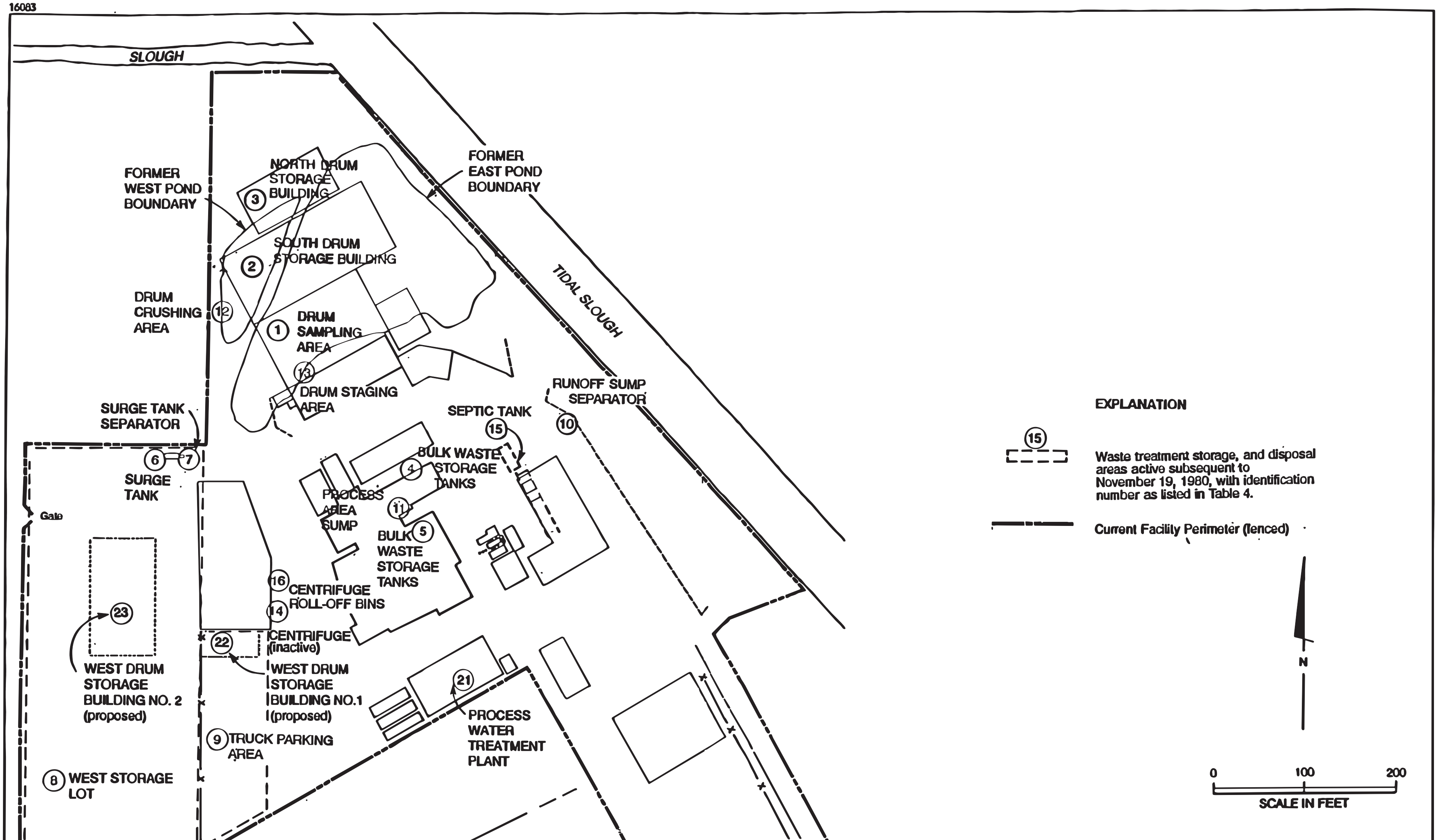
Hazardous Waste Treatment, Storage, and Disposal Areas Inactivated Prior to November 19, 1980
Romic Chemical Corporation
East Palo Alto, California

FIGURE L-1

Clayton GROUP SERVICES

JOB NUMBER	APPROVED	DATE	REVISED	DATE
17460,006.02	DFL	11/89		

16083



Solid and Hazardous Waste Treatment, Storage and Disposal Areas Active Subsequent to November 19, 1980
Romic Chemical Corporation
East Palo Alto, California

FIGURE L-2

Clayton Group Services

JOB NUMBER	APPROVED	DATE	REVISED	DATE
17460,006.02	DFL	11/89		

Romic Environmental Technologies Corp.

CAD 009 452 657

East Palo Alto, California

Section M

Air Emission Standards for Process Vents

November 2001
Rev. 4/05

CONTENTS

Tables, Figures, and Appendices are presented
in separate sections following the main body of the text.

Tables

Appendices

M AIR EMISSIONS STANDARDS FOR PROCESS VENTS

M1 APPLICABILITY AND DEFINITIONS

The requirements of Article 27 of 22 CCR 66264 (Subpart AA) apply to the facility because it operates vacuum still pots, fractionation distillation columns, solvent extraction, and thin film evaporation units that manage hazardous waste with an organic concentration of >10 ppmw. All such units at the facility are deemed to manage organic hazardous wastes.

Some terms used to describe compliance with Subpart AA are defined as follows (for additional Process Descriptions, see Section E).

- A **closed vent system** means a system that is not open to the atmosphere and that is composed of piping, connections, and if necessary flow inducing-devices that transport gas or vapor from a piece or pieces of equipment to a control device.
- **Distillation operation** refers to operation, either batch or continuous, separating one or more feed stream(s) into two or more exit steams, each having component concentrations different from those in the feed stream(s). The separation is achieved by redistribution of the components between the liquid and vapor phases as they approach equilibrium within the distillation unit.
- **Fractionation operation** is a method used to separate a mixture of several volatile components of different boiling points in successive stages, each removing from the mixture some proportion of one of the components.
- **Thin film evaporation operation** means a distillation operation that employs a heating surface consisting of a large diameter tube that may be either straight or tapered, horizontal or vertical. Liquid is spread on the tube by a rotating assembly of blades that maintain a close clearance from the wall or actually ride on the film of liquid on the wall.
- **Solvent Extraction operation** means an operation or method of separation in which a solid or solution is contacted with a liquid solvent (the two being mutually insoluble) to preferentially dissolve and transfer one or more components into the solvent.
- A **process vent** is any open-ended pipe or stack that is vented to the atmosphere either directly, through a vacuum-producing system, or through a tank associated with hazardous waste distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping.
- A **leak** is defined by an instrument reading of >500 ppm organics above background level.

M2 PROCESS VENTS

The process vents that are regulated by Subpart AA are listed in Table M-1 and shown in Figure E-2. The units associated with these process vents may operate up to 24 hours per day, 7 days per week. The organic vapors generated from these processes are collected in a piping manifold system and directed to separator tanks. These tanks separate the vapors and residual liquid condensate. The condensate collects in the separator tank, and from here is transferred to intermediate storage for future processing. The vapors are sent to a series of venturi scrubbers that are part of the on-site VOC abatement system.

The first two-venturi scrubbers use water to remove organic vapors from the process vent gas stream. A final venturi scrubber uses diesel to further remove organic vapors. The residual scrubber water contaminated with organics is managed with the condensate from the separator tanks. The diesel, when it becomes saturated with organic vapors, is sent to a thin film evaporator where the diesel is recovered and returned to the venturi scrubber for reuse. Vapors not adsorbed by the diesel scrubber are sent to an enclosed combustion device (i.e. on-site boiler unit) where they are thermally oxidized.

The Romic facility has chosen to reduce total organic emissions from all affected process vents at the facility by 95 weight percent. Determination of vent emissions is based upon the engineering calculations contained in Table M-2, Enclosed Combustion Device Efficiency. The facility uses an enclosed combustion device to reduce organic vapors generated from those processes described in 22 CCR 66264.1030(b). The system is designed and operated to meet the specification in 66264.1033(c). The system has also been evaluated by the Bay Area Air Quality Management District and was granted a permit to operate (Application No. 9308).

The operation of the combustion device is monitored by a flow recorder at the control device inlet meeting the requirements of 66264.1033(f)(1). The recorder provides a record of vent stream flow at least once each hour. A temperature indicating recorder, meeting the requirements of 66264.1033(f)(2)(D), is installed downstream from the combustion device exit. The flow monitor and the temperature monitor are inspected daily when the unit is in operation to insure proper control device operation. If the monitoring devices indicate that the control device is not operating correctly, Romic will implement corrective measures as required by 66264.1033(f)(3).

The control device will be operated at all times emissions are vented to it. Note that as described in Section E1.1, when the Facility fractionates chlorinated hydrocarbons the process vent emissions are passed through the triple scrubber system and then they are diverted to activated carbon rather than to the boiler. Although the boiler remains in service during these times, it receives no vent emissions. In addition, the system includes a temperature indicator in the boiler. When the boiler temperature drops below the set point, the vent gases are automatically diverted to the activated carbon vessels instead of the boiler to ensure the destruction or removal of the organic constituents in the vent gases.

Romic will visually inspect the closed vent system annually for leaks that may result in increased air emissions. All joints, seams, and other connections that are permanently or semi-permanently sealed (e.g., welded seams and bolted flanges) will be inspected. Romic will monitor any other components and connections (e.g., camlock connections) of the closed vent system annually in accordance with

66264.1034(b) to demonstrate that the system operates with no detectable emissions as indicated by an instrument reading of less than 500 ppmv above background. This information shall be recorded utilizing the "Designation of No Detectable Emissions" Form, located in Appendix M-1, Recordkeeping Forms. Romic will conduct this monitoring in accordance with Reference Method 21 in 40 CFR part 60. Components designated as unsafe to monitor will be monitored at times when the equipment is determined to be safe to monitor.

M3 TEST METHODS AND PROCEDURES

Annual testing of a closed-vent system will be conducted in accordance with 66264.1034(b). This testing will be performed to demonstrate that the closed-vent system operates with no detectable emissions. The results will be recorded on the "Designation of No Detectable Emissions Form," a sample of which is can be found in Appendix M-1.

M4 RECORDKEEPING

Romic will maintain up-to-date documentation of compliance with 66264.1035 in its operating record. The information in the operating record includes the estimated emission rate and data used to calculate the emission rate such as: operating hours, waste composition, and vapor flow rates and temperatures associated with the combustion unit during operation.

The facility operating record shall also contain the following information:

- The vent stream composition, constituent concentrations, and flow rate. The design analysis shall also establish the design minimum and average flame zone temperature, combustion zone residence time, and a description of method and location where the vent stream is introduced into the combustion zone.
- A statement signed and dated by the owner or operator certifying that the operating parameters used in the design analysis reasonably represent the conditions that exist when the hazardous waste management unit is or would be operating at the highest load or capacity level reasonably expected to occur. (See sample certification form in Appendix M-2).
- A statement signed and dated by the owner or operator certifying that the control device is designed to operate at an efficiency of 95 percent or greater unless the total organic concentration limit of 66264.1032(a) is achieved at an efficiency less than 95 weight percent or the total organic emission limits of 66264.1032(a) for affected process vents at the facility can be attained by a control device involving vapor recovery at an efficiency less than 95 weight percent. A statement provided by the control device manufacturer or vendor certifying that the control equipment meets the design specifications may be used to comply with this requirement.
- Identification of operating parameters, descriptions of monitoring devices, and a diagram of sensor locations.

- Monitoring, operating and inspection information required by this regulation.
- The operating record shall record the date, time and duration of each period that occurs when the control device flame zone temperature is more than 28^{o}C (82^{o}F) below the average flame zone temperature or position changes where the vent stream is introduced into the combustion zone.
- Records as required by 66264.1035(c)(4).
- Records of monitoring, operating, and inspection information required will be kept for three years.

M5 REPORTING

For each month during a semiannual period (January through June or July through December) that the control device operates outside the design specifications defined in the engineering analysis, and such exceedances are not corrected within 24 hours, a report will be made to the DTSC. The report will be submitted by the first week of August for the January to June time period, and by the first week of February for the July to December time period.

If no exceedances occur during a semi-annual period, no report will be filed.

TABLE M-1

PROCESS VENTS REGULATED BY SUBPART AA

TABLE M-1

Process Vents Regulated By Subpart AA

UNIT DESCRIPTION	EQUIPMENT	LOCATION
Distillation Column	35" Column	Process Area
Distillation Column	48" Column	Process Area
Distillation Column	24" Column	Process Area
Distillation Column	32" Column	Process Area
Distillation Column	43" Column	Process Area
Distillation Column	36" Column	Process Area
Distillation Column	49" Column	Process Area
Distillation Column	37" Column	Process Area
Distillation Column	42" Column	Process Area
Distillation Column	*34" Column*	*Process Area (planned)*
High Temperature Unit	HTU	Process Area
Vacuum Pot	Vac Pot 24	Process Area
Vacuum Pot	Vac Pot 25	Process Area
Thin Film Evaporator	TF1	Process Area
Thin Film Evaporator	TF2	Process Area
Thin Film Evaporator	TF3	Process Area
Thin Film Evaporator	*TF 4*	*Process Area (planned)*
Solvent Extraction	Caustic Column (CC)	Process Area
Solvent Extraction	Stainless Steel Kettle (SSK)	Process Area
Vacuum Pump	Vacuum Pump	Process Area
Vacuum Pump	Vacuum Pump	Process Area

TABLE M-2

ENCLOSED COMBUSTION DEVICE EFFICIENCY

TABLE M-2

Enclosed Combustion Device Efficiency

I. WATER/DIESEL VENTURI SCRUBBING SYSTEM				
SEPARATOR S-1 (ABATEMENT DEVICE A-1711)				
COMPONENT	**CONCENTRATION VOL (%)**	**GALLONS/ DAY**	**S.G.**	**LB/ DAY**
Water	99.75	1259.723	1	10497.27
Total Organics	0.25	3.1572	0.8	21.047
SEPARATOR S-2 (ABATEMENT DEVICE A-1712)				
COMPONENT	**CONCENTRATION VOL (%)**	**GALLONS/ DAY**	**S.G.**	**LB/ DAY**
Water	52	3.12	1	25.99896
Total Organics	48	2.88	1.32	31.607
Diesel Scrubber T-83 (ABATEMENT DEVICE A-1713)				
Volume of Diesel Held (Gallons)	= 5743.969			
Weight of Diesel (Lbs)	= 46428.56			
Total Organic Concentration in Diesel (Wt%)	= 0.065			
Total Mass of Organics in Diesel (Lb/Day)	= 30.1786			
Total Organics Recovered from S-1, S-3, T-83 = 82.833 Lb/Day				
II. TOTAL ORGANICS GOING TO THERMAL OXIDATION UNIT: S-71 OR S-72				
Air/Vapor Volumetric Flowrate (Ft3/Day)	= 5583.039			
Total Organics Concentration (PPM)	= 3000			
Total Mass Flowrate of Organics (Lb/Day)	= 3.604			

Continued on Next Page

TABLE M-2

Enclosed Combustion Device Efficiency

(Continued)

TITLE	**UNITS (LB/DAY)**	**NOTES**
A. Organic substances recovered in venturi scrubbing systems • Separator S-1 (A-1711) • Separator S-3 (A-1712) • Diesel scrubber T-83 (A-1713)	 21.047 31.607 30.179	
TOTAL ORGANICS RECOVERED FROM THE PROCESS VENTS AND RETURNED BACK TO THE PROCESS	82.833	
B. Organics going to the Thermal oxidation units (steam boilers)	3.604	
C. Organics destroyed in the boilers	3.568	Based upon estimated destruction efficiency of 99%. Source: CARB Technical Guidance Document for AB-2588, Aug. 1989
D. Total organics vented to the VOC recovery system (A + B)	86.437	

Efficiency of VOC reduction system prior to the polishing thermal oxidation stage = 95.83% (See Below)

$$\text{Efficiency Coefficient} = \frac{A \times 100\%}{(A + B)} = \frac{82.833 \times 100\%}{82.833 + 3.604} = 95.83\%$$

Overall Efficiency = 99.96%

$$\frac{(A + C) \times 100\%}{(D)} = \frac{(82.833 + 3.568) \times 100}{86.437} = 99.96\%$$

APPENDIX M-1

DESIGNATION OF “NO DETECTABLE EMISSIONS” FORM
INITIAL, ANNUAL, & RETURN TO SERVICE MONITORING

SAMPLE – FOR ILLUSTRATION PURPOSES ONLY

Appendix M-1

Designation of "No Detectable Emissions" Form
Initial, Annual, & Return to Service Monitoring

Date of Test____________________

Component Location____

Component Identification Number____

Component Type____

Background Level ____________________

Maximum Instrument Reading ____________________

Arithmetic Difference ____________________ Pass Fail

Date of Test____________________

Component Location____

Component Identification Number____

Component Type____

Background Level ____________________

Maximum Instrument Reading ____________________

Arithmetic Difference ____________________ Pass Fail

The above components, in meeting all applicable requirements of 40 CFR 264.1052(e), 1053(I), 1057(f), and 1064(g)(2) and passing the compliance test, are designated for "no detectable emissions".

Owner/Operator
Name and Signature____

Date _________________________

APPENDIX M-2

OWNER/OPERATOR CERTIFICATION

AIR EMISSION CONTROLS FOR PROCESS VENTS

Appendix M-2

Owner/Operator Certification

AIR EMISSION CONTROLS FOR PROCESS VENTS

The operating parameters used in the design analysis of Romic's process vent emission control device reasonably represent the conditions that exist when the hazardous waste management unit is or would be operating at the highest load or capacity level reasonably expected to occur. Further, the device is designed to operate at an efficiency of 95 weight percent or greater unless the total emission limits of 22 CCR 66264.1032(a) (1.4 kilograms per hour and 2.8 megagrams per year) can be attained by a control device at an efficiency less than 95 weight percent.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to be the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: ____

Name, Title: ____

Date: ____

Romic Environmental Technologies Corp.

CAD 009 452 657

East Palo Alto, California

Section N

Air Emission Standards for Equipment Leaks

November 2001
Rev. 4/05

CONTENTS

Tables, Figures, and Appendices are presented
in separate sections following the main body of the text.

Tables

Appendices

N AIR EMISSION STANDARDS FOR EQUIPMENT LEAKS

N1 APPLICABILITY AND DEFINITIONS

Equipment (other than tanks and containers) that contains or contacts hazardous waste streams with greater than or equal to 10 percent organics is monitored periodically according to the equipment type and service. The equipment that is subject to the requirements of Article 28 of 22 CCR 66264 (Subpart BB) will be clearly marked and readily distinguishable from other equipment. A list of all equipment subject to Subpart BB is contained in the Facility's Subpart BB monitoring program, which is maintained in the facility operating record.

The facility will use analysis or knowledge of the nature of the waste stream that is expected to contain the highest total organic content to determine the organic concentration of a hazardous waste stream. Refer to the Waste Analysis Plan (Section C) for further information on how incoming wastestreams are fully characterized and designated.

The following types of equipment are exempt from Article 28:

- Equipment in vacuum service
- Equipment which contacts hazardous waste streams with greater than or equal to 10 percent organics for less than 300 hours per calendar year.

The monitoring requirements and frequencies for each type of equipment, which contains or contacts hazardous wastes with greater than or equal to 10 percent organics, is presented in the subsections below and summarized in Table N-1, Monitoring Schedule.

Some terms used to describe compliance with 40 CFR 264 Subpart BB can be defined as follows:

- A **leak** is indicated by an instrument reading of greater than or equal to 10,000 ppm organics.
- **No detectable emissions** is defined by an instrument reading of <500 ppm organics above background level. See Section N6.3, "No Detectable Emissions" Forms, for designation requirements.
- **In light liquid service** means any piece of equipment which contains or contacts a waste stream where 20% or greater (by weight) of the waste stream is a combination of components that have a vapor pressure greater than 0.3 kilopascals (2.25 mm Hg) at 20 C° (or 68° F).
- **Heavy liquid service** is any piece of equipment which is not in gas/vapor service or light liquid service.

N2 STANDARDS FOR SPECIFIC EQUIPMENT

The following sections describe the requirements under Article 28 for specific types of equipment that may be used at the facility.

N2.1 PUMPS IN LIGHT LIQUID SERVICE

Each pump in light liquid service will be monitored monthly to detect “leaks”, except as described below, and visually inspected each week for indications of liquid dripping from the pump seal. Monthly monitoring is performed while the pumps are operating. Any drip discovered during a visual inspection is considered a “leak”.

Each pump equipped with a dual mechanical seal system that includes a barrier fluid system is exempt from the monthly monitoring requirements provided it meets the requirements outlined in 22 CCR 66264.1052(d).

Any pump that is designated for no detectable emissions is exempt from monthly monitoring and weekly visual inspections provided it meets the following: has no externally actuated shaft penetrating the pump housing, operates with no detectable emissions, and is monitored for no detectable emissions initially upon designation and annually.

Any pump that is equipped with a closed-vent system capable of capturing and transporting any leakage to a control device is exempt from all the requirements for pumps in light liquid service.

N2.2 PRESSURE RELIEF DEVICES IN GAS/VAPOR SERVICE

Except during pressure releases, pressure relief devices are operated with no detectable emissions, and are returned to this condition after each pressure release event as confirmed by monitoring completed within five days. Any pressure relief device that is equipped with a closed-vent system capable of capturing and transporting leakage from the pressure relief device to a control device is exempt from the above requirements.

After a pressure release, the pressure relief device that released will be returned to a condition of no detectable emissions, as soon as practicable, but no later than 24 hours after each pressure release unless delays are allowed as described in Section N5.2. The “no detectable emission” standard will be verified by an instrument reading less than 500 ppm above background. The pressure relief device will be tested within 24 hours of the release to confirm that there are no detectable emissions. If the device cannot be repaired and returned to a condition of no detectable emissions within 24 hours, the device will be isolated from organic hazardous waste.

N2.3 SAMPLING CONNECTION SYSTEMS

Each sampling connection system must be equipped with a closed-purge system or closed-vent system and must be designed and operated with "no detectable emissions" or vented to a control device. These standards apply to the sampling of gaseous hazardous waste streams, not liquid hazardous waste streams. In situ sampling systems are exempt from the above requirements.

N2.4 OPEN-ENDED VALVES OR LINES

Open-ended valves or lines are equipped with a cap, blind flange, plug, or a second valve that seals the open-ended valve or line except when flow through is required by operations. Open-ended valves or lines are not required to be monitored.

Each open-ended valve or line equipped with a second valve shall be operated such that the valve on the hazardous waste stream end is closed before the second valve is closed. When a double block and bleed system is used the bleed valve or line may remain open during operations, but shall be equipped with a cap, blind flange, plug, or second valve at all other times.

N2.5 VALVES IN GAS/VAPOR SERVICE OR IN LIGHT LIQUID SERVICE

Valves must be monitored monthly to detect "leaks". If a leak is not detected in two consecutive months, the valve may be monitored the first month of each quarter, beginning with the next quarter, until a leak is detected. Romic may elect to use the alternative monitoring plan, after notifying the DTSC, described in 22 CCR 66264.1062.

Any valve which is designated for “no detectable emissions” is exempt from the monthly/quarterly monitoring provided the following: it has no external actuating mechanism in contact with the waste stream, operates with no detectable emissions, and is monitored for no detectable emissions initially upon designation and annually.

Exemptions are also made for valves that are "unsafe to monitor" (22 CCR 66264.1057(g)) or "difficult to monitor" (22 CCR 264.1057(g)). The inspection frequency for unsafe to monitor and difficult to monitor valves will be specified in the monitoring plan maintained at the facility as part of the operating record. The minimum monitoring frequency for difficult to monitor valves is annual.

N2.6 PUMPS AND VALVES IN HEAVY LIQUID SERVICE, PRESSURE RELIEF DEVICES IN LIGHT OR HEAVY LIQUID SERVICE, AND FLANGES AND OTHER CONNECTORS:

Pumps and valves in heavy liquid service, pressure relief devices in light or heavy liquid service, and flanges and other connectors are required to be monitored for "leaks" within five days if evidence of a potential leak is found by visual, audible, olfactory, or any other detection method.

Under normal operating practice, if sensory evidence of a potential leak is found, the existence of a "leak" is presumed and a first attempt of repair is made within five days. If the first attempt of repair is successful, the potential leak no longer exists precluding the requirement to monitor. If a "leak" is detected by monitoring, it will be repaired according to the repair schedule in Section N5.

N3 EQUIPMENT MONITORING PROCEDURES

Monitoring is performed to detect "leaks" (≥10,000 ppm organics) and determine "no detectable emissions" (<500 ppm organics above background). Both monitoring programs are conducted using methods specified in 40 CFR Part 60 Appendix A, Method 21, "Determination of Volatile Organic Compounds Leaks". Monitoring frequency and type is summarized in Table N-1, Monitoring Schedule.

N3.1 "LEAKS" MONITORING PROCEDURE

Romic will conduct leak detection monitoring procedures in compliance with Method 21. The detection instrument used meets the performance criteria of, and is calibrated before use according to, Method 21. Leak repair requirements are described in Section N5 General monitoring procedures are listed below.

1. Place the probe inlet at the surface of the component interface.
2. Move the probe along the interface periphery while observing the instrument readout.
3. If an increased meter reading is indicated, sample that part of the interface until the maximum meter reading is obtained and leave the probe inlet in that position for approximately two times the response time.
4. If the maximum reading is greater than or equal to 10,000 ppm, a "leak" in the component has been identified. A maximum reading of less than 10,000 ppm indicates a component does not "leak".

N3.2 "NO DETECTABLE EMISSIONS" MONITORING PROCEDURE

“No detectable emissions” monitoring procedures comply with Method 21. The detection instrument meets the performance criteria of, and is calibrated before use, according to Method 21.

1. Determine the background level around the component interface by moving the probe inlet randomly upwind or downwind at a distance of one to two meters. If an interference exists, such as a nearby vent, the background level may be determined no closer than 25 cm from the component interface.
2. Move the probe inlet to the surface of the component interface, as described in the “Leaks” Monitoring Procedure (Section N3.1), to determine the component interface reading.
3. Determine the arithmetic difference between the background level and the component interface reading.
4. If the arithmetic difference is <500 ppm, the equipment may be designated as having "no detectable emissions". See Section N6.3, “No Detectable Emissions” Forms, for designation requirements.

N4 RECORDKEEPING

The facility operating record shall contain a description of each regulated piece of equipment, which will include: an identification number, the approximate location within the facility, the type of equipment (e.g., pump, valve), the percent-by-weight range of total organics in the wastestream at the equipment, the physical state of the wastestream (e.g., light or heavy liquid), and the method of determining compliance (e.g., monthly leak detection, no detectable emissions).

The procedures for identifying "leaks", once they have been discovered are described in Section N5.1, Repair Schedule. Recordkeeping procedures for the detection and repair of a "leak" are outlined in Section N6.

The facility operating record shall also contain the following miscellaneous information:

- A list of equipment in vacuum service which are exempt from monitoring,
- A list of valves which are designated as "unsafe" or "difficult" to monitor (see Section N2.6) and, if Romic elects to use the alternative monitoring plan described in 22 CCR 66264.1062, a monitoring schedule and the percentage of leaking valves,
- The design criteria, and the reasons for any changes to this criteria, that indicates failure of the seal system and/or the barrier fluid system described in Section N2.1.
- A statement listing the hazardous waste influent and effluent of each hazardous waste management unit and whether or not these wastes are heavy liquids, to determine which units are exempt from monitoring. (The Facility normally assumes all wastes are in light liquid service).
- Current analysis or knowledge, including supporting documentation, which indicates the nature (i.e., organic content) of the hazardous waste stream in order to determine whether or not a unit is exempt from monitoring; and
- A description of any process changes which could result in an increased organic content of a wastestream in an exempt unit.

N5 LEAK REPAIR REQUIREMENTS

Leak repair requirements for equipment subject to Article 28 shall be as described below.

N5.1 REPAIR SCHEDULE

When a leak is detected from a piece of for equipment covered under Sections N2.1, N2.5, and N2.6, the component will have a visible, weatherproof identifier which indicates the equipment ID number, the date evidence of a potential leak was found, and the date the leak was detected by monitoring. The identification will be removed, with the exception of valves, when the repair is completed. The identification on valves may only be removed after two consecutive months of monitoring with no “leaks”.

Repairs to equipment must be completed within fifteen days after detection of a "leak", unless an exception is allowed as discussed in Section N5.2. A first attempt at repairing the leak shall be made within five days of detection. Repair attempts, including delays and confirmational monitoring, are documented according to Section N6.

N5.2 REPAIR DELAYS

Repair delays on equipment for which leaks have been detected are allowed if the criteria presented in the following paragraphs are met.

A repair delay is allowed if the repair is technically infeasible without a hazardous waste unit shutdown. In such a case, repair of this equipment shall occur before the end of the next shutdown.

A repair delay is allowed if the equipment is isolated from and does not continue to contain or contact hazardous waste with organic concentrations ≥10 percent by weight. The repair must be completed prior to returning the equipment to the service of hazardous waste with organic concentrations ≥10 percent by weight.

Valve repairs may be delayed if the emissions of purged material resulting from immediate repair of the valve would be greater than the emissions resulting from the delay. Also, the purged material must be collected and destroyed, or recovered by a control device, when the repair is effected.

Pump repairs may be delayed if the repair requires the use of a dual mechanical seal system that includes a barrier fluid system and if the repair is completed as soon as practicable, but no later than six months after the leak is detected.

Delay of repair beyond a hazardous waste management unit shutdown will be allowed for a valve if: valve assembly replacement is necessary, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay beyond the next shutdown is not allowed unless shutdown occurs sooner than 6 months after the first shutdown.

N6 RECORDKEEPING REQUIREMENTS

Records required by this air quality program will be maintained on the forms described in the following subsections and kept in the facility operating record. Examples of these forms are presented in Appendix N-1. The required monitoring records for each piece of equipment are maintained in a database. Each monitoring location has a unique identification tag. There are currently over 5,000 tags identifying covered components. An example of the database is provided in Appendix 5.

N6.1 INSPECTIONS

A potential leak, found by visual, audible, olfactory, or any other detection method, may be noted during periodic (i.e., daily, weekly) inspections, as described in Section F, General Inspection Requirements. A record of the discovery of these potential leaks and any remedial action is maintained in the inspection logs as described in Section F2. The repair and monitoring of any leak, if required, will be done according to Section N5, Leak Repair Requirements.

N6.2 LEAK MONITORING FORMS

Leak monitoring forms are included in the facility’s Subpart BB monitoring program. The leak monitoring forms identify each component and indicate its approximate location within the facility. The key to each drawing describes the type of equipment (i.e., “P” for pump, “V” for valve) and the physical state (e.g., light or heavy liquid) of the wastestream which these components contain or contact. The forms also require the name and signature of the assessor, the date of the compliance test, and the result (e.g., pass or fail) for each component.

N6.3 “NO DETECTABLE EMISSIONS” FORM

The “No Detectable Emissions” Form includes a list of component identification numbers that have been elected to be designated for “no detectable emissions”. A sample form is included in Appendix N-1. The form has columns to indicate the date of the compliance test, the background level monitored, the maximum instrument reading, and whether or not the component passed. To be designated for “no detectable emissions”, the component must meet the requirements described in Sections N2.1, or N2.5 and pass the compliance test. Once these requirements are met, the facility manager or his/her designee will sign the form to complete the designation.

N6.4 LEAK REPAIR FORM

The leak repair form contains the following information:

- Operator identification;
- Equipment identification number;
- The date evidence of a potential leak was found;
- The date the leak was detected and the dates of each attempt to repair the leak;
- Repair methods applied in each attempt to repair the leak;
- Monitoring results after the repair attempt. The letter “P” for pass will be indicated for an instrument reading less than 10,000 ppm and the letter “F” for fail will be indicated for an instrument reading greater than or equal to 10,000 ppm.

- Whether or not the repair was completed within 15 calendar days and the reason for any delay, if required;
- Documentation supporting the delay of repair of a valve (see Section N5.2);
- The signature of the facility manager (or designee) whose decision it was that repair could not be effected without a hazardous waste management unit shutdown;
- The expected date of successful repair of the leak if a leak is not repaired within fifteen days; and
- The successful repair date.

A sample form is included in Appendix N-1.

N6.5 SEMI-ANNUAL REPORTING REQUIREMENTS

A semi-annual report will only be required if "leaks" are not repaired within the time frame specified in Section N5.1, Repair Schedule, or if a control device exceeds or operates outside of the design specifications for more than 24 hours. The semi-annual report will provide the following information:

- The facility EPA ID number, name, and address;
- For each month during the semi-annual reporting period, the equipment identification number of each valve, pump, or compressor which was not repaired in the required time frame;
- Dates of hazardous waste management unit shutdowns during the semi-annual period; and
- Dates when the control device exceeded or operated outside of the design specifications, as indicated by control device monitoring, and was not corrected within 24 hours. The duration, cause, and corrective measures for each exceedance shall also be reported.

If no exceedances occur during a semi-annual period, no report will be filed.

TABLE N-1

EQUIPMENT MONITORING SCHEDULE

Table N-1

Equipment Monitoring Schedule

Equipment Type	Monitoring Frequency	Monitoring Category
Pumps in light liquid service (section N2.1); Not designated for "no detectable emissions"	Monthly monitoring, and Weekly visual	"Leak" Detection
Pumps in light liquid service (section.N2.1); Designated for "no detectable emissions"	Annual monitoring	"No Detectable Emissions"
Pressure relief devices in gas/vapor service (section N2.2)	Monitored after each pressure release event	"No Detectable Emissions"
Valves in gas/vapor or light liquid service (section N2.5) Not designated for "no detectable emissions"	Monthly monitoring, or Quarterly monitoring (if no "leak" detected for 2 consecutive months)	"Leak" Detection
Valves in gas/vapor or light liquid service (section N2.5) Designated for "no detectable emissions"	Annual monitoring	"No Detectable Emissions"
Pumps and valves in heavy liquid service, Pressure relief devices in light liquid service, and Flanges and other connectors (section N2.6)	Monitored (within 5 days) after discovering a potential leak with sensory evidence	"Leak" Detection
Closed Vent Systems	Annually	"No Detectable Emissions"

APPENDIX N-1

RECORDKEEPING FORMS

SAMPLE – FOR ILLUSTRATION PURPOSES ONLY

"LEAK" REPAIR FORM

Inspector's Name________________________ Inspector's Signature____________________

Monitoring Date_________________________

Date Noted in Daily RCRA Inspection Form____

Component Location____

Component Identification Number____

Component Type____

Date Potential "Leak" Found (if required)____

Date "Leak" was Detected____

Date of Each Repair Attempt	Method of Repair Attempt (include work order number)	Monitor Results after Repair Attempt (Pass or Fail)

Was the "Leak" Repaired in < 15 Days? Yes No

Successful Repair Date____

Reason For Delay of Repair____
____
____
____

Expected Date of Repair____

SAMPLE – FOR ILLUSTRATION PURPOSES ONLY

Owner/Operator Signature____

Designation of "No Detectable Emissions" Form
Initial, Annual, & Return to Service Monitoring

Date of Test____________________

Component Location____

Component Identification Number____

Component Type____

Background Level ____________________

Maximum Instrument Reading ____________________

Arithmetic Difference ____________________ Pass Fail

Date of Test____________________

Component Location____

Component Identification Number____

Component Type____

Background Level ____________________

Maximum Instrument Reading ____________________

Arithmetic Difference ____________________ Pass Fail

The above components, in meeting all applicable requirements of 22 CCR 66264.1052(e), 1053(I), 1057(f), and 1064(g)(2) and passing the compliance test, are designated for "no detectable emissions".

Owner/Operator
Name and Signature____

Date ________________________

SAMPLE – FOR ILLUSTRATION PURPOSES ONLY

AIR EMISSION CONTROLS FOR EQUIPMENT LEAKS

The operating parameters used in the design analysis of Romic's emission control device reasonably represent the conditions that exist when the hazardous waste management unit is or would be operating at the highest load or capacity level reasonably expected to occur. Further, the device is designed to operate at an efficiency of 95 weight percent or greater.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to be the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: ____

Name, Title: ____

Date: ____

Romic Environmental Technologies Corp.
CAD 009 452 657

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Section O

Air Emission Standards for Tanks and Containers

November 2001
Rev. 4/05

CONTENTS

Tables, Figures, and Appendices are presented
in separate sections following the main body of the text.

O AIR EMISSION STANDARDS FOR TANKS AND CONTAINERS

O1 APPLICABILITY AND DEFINITIONS

The requirements of Article 28.5, 22 CCR 66264 (Subpart CC) apply to owners and operators of facilities that treat, store or dispose of hazardous waste in tanks, surface impoundments or containers subject to either Articles 9, 10, or 11 of Chapter 14 except as in § 66264.1.

Subpart CC requirements do not apply to the following:

- Containers with a design capacity less than or equal to 0.1 cubic meters, (about 26 gallons)
- Tanks with process vents as defined in Subpart AA, and
- Units managing hazardous waste with less than 500 ppmw volatile organics (as volatile organic compounds are defined in Article 28.5).

Some terms used to describe compliance with Article 28.5 of 22 CCR 66264 (Subpart CC) can be defined as follows:

- **Cover**—device or system that is placed on or over a hazardous waste such that the entire waste surface area is enclosed and sealed to reduce air emissions to the atmosphere. Examples of covers include a fixed roof installed on a tank, a lid installed on a drum and an enclosure in which an open container is placed during waste treatment.
- **Fixed Roof**—a rigid cover that is installed in a stationary position so that it does not move with the fluctuations in the level of the hazardous waste placed in a tank.
- **In Light Material Service**—managing a material for which both of the following conditions apply: The vapor pressure of one or more of the organic constituents in the material is greater than 0.3 kilopascals (2.25 mm Hg) at 20 °C (68°F); and the total concentration of the pure organic constituents having a vapor pressure greater than 0.3 kPa at 20 °C is equal to or greater than 20 percent by weight.
- **Waste Determination**—performing all applicable procedures in accordance with the requirements of 22 CCR 66265.1084 to determine whether a hazardous waste meets the standards specified in this subpart.
- **Organic vapor tight**—the container sustains a pressure change of not more that 750 pascals within 5 minutes after the container is pressurized to a minimum of 4,500 pascals.
- **Waste stabilization** is any physical or chemical process used to either reduce the mobility of hazardous constituents in a hazardous waste or eliminate free liquids as determined by Test Method 9095 (Paint Filter Liquids Test) in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication No. SW-846, Third Edition, September 1986, as amended by Update I,

November 15, 1992 (incorporated by reference-refer to section 66260.11). A waste stabilization process includes mixing the hazardous waste with binders or other materials, and curing the resulting hazardous waste and binder mixture. Other synonymous terms used to refer to this process are "waste fixation" or "waste solidification." This does not include the adding of absorbent materials to the surface of a waste, without mixing, agitation, or subsequent curing, to absorb free liquid.

O2 TANKS

The method of Subpart CC compliance for all planned and existing tanks within the facility is listed in Table O-1, Tanks Regulated under Subpart CC. Most of the storage tanks at the Romic facility have been identified as requiring Tank Level 1 control devices as specified in 22 CCR 66264.1084(c). There are tanks, as noted in Table O-1, that are subject to Tank Level 2 controls, because they receive bottoms from the thin film evaporation units, which are at elevated temperatures. Additionally, tanks associated with the liquefaction process are equipped with Tank Level 2 controls.

Tank vapor pressure determinations have been made in accordance with 22 CCR 66264.1083(c). The tank control level designations in Table O-1 are based on these vapor pressure determinations.

O2.1 LEVEL 1 TANKS

The majority of tanks at the facility that contain organic materials meet the definition of a "fixed roof" tank. When a tank is equipped with a fixed roof, the waste in the tank is not stabilized, heated, or treated in a process that produces an exothermic reaction, and the vapor pressure does not exceed 4.0 psi for tanks less than 40,000 gallons, the tank is not required to be vented to a control device. Tanks with Level 1 controls have fixed roofs and provide a continuous barrier over the entire tank surface.

Tank vapor pressure determinations will be redone if changes in operations or processes could cause the vapor pressure to increase above Level 1 limits.

Level 1 tank fixed roofs and closures will be maintained closed unless adding or removing wastes. Tanks subject to Tank Level 1 controls will not be used for waste stabilization, as defined above in Section O1.

Tanks subject to Tank Level 1 controls will be visually inspected on an annual basis. The facility will inspect for visible cracks, holes, or gaps in roof sections or between roofs and tank walls; broken, cracked, or otherwise damaged seals or gaskets; and broken or missing hatches, access covers, caps, or other closure devices that may result in air pollutant emissions.

O2.2 LEVEL 2 TANKS

Tanks subject to Tank Level 2 controls are identified in Table O-1. Level 2 tanks are equipped with fixed roofs vented to control devices.

There are two groups of tanks at the facility equipped with Level 2 controls. The first of these are tanks that contain organic hazardous wastes with vapor pressures at storage conditions potentially above the maximum vapor pressure levels specified in § 66264.1084(b)(a)(A). These tanks are equipped with fixed roofs and are vented through a closed-vent system to the emission control system described in Section M of this application. The fixed roofs and their closures will be maintained closed at all times hazardous waste is in the tank, except when adding waste to or removing waste from the tank.

The second group of tanks equipped with Level 2 controls are the tanks associated with the Fuel Blending process (see Section E3.1) These tanks manage hazardous wastes below the vapor pressure levels specified in § 66264.1084(b)(a)(A) and therefore, are not required to have Level 2 controls. However, they are currently vented through a closed-vent system to a control device. They are on the same VOC abatement system as described for process vents (see Section M) and also are shown in Figure E-2. These tanks are maintained closed except when adding or removing waste.

Transfers between Subpart CC subject tanks are conducted using closed systems consisting a combination of hard piping, flexible hoses, and temporary (i.e., camlock) connections. These systems prevent exposure of the hazardous waste to the environment.

Tanks equipped with Tank Level 2 controls will be inspected in accordance with §66264.1084(g)(3).

O2.3 STABILIZATION IN TANKS

Romic will not stabilize wastes containing greater than or equal to 500 ppmw volatile organics in tanks.

O3 CONTAINERS

The facility routinely transfers liquids containing volatile organics from containers. The following general requirements apply:

- Emissions from containers larger than 0.1 m^3 (26 gallons) and less than or equal 0.46 m^3 (121 gallons) will be controlled in accordance with the Container Level 1 standards of 22 CCR 66264.1086(c).
- Emissions from containers greater than 0.46 m^3 (121 gallons) that are not in light material service will be controlled in accordance with the Container Level 1 standards of 22 CCR 66264.1086(c).
- Emissions from containers greater than 0.46 m^3 (121 gallons) that are in light material service will be controlled in accordance with the Container Level 2 standards of 22 CCR 66264.1086(d).
- Emissions from containers 0.1 m^3 (26 gallons) that are used in waste stabilization processes will be controlled in accordance with the Container Level 3 standards of 22 CCR 66264.1086(e).

All facility container storage areas manage containers subject to Subpart CC. Container storage areas are identified and described in Section D of this application.

O3.1 CONTAINER LEVEL 1 STANDARDS

Containers subject to Level 1 controls as indicated above can be any of the following:

- A container meeting U.S. Department of Transportation requirements for the packaging of hazardous materials,
- A container equipped with a cover and closure devices that form a continuous barrier over the container openings such that when the cover and closure devices are secured in the closed position there are no visible holes, gaps, or other open spaces into the interior of the container. The cover may be a separate cover installed on the container (e.g., a lid on a drum or a suitably secured tarp on a roll-off box) or may be an integral part of the container structural design (e.g., a "portable tank" or bulk cargo container equipped with a screw-type cap), or
- An open-top container in which an organic-vapor suppressing barrier is placed on or over the hazardous waste in the container such that no hazardous waste is exposed to the atmosphere. One example of such a barrier is application of a suitable organic-vapor suppressing foam.

Containers subject to Container Level 1 controls will be maintained closed at all times except when hazardous waste is being added or removed, for maintenance, or when necessary to avoid unsafe conditions. When hazardous waste is being added or removed in batches, no more than fifteen minutes will be allowed to lapse between batches while the container remains open. Otherwise, the container will be closed.

O3.2 CONTAINER LEVEL 2 STANDARDS

Containers subject to Level 2 controls can be any of the following:

- A container meeting U.S. Department of Transportation requirements for the packaging of hazardous materials,
- A container that operates with no detectable organic emissions as defined in 22 CCR 66260.10 and determined in accordance with the procedure specified in 22 CCR 66264.1086(g), or
- A container that has been demonstrated within the preceding 12 months to be vapor-tight by using 40 CFR part 60, appendix A, Method 27 in accordance with the procedure specified in 22 CCR 66264.1086(h).

Containers subject to Container Level 2 standards will be maintained closed and secured, except when hazardous waste is being added or removed, for maintenance, or when necessary to avoid unsafe conditions. Transfers of hazardous waste in or out of a Level 2 container will be conducted in a manner to minimize exposure to the atmosphere.

O3.3 CONTAINER LEVEL 3 STANDARDS

Romic will not stabilize organic hazardous wastes containing greater than or equal to 500 ppmw volatile organics in containers unless Romic completes the following tasks:

- Develop plans for the design and operation of air controls that meet the requirements for stabilization in containers in Article 28.5 of 22 CCR 66264;
- Submit the plans to DTSC for review and approval; and
- Air controls are installed and operating in accordance with the agency's approval.

O3.4 CONTAINER INSPECTIONS

Containers subject to Level 1 controls will be inspected in accordance with 22 CCR 66264.1086(c)(4). Containers subject to Level 2 controls will be inspected in accordance with 22 CCR 66264.1086(d)(4). Both sets of requirements are identical and are outlined below.

The facility will inspect the containers it receives from off-site within 24 hours of the time it signs the incoming manifest, unless the containers are emptied within that time. The facility will inspect these containers and their closure devices to check for visible cracks, holes, gaps, or other open spaces into the interior of the container when the cover and closure devices are secured in the closed position. Containers may be inspected before receipt at the facility. If a defect is detected, the facility will repair the defect as follows:

- The facility will make a first attempt at repair within 24 hours after detection of the defect.
- The facility will complete the repair or remove the hazardous waste from the container within five (calendar) days of detection of the defect.

Level 3 control devices will be inspected in accordance with 22 CCR 66264.1087 (if used).

Containers that are attached to or form a part of any truck, trailer or railcar will be tested to be organic vapor tight per Method 27 of 40 CFR Part 60, Appendix A. Results will be documented on the form contained in Appendix O-1, Designation of "Organic Vapor Tight".

O4 WASTE DETERMINATION

Procedures used to determine the average volatile organic concentration of a hazardous waste at the point of generation will be conducted in accordance with the requirements of 22 CCR 66264.1083(a) and 66265.1084(a)(2) through (a)(4), as applicable. The waste determination for an incoming hazardous waste is based on information supplied by the generator of the waste. Procedures for determining the maximum organic vapor pressure of a hazardous waste in a tank will meet the requirements of 22 CCR 66264.1083(c) and 66265.1084(c)(2) through (c)(4).

O5 CLOSED SYSTEM VENTS AND CONTROL DEVICES

The tanks that make up the liquefaction system vent through a closed-vent system through a liquid nitrogen-cooled condenser to two carbon adsorption beds in series. Romic monitors the concentration level of organic compounds in the exhaust vent stream from the carbon adsorption system weekly. Carbon beds last at least six to eight weeks, depending upon Romic's operating schedule.

The closed vent-system installed on the other tanks managed by Level 2 controls route the gases, fumes, and fumes from the tank to a control device having a removal efficiency as required in 66264.1087(c)(1). The closed vent system is designed and operated to have “no detectable emissions”. Refer to Section N3.2 of this application for the monitoring requirements relating to “no detectable emissions”. Two methods of compliance with Level 2 standards are being used. The first method of compliance transfers organic vapors through a closed vent system to an enclosed combustion device, as described in Section M2 of this application. The alternate method is the use of carbon adsorption, which directs tank emission directly to the control device, in the event the combustion unit is not operational. When carbon is used, Romic would monitor the exhaust from the carbon bed as described above for the liquefaction system.

O6 RECORDKEEPING REQUIREMENTS

Romic will maintain records such that all relevant requirements in 22 CCR 66264.1089 are met. These requirements include:

- Subpart CC tank inventory,
- Inspection results from tank inspections described in Section O2 above, and
- Defect repair records,

O7 REPORTING

The facility shall report to the DTSC on a semi-annual basis each occurrence during the previous six months when a control device is operated continuously for 24 hours or longer in noncompliance with the applicable values. The facility shall report to the DTSC within fifteen days of an occurrence in which tanks using controls as specified in 22 CCR 66264.1084(c) (Tank Level 1 controls) receive a material with a vapor pressure above that allowed in 22 CCR 264.1084(b)(1)(A) through (b)(1)(C). In accordance with 22 CCR 66264.1090(a), Romic will also report each occurrence when hazardous waste is placed in a unit in noncompliance with the conditions specified in 22 CCR 66264.1082(c)(1) or (c)(2), as applicable.

If no exceedances occur during a semi-annual period, no report will be filed.

TABLE O-1

TANKS REGULATED UNDER SUBPART CC

Table O-1

Tanks Regulated under Subpart CC

Tank ID	Existing	Planned	Capacity (gal)	Capacity (m^3)	Heated	Max Vapor Press	Subpart CC Controls	Notes
1	x		4,200	15.9	no	76.6 kPa	Level 1	
2	x		5,093	19.3	no	76.6 kPa	Level 1	
3	x		5,093	19.3	no	76.6 kPa	Level 1	
4	x		4,555	17.2	no	76.6 kPa	Level 1	
5	x		6,360	24.1	no	76.6 kPa	Level 1	
6	x		5,093	19.3	no	76.6 kPa	Level 1	
7	x		5,093	19.3	no	76.6 kPa	Level 1	
8	x		4,555	17.2	no	76.6 kPa	Level 1	
9	x		6,360	24.1	no	76.6 kPa	Level 1	
10	x		5,093	19.3	no	76.6 kPa	Level 1	
11	x		5,093	19.3	no	76.6 kPa	Level 1	
12	x		4,555	17.2	no	76.6 kPa	Level 1	
16	x		1,962	7.4	no	76.6 kPa	Level 1	
17	x		1,962	7.4	no	76.6 kPa	Level 1	
18	x		535	2.0	no	76.6 kPa	Level 1	
19	x		1,962	7.4	no	76.6 kPa	Level 1	
20	x		1,962	7.4	no	76.6 kPa	Level 1	
21	x		1,895	7.2	no	76.6 kPa	Level 1	
26	x		8,800	33.3	no	76.6 kPa	Level 1	
27	x		8,800	33.3	no	76.6 kPa	Level 1	

(1) Material in these tanks may be at elevated temperatures, resulting in actual vapor pressures approaching the indicated limit.
(2) Tanks eligible for Level 1 controls based on vapor pressure, but complying through installation of Level 2 controls per 22 CCR 66264.1084(b)(1).

Table O-1

Tanks Regulated under Subpart CC

Tank ID	Existing	Planned	Capacity (gal)	Capacity (m^3)	Heated	Max Vapor Press	Subpart CC Controls	Notes
28	x		8,800	33.3	no	76.6 kPa	Level 1	
29	x		8,800	33.3	no	76.6 kPa	Level 1	
30	x		8,800	33.3	no	76.6 kPa	Level 1	
31	x		8,800	33.3	no	76.6 kPa	Level 1	
32	x		8,800	33.3	no	76.6 kPa	Level 1	
33	x		8,800	33.3	no	76.6 kPa	Level 1	
34	x		8,800	33.3	no	76.6 kPa	Level 1	
35	x		8,800	33.3	no	76.6 kPa	Level 1	
36	x		8,800	33.3	no	76.6 kPa	Level 1	
37	x		8,800	33.3	no	76.6 kPa	Level 1	
38	x		8,800	33.3	no	76.6 kPa	Level 1	
39	x		8,800	33.3	no	76.6 kPa	Level 1	
40	x		8,800	33.3	no	76.6 kPa	Level 1	
41	x		8,800	33.3	no	76.6 kPa	Level 1	
42	x		8,800	33.3	no	76.6 kPa	Level 1	
43	x		8,800	33.3	no	76.6 kPa	Level 1	
44	x		8,800	33.3	no	76.6 kPa	Level 1	
45	x		8,800	33.3	no	76.6 kPa	Level 1	
46	x		8,800	33.3	no	76.6 kPa	Level 1	
47	x		8,800	33.3	no	76.6 kPa	Level 1	

(1) Material in these tanks may be at elevated temperatures, resulting in actual vapor pressures approaching the indicated limit.
(2) Tanks eligible for Level 1 controls based on vapor pressure, but complying through installation of Level 2 controls per 22 CCR 66264.1084(b)(1).

Table O-1

Tanks Regulated under Subpart CC

Tank ID	Existing	Planned	Capacity (gal)	Capacity (m^3)	Heated	Max Vapor Press	Subpart CC Controls	Notes
48	x		4,000	15.1	no	76.6 kPa	Level 1	
49	x		4,000	15.1	no	76.6 kPa	Level 1	
50	x		4,000	15.1	no	76.6 kPa	Level 1	
61	x		13,113	49.6	no	76.6 kPa	Level 1	
64	x		19,400	73.4	no	76.6 kPa	Level 1	
65	x		19,400	73.4	no	76.6 kPa	Level 1	
75	x		12,700	48.1	no	76.6 kPa	Level 1	
78		x	12,000	45.4	no	76.6 kPa	Level 1	
80		x	12,000	45.4	no	76.6 kPa	Level 1	
81		x	3,000	11.4	no	76.6 kPa	Level 1	
83	x		11,655	44.1	no	76.6 kPa	Level 1	
84	x		11,655	44.1	no	76.6 kPa	Level 1	
85	x		11,655	44.1	no	76.6 kPa	Level 1	
86		x	1,500	5.7	no	76.6 kPa	Level 1	
87		x	200	0.8	no	76.6 kPa	Level 1	
88		x	1,500	5.7	no	76.6 kPa	Level 1	
89		x	200	0.8	no	76.6 kPa	Level 1	
101	x		11,655	44.1	no	76.6 kPa	Level 1	
102	x		11,655	44.1	no	76.6 kPa	Level 1	
103	x		11,655	44.1	no	76.6 kPa	Level 1	

(1) Material in these tanks may be at elevated temperatures, resulting in actual vapor pressures approaching the indicated limit.
(2) Tanks eligible for Level 1 controls based on vapor pressure, but complying through installation of Level 2 controls per 22 CCR 66264.1084(b)(1).

Table O-1

Tanks Regulated under Subpart CC

Tank ID	Existing	Planned	Capacity (gal)	Capacity (m^3)	Heated	Max Vapor Press	Subpart CC Controls	Notes
104	x		11,655	44.1	no	76.6 kPa	Level 1	
105		x	12,000	45.4	no	76.6 kPa	Level 1	
106		x	8,300	31.4	no	76.6 kPa	Level 1	
107		x	8,300	31.4	no	76.6 kPa	Level 1	
108		x	8,300	31.4	no	76.6 kPa	Level 1	
109		x	8,300	31.4	no	76.6 kPa	Level 1	
A		x	5,940	22.5	no	76.6 kPa	Level 1	
A6		x	4,794	18.1	no	76.6 kPa	Level 1	
A7		x	4,794	18.1	no	76.6 kPa	Level 1	
AES-1	x		11,160	42.2	no	76.6 kPa	Level 1	
AES-2	x		11,160	42.2	no	76.6 kPa	Level 1	
AES-3	x		11,160	42.2	no	76.6 kPa	Level 1	
AES-4	x		11,160	42.2	no	76.6 kPa	Level 1	
B		x	5,940	22.5	no	76.6 kPa	Level 1	
B-8	x		375	1.4	no	76.6 kPa	Level 1	
C		x	5,940	22.5	no	76.6 kPa	Level 1	
D		x	5,940	22.5	no	76.6 kPa	Level 1	
E		x	5,940	22.5	no	76.6 kPa	Level 1	
F		x	5,940	22.5	no	76.6 kPa	Level 1	
G		x	5,940	22.5	no	76.6 kPa	Level 1	

(1) Material in these tanks may be at elevated temperatures, resulting in actual vapor pressures approaching the indicated limit.
(2) Tanks eligible for Level 1 controls based on vapor pressure, but complying through installation of Level 2 controls per 22 CCR 66264.1084(b)(1).

Table O-1

Tanks Regulated under Subpart CC

Tank ID	Existing	Planned	Capacity (gal)	Capacity (m^3)	Heated	Max Vapor Press	Subpart CC Controls	Notes
H		x	5,940	22.5	no	76.6 kPa	Level 1	
I		x	5,940	22.5	no	76.6 kPa	Level 1	
K	x		9,230	34.9	no	76.6 kPa	Level 1	(2)
L	x		9,230	34.9	no	76.6 kPa	Level 1	(2)
M	x		9,230	34.9	no	76.6 kPa	Level 1	(2)
N		x	9,290	35.2	no	76.6 kPa	Level 1	
O		x	9,290	35.2	no	76.6 kPa	Level 1	
R90		x	4,794	18.1	no	76.6 kPa	Level 1	
R91	x		4,743	18.0	(1)	76.6 kPa	Level 2	(1)
R92	x		4,743	18.0	(1)	76.6 kPa	Level 2	(1)
R93	x		4,743	18.0	(1)	76.6 kPa	Level 2	(1)
R94	x		4,743	18.0	(1)	76.6 kPa	Level 2	(1)
R95	x		4,743	18.0	(1)	76.6 kPa	Level 2	(1)
R96		x	4,500	17.0	no	76.6 kPa	Level 1	
R97		x	4,500	17.0	no	76.6 kPa	Level 1	
Caustic Reboiler	x		2,160	8.2	no	76.6 kPa	Level 1	(2)
SSK	x		1,618	6.1	no	76.6 kPa	Level 1	
WWT	x		3,305	12.5	no	76.6 kPa	Level 1	
PT-1	x		1,160	4.4	no	76.6 kPa	Level 1	(2)
TW-1		x	1,700	6.4	no	76.6 kPa	Level 1	

(1) Material in these tanks may be at elevated temperatures, resulting in actual vapor pressures approaching the indicated limit.
(2) Tanks eligible for Level 1 controls based on vapor pressure, but complying through installation of Level 2 controls per 22 CCR 66264.1084(b)(1).

Table O-1

Tanks Regulated under Subpart CC

Reboilers and tanks associated with thin filmers and vacuum pots not listed here, as they vent through a process vent and are subject to Chapter 27 of 22 CCR 66264 (see Section M).

(1) Material in these tanks may be at elevated temperatures, resulting in actual vapor pressures approaching the indicated limit.
(2) Tanks eligible for Level 1 controls based on vapor pressure, but complying through installation of Level 2 controls per 22 CCR 66264.1084(b)(1).

TABLE O-2

MONITORING SCHEDULE

Table O-2

Monitoring Schedule

Equipment Type	**Monitoring Frequency**	**Monitoring Category**
Tank cover and cover openings	Annually	Visual
Container Covers(Truck, trailer, Railcar)	Annually	Method 27
Closed Vent Systems	Annually	"No Detectable Emissions"
Container Covers	Semi-Annually/Annually	"No Detectable Emissions"

APPENDIX O-1

RECORD KEEPING FORMS

SAMPLE – FOR ILLUSTRATION PURPOSES ONLY

Appendix O-1

Designation of "Organic Vapor Tight" per Method 27 of 40 CFR part 60, Appendix A

Date of Test____________________

Container Location____

Container Identification Number____

Container Type____

Initial Pressure/Time ____________________

Final Pressure/Time ____________________

Arithmetic Difference ____________________ Pass Fail

Date of Test____________________

Container Location____

Container Identification Number____

Container Type____

Initial Pressure/Time ____________________

Final Pressure/Time ____________________

Arithmetic Difference ____________________ Pass Fail

The above containers, in meeting all applicable requirements and passing the compliance test, are designated as "organic vapor tight".

Owner/Operator
Name and Signature____

Date ____________________________

SAMPLE – FOR ILLUSTRATION PURPOSES ONLY

AIR EMISSION CONTROLS FOR TANKS AND CONTAINERS

The Romic facility meets requirements of Article 28.5, Chapter 14, Division 4.5 of Title 22, California Code of Regulations.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to be the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: ____

Name, Title: ____

Date: ____