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Emerald Recycling, Inc.

Request for Class 2 Modification for Dangerous Waste Storage Permit WAD981769110

Removal of Minimum Btu Limit and Expansion of Glycol Storage Containment

July 28, 2005

Your Partner for Recycling and Environmental Services

Corporate Office: 9010 E. Marginal Way So., Suite 200 • Seattle, WA 98108 • (206) 832-3000 • 1-888-832-3008 • Fax (206) 832-3030

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Department of Ecology
Hazardous Waste and Toxics Reduction
Southwest Regional Office
PO Box 47775
Olympia WA 98504-7775
Attn: Kerry Graber

RE: Emerald Recycling, Inc. Part B Permit Request for Class 2 Modification
Removal of Minimum Btu Limit and Expansion of Glycol Storage Containment

Dear Kerry;

Emerald Recycling, Inc. (Emerald) is hereby requesting a Class 2 Modification for removal of the minimum Btu limit and approval to expand the glycol storage containment as outlined in the current Emerald Part B Permit. According to previous discussions, as well as WAC 173-303-830 Appendix I, these changes discussed below appear to be consistent with those outlined under Class 2 Modifications.

Removal of Minimum Btu Limit

Emerald is requesting removal of the minimum Btu limit of 5000 from the current Part B Permit for the Storage of Dangerous Wastes. There are a number of business opportunities currently available for waste streams with a composition similar to those waste streams already accepted by Emerald but with Btu less than 5000. These waste streams have a lower Btu primarily due to high water content. Receiving these waste streams for fuel blending and/or storage at the Emerald Tacoma facility would have little to no impact on the risk associated with facility operation, while at the same time provide increased opportunities for businesses to have their waste streams managed within the state of Washington.

The current Btu limit was established based on EPA's Sham Recycling Policy (Policy) of 1983. This Policy was superceded by the 1991 promulgation of new rules for boilers and industrial furnaces (BIFs). In general, the BIF rules are consistent with the Policy in that they state that 5000 Btu may generally be said to be burned for energy recovery. However, the May 2, 1997 Federal Register clarifies that " . . . lower energy wastes could conceivably be burned for energy recovery in industrial furnaces, such as cement kilns, or in industrial boilers due to these devices' general efficiency of combustion. Id. At 11158. Thus the 5000 Btu level is not an absolute measure of burning for energy recovery particularly when industrial furnaces and industrial boilers are involved." Rather, BIFs must establish that they can recover useful energy from a specific waste stream with less than 5000 Btu in order to accept the waste stream for use in the energy recovery process.

Several BIFs utilized by Emerald have received authorization from EPA to accept waste streams with lower Btu. The Btu value of these waste streams varies based on the specific waste stream and the efficiency of the BIF. Generally, BIFs have requested and received a conservative 2500 Btu limit for their permits. Specific BIFs have demonstrated energy recovery from waste streams with Btu as low as 1092.

Rather than include a new number for a Btu limit in the Emerald Permit, Emerald would like to leave the 5000 limit in the Permit as a guideline and allow the option to receive lower Btu waste streams, for which the Btu level would be dependant upon the receiving facility. Emerald would be required to meet the minimum Btu requirements of the receiving facility at the point of waste stream generation (generally 2500 Btu). However, due to the variability of BIF efficiencies, as well as the potential for further lowering of BIF limits due to improvements in technology, it does not seem prudent to include a specific limit for Emerald who acts only as the fuel blender of the waste stream and therefore has little control over the specific efficiencies of the burner.

As described in the BIF rules, the Btu limits for burners are determined at the point of generation. Emerald will continue to base its approval and acceptance of waste streams on the Btu level at the point of waste stream generation. Emerald is not intending to request modification in order to "blend-up" any waste streams and will also continue to evaluate waste streams at the point of generation against the 5000 Btu limit. Waste streams with less than 5000 Btu will be accepted and managed on a case-by-case basis. Emerald will ensure that burners receiving waste streams with less than 5000 Btu at the point of generation provide the necessary documentation that they are permitted to receive lower Btu waste streams for energy recovery. The enclosed documents outline specific changes proposed for the Emerald Part B Permit.

Expansion of Glycol Storage Containment

Emerald is requesting approval to expand the glycol storage containment area. This expansion is proposed in order to accommodate an additional product storage tank while also making use of the existing glycol storage. This arrangement will create a manageable containment area which complies with the minimum containment requirements for both

dangerous waste storage as well as the stormwater best management practices for product storage.

The new area would be an extension to the north of the existing area. The change to the existing area will consist of a notch in the north containment wall in order to connect the new containment area with the existing glycol storage containment. Engineer plans and specifications are included for review.

Public Notice

The following notice will be provided to all persons on the facility mailing list as well as published in the Tacoma News Tribune newspaper on Sunday, July 31, 2005:

Public Notice

Emerald Recycling, Inc. Tacoma facility, located at 1825 Alexander Avenue, Tacoma, WA 98421, proposes a Class 2 modification to its dangerous waste storage permit pursuant to WAC 173-303-830 (Permit Changes). Emerald proposes changes to eliminate the minimum Btu requirement of 5000 Btu and also to expand the glycol storage containment area. Documents are available for review and duplication from July 28, 2005 through September 26, 2005 at the following locations: The Main Tacoma Public Library, Cascade Room, 1102 Tacoma Avenue South, Tacoma WA; the Washington State Department of Ecology, Southwest Regional Office, 300 Desmond Driver, Lacey, WA; and Citizens for a Healthy Bay, 917 Pacific Ave, Suite 406, Tacoma, WA. Comments on the permit modification should be sent to the Washington State Department of Ecology contact person, Kerry Graber, at (360) 407-0241. Sheila Smith, Environmental Coordinator, represents Emerald Recycling, Inc., and may be reached at (206) 832-3204. Comments on the permit modification must be received prior to sixty days following the date of this publication. A public meeting on the proposed changes is scheduled for August 18, 2005 from 4:30 to 6:30 p.m. in the Main Tacoma Public Library, Cascade Room A. The permittee's compliance history during the life of the permit being modified is available from the Washington State Department of Ecology contact person.

Please contact me if you need anything further.

Sincerely,

Sheila Smith, Environmental Coordinator
Emerald Services, Inc.
(206) 832-3204 (Office)
(253) 370-7912 (Cell)
(206) 832-3220 (fax)
sheilas@emeraldnw.com

Enclosures

Removal of Minimum Btu Limit

Specific Changes

Dangerous waste material brought to the facility in bulk via vacuum truck (or tankers) is processed through the Bulk Liquid Blending System. This system consists of a filter, blend pump and associated ancillary equipment and piping. The material is pumped from the truck through the filter and then blended using the blend pump. After blending, the material is pumped directly to railcars or to storage tanks.

B.2.2.2. Recycling Activities

Recycling activities include those processes that entail recovery of clean, reusable products from dangerous waste using distillation technology. The two units used at ES are low boiler and high boiler distillation. Each system is generally described in the following subsections. Engineering, management practices, and process details are provided in Section D.

Low Boiler Distillation - The process is designed to distill solvents with a boiling point range up to 300°F. It utilizes an agitated thin-film evaporator consisting of ancillary pumps, piping, a vacuum vessel, vacuum pump, a feed tank, condenser, and receiving tanks. Dangerous waste is fed from a feed tank to the thin-film evaporator on a continuous basis. The material is vacuum distilled using non-contact hot oil as a heat transfer media. The distilled product is condensed, sent to storage, and subsequently packaged for re-sale. Still bottoms generated by the process are recovered and sent to the fuel blending operations for further processing.

During processing operations, ES generates intermediate solvent laden process streams that exceed one percent (1%) total organic compound (TOC) content. Such streams include:

- Water drawn from dangerous waste received at the facility
- Water from distillation units
- Water from washout of tanks and containers.

This solvent laden material is temporarily placed in a container and either processed through the Thin-Film Evaporator to recover the solvent, or blended as a fuel if the heating value is ~~greater than 5,000 BTU/lb~~sufficient for energy recovery. The recovered solvent is sent to tanks and subsequently packaged for re-sale.

Table C-2
Acceptance Parameters and Process Limitations

Waste Analysis and Acceptance Parameters	Solvent Recycling	Fuel Blending
Compatibility Screen	Yes	Yes
Cyanides	< 250 ppm	< 250 ppm
Flash Point	No limit	No limit
Heat of Combustion (BTU)	N/A	~~>5,000 BTU/lb~~ Per BIF Requirements
Ignitability Screen	N/A	Yes
PCBs	< 50 ppm	< 50 ppm
pH	>2 - <12.5	>2 - <12.5
Physical description - layering	All phases	All phases
Physical description - state	Semisolid - slurry/liquids	Liquid/semi-solid/sludge/solids
Radiation Screen	Not above background	Not above background
Specific Gravity	0.5 - 1.6	0.5 - 1.6
Sulfides	< 500 ppm	< 500 ppm
VOC Level 1 Screen	< 11.1 psia	< 11.1 psia
Water Reaction Screen	Yes	Yes

The procedures and sequence of events pertaining to the acceptance of dangerous waste for storage and management are described in detail in the *Waste Analysis Plan (WAP)* provided as Volume 2 of this permit application. The WAP defines how each waste stream is identified and characterized by the generator before it is delivered to the ES facility. Items addressed include parameters for analysis, test methods, sampling methods, and frequency for re-analysis of recurring wastes. A list of physical and chemical analyses for the wastes is presented in the WAP. The WAP also describes how the waste is reviewed when it is received at the facility to determine compatibility with wastes already in storage or waste management processes.

Waste generated on-site including still bottoms, filter debris, and residues are managed on-site whenever possible. Waste that require off-site disposal at a TSDF permitted to manage the material are sampled and analyzed following the procedures outlined in the Waste Analysis Plan and are designated in accordance with WAC 173-303-070.

The recyclable material is transferred to the feed tank (D-100) from containers using a portable pump, or from a vacuum truck. If the waste was transported to the facility in bulk, it is pumped directly into the feed tank via hose connection at the bottom of the tank. Material is pumped from feed tank D-100 (using pump P-101) to the Thin Film Evaporator (T-100) in a continuous manner. Non-contact heating oil is supplied to the unit from the hot oil utility. Solvent vapors are withdrawn by vacuum through a heat exchanger (E-100) where they are condensed. The distillate flows by gravity into the vacuum receiver tank (V-100). Clean, recycled distillate is pumped (using pump P-102) from the receiver tank to recycled product tank C-100, C-101, or C-102, or directly into a tank truck.

Any vapors not condensed in the condenser (E-100) are routed from the receiver tank (V-100) through the Vacuum System to a flare. A process flow diagram for the Vacuum System is provided in Figure D-3, Vacuum System Utilities. A description of the system is provided at the end of this subsection.

Liquids that do not vaporize in the Thin Film Evaporator (referred to as still bottoms) flow to the bottom of the unit. Still bottoms are continuously pumped from the evaporator with the still bottom pump (P-100). The material is recirculated to the feed tank (D-100) either directly, or via the by-pass tank (D-101). Process operations continue until the feed tank largely contains still bottoms and the quantity of recyclable material is depleted. The contents of the feed tank are then transferred by vacuum truck to a railcar, or to the Fuel Blending System. If the distilled product contains unacceptable amounts of water, the solvent laden process stream is transferred from the vacuum receiver (V-100) by pump P-103 to a container. The container contents are subsequently reprocessed through the Thin Film Evaporator to recover the solvent, or blended as a fuel in the Fuel Blending System provided they meet ~~a heating value of 5,000 BTU/lb~~minimum heating value requirements. In addition, other intermediate solvent laden process streams including draw water, still water, and tank washout water, are also reprocessed in the same manner. If these process streams do not meet the heating value requirement, they are pre-treated and discharged to the POTW, or sent off-site to a permitted TSD facility.

The Vacuum System supports operation of the Thin Film Evaporator. A vacuum is drawn and maintained in the vacuum receiver tank (V-100), and vacuum vessel (V-600) by a vacuum pump (VP-600). Air and non-condensable vapors pass through the system into the liquid ring supply vessel (V-602), through a knockout pot (V-601), then to a flare. Liquids in the liquid ring supply vessel are circulated to a heat exchanger (E-600) for cooling.

The recyclable liquid is transferred to the feed tank (D-800) using portable pumps, or by vacuum truck. If the quantity of waste to be recycled is small, the material can be transferred directly to the distillation unit from each individual container. Containers to be pumped directly into the pot still (T-800) are staged in Process Area 2 or Production Pad 3. A hose is connected to the fill line of the pot still and material is withdrawn by the distillation system vacuum and transferred into the unit.

If the distilled product contains unacceptable amounts of water, this solvent laden stream is transferred from the intermediate recycled product tank (C-804) to containers. In addition, other intermediate solvent laden process streams, including draw water, and tank washout water, are also placed into containers. The container contents are subsequently reprocessed through the High Boiler Distillation System to recover the solvent, or blended as a fuel in the Fuel Blending System ~~if the heating value is greater than 5,000 BTU/lb~~.

The distillation unit (T-800) is filled on a batch basis from the feed tank (D-800) and non-contact heating oil is supplied to the unit from the hot oil utility system. A vacuum is applied to the unit using a vacuum pump (VP-800), and solvent vapors are withdrawn. The vapors are condensed in a series of two in-line condensers (E-800 and E-801) with non-contact cooling water. The condensed distillate passes through two intermediate tanks (C-803 and C-804), then to recycled product tank C-801. The contents of tank C-801 can also be transferred to recycled product tank C-802 by gravity feed or portable pumps.

Still bottoms that accumulate at the bottom of the distillation unit (T-800) are periodically removed through a drain valve to either containers, or a vacuum truck. The still bottoms are subsequently transferred to a railcar, to the Fuel Blending System, or shipped to a permitted TSD facility.

D.1.3. Summary of Waste Generation

Specific types of dangerous waste generated during fuel blending and waste recycling operations include still bottoms, filter debris, spill residues, floor sweepings, and activated carbon. Spilled materials are generally collected using "floor dry" (or other absorbent materials). Wastewater is also generated on-site from rainfall entering containment areas, operator hand washing, and rinsate from equipment cleaning. Such wastewater contains less than 1 percent TOC. The wastewater is transferred via portable pumps into the Wastewater Accumulation Tanks (W-920 or W921). The following describes how the wastes are managed:

9. VOC Level 1 Calculation. This calculation is used to identify any liquid waste streams that exceed the vapor pressure criteria 11.1 psia or 574 mm Hg at 25°C in order to apply VOC emission Level 1 storage tank control limitations outlined in 49 CFR 264.1080 Subpart CC. The calculation is performed based upon information provided by the generator. If the waste stream contains any of the constituents listed in Table 3, "Compounds with High Vapor Pressure," Emerald will perform a "Level 1 Calculation" of those liquid constituents to ensure the Level 1 limitations are not exceeded. If one or more of the constituents listed in Table 3, Compounds with High Vapor Pressure, is present in a waste stream, Emerald will estimate the weight percent of each constituent. Based on vapor pressure data for each pure component, the partial pressure of each constituent in the waste stream will be calculated. The vapor pressure will equal the sum of the partial pressures. Any waste streams which exceed the 11.1 psia or 574 mm Hg criteria will not be accepted at the Emerald facility.

3.2.2 Secondary Analyses

The following secondary analyses are used to further confirm or verify generator-supplied information regarding the waste stream as well as to provide important information necessary to properly treat the waste stream at the Emerald facility. The rationale for conducting each test is presented in Table 4. These analyses are conducted only on certain types of waste streams, as described below.

1. Flash Point (closed cup) – SW-846 1020 – Flashpoint is analyzed after a potential flashpoint discrepancy is determined from the ignitability screen. Discrepancies in flashpoint will result in verification failure if it causes a change in proper shipping name or Ecology designation.

2. Heat of Combustion (Btu) – ASTM D 240 – Btu is performed to determine the heating value of materials. This test is used only when the Ignitability Screen and Karl Fischer titration indicate a Btu ~~approximately 4000-6000~~of within 1000 units of the target Btu or when other documented information has not been provided to determine the Btu value.

3. Specific Gravity – ASTM D1298 – Specific Gravity is used to verify liquid waste streams do not exceed the 1.6 design criteria for dangerous waste storage tanks. (These design criteria are more particularly described in the Exhibits to this Dangerous Waste Application.)

Revision History			
Rev	**Description of Change**	**Author**	**Effective Date**
0	Initial Publication	R. Thomas	02/06/2001
1	To include WDOE comments from 02-May-2001 working meeting and change to Procedures and Work Instructions Document Number system.	R. Thomas	02/19/2001
2	Changes for submission to WDOE for Class 3 permit modification	R. Thomas	11/09/2001
3	Changes for submission to Ecology for Class 3 permit modification	S. Smith	04/01/2002
4	Changes for submission to Ecology for Class 3 permit modification	S. Smith	06/05/2002
5	Revision based on request by VP Environmental Affairs to publish initial version of Emerald Services, Inc. EMS	K. Whitney	07/03/2002
6	Changes for submission to Ecology for Class 3 permit modification	S. Smith	09/20/2002
7	Changes for submission to Ecology for Class 2 permit modification	S. Smith	01/31/2003
8	Changes for submission to Ecology for Class 2 permit modification	S. Smith	06/02/2003
9	Changes for submission to Ecology for Class 2 permit modification – Btu reduction	S. Smith	07/20/2005

Reference Documents	
Document Number	**Document Title**
WAD 981 769 110	Waste Analysis Plan, part of the Emerald Services, Inc. *Permit for the Storage of Dangerous Waste*

1. Purpose

The purpose of this document is to outline specific procedures to be followed and information required in order to properly and sufficiently complete a WPQ for approval at the Emerald Services Tacoma Facility.

2. Scope

This procedure is applicable to all wastes proposed for shipment to and acceptance at the Emerald Services Tacoma Facility that are either new to Emerald or have an existing WPQ, which is over four years old. It is intended for use primarily by Sales and Marketing Staff,

c) infectious;

d) explosive;

e) reactive;

f) corrosive;

g) radioactive; or,

h) oxidizer.

If the generator indicates the waste fits any of these categories, coordinate disposal of the waste through Emerald's transfer facility or advise the generator of alternate disposal methods available;

2. For standard wastes, eEnsure the waste stream appears to have a minimum of 5000 Btu. If it does not, check with the facility general manager to determine if arrangements have been made with the intended burner for lower Btu shipment, then verify the waste stream meets the amended Btu limit. If not, coordinate disposal of the waste through Emerald's transfer facility or advise the generator of alternate disposal methods available;

3. Address the following questions with the generator regarding the nature of the waste to be disposed:

   a) Is the waste an unused product with an MSDS from the manufacturer?

   b) Is the waste an unused laboratory chemical?

   c) Is the waste an unused product with a known HMIS stock number?

   d) Is the waste an unused product with a formulation listed on the label?

   If the generator answers yes to any of the above questions and the information provided is sufficient for profiling the waste stream, go to Step 11, below;

4. Request the following information from the generator:

   a) The process generating the waste stream;

   b) The type of business/industry;

   c) Results of analysis of the waste stream;

   d) MSDS(s) for products used while generating the waste stream; and,

   e) Documented studies explaining the process and constituents used.

Revision History			
Rev	**Description of Change**	**Author**	**Effective Date**
0	Initial Publication	R. Thomas	02/6/2001
1	To include WDOE comments from 02-May-2001 working meeting and change to Procedures and Work Instructions Document Number system.	R. Thomas	02/19/2001
2	Changes for submission to WDOE for Class 3 permit modification	R. Thomas	10/09/2001
3	Changes for submission to Ecology for Class 3 permit modification	S. Smith	03/29/2002
4	Changes for submission to Ecology for Class 3 permit modification	S. Smith	06/05/2002
5	Revision based on request by VP Environmental Affairs to publish initial version of Emerald Services, Inc. EMS	K. Whitney	07/03/2002
6	Changes for submission to Ecology for Class 3 permit modification.	S. Smith	09/20/2002
7	Changes for submission to Ecology for Class II permit modification	S. Smith	01/31/2003
8	Changes for submission to Ecology for Class 2 permit modification	S. Smith	06/02/2003
9	Changes for inclusion of composite sampling process and clarification of procedure sequence	K. Whitney and S. Smith	10/10/2003
10	Changes for submission to Ecology for Class 2 permit modification – Btu limit removal	S. Smith	07/20/2005

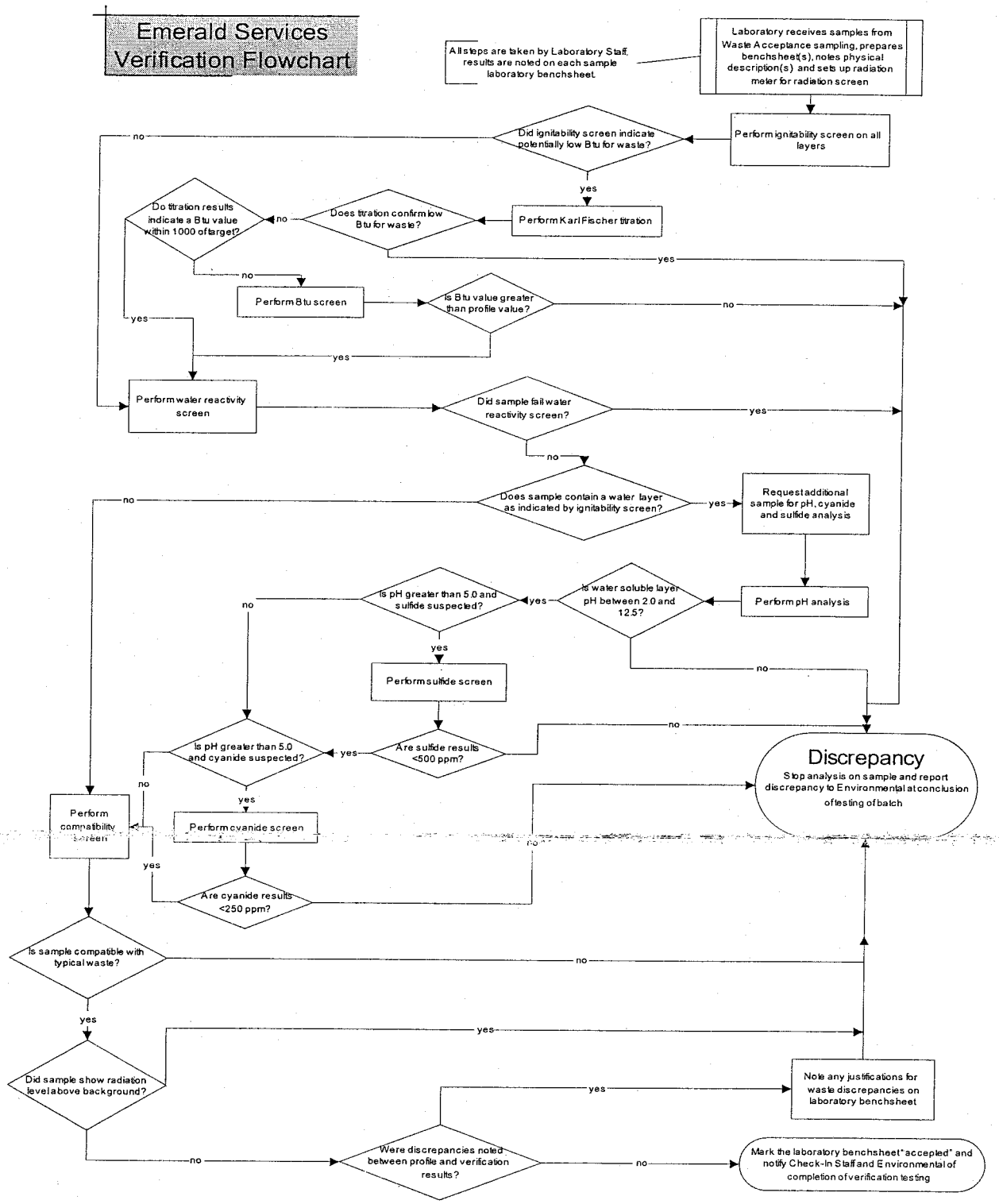
Reference Documents	
Document Number	**Document Title**
WAD 981 769 110	Waste Analysis Plan, part of the Emerald Services, Inc. *Permit for the Storage of Dangerous Waste*

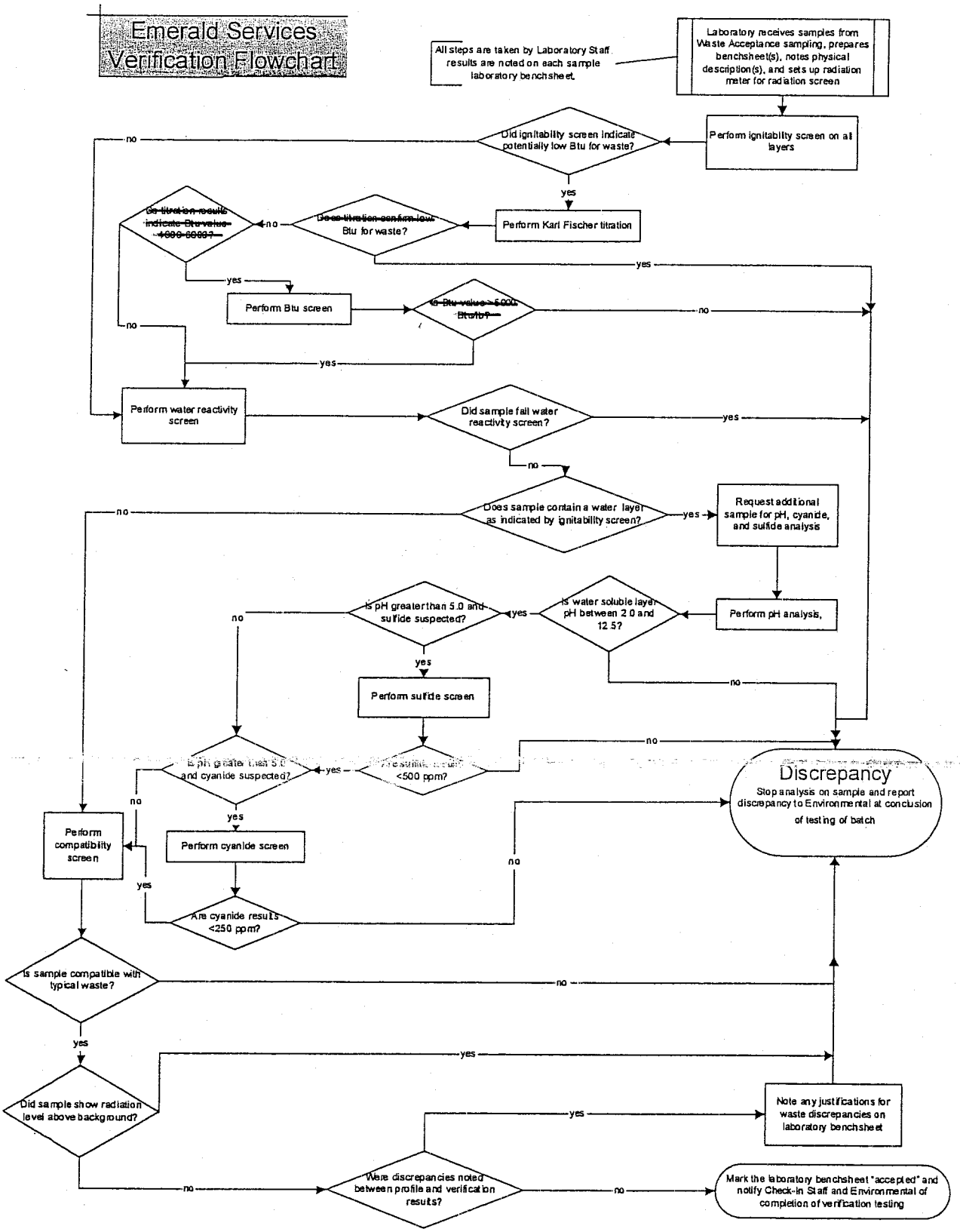
1. Purpose

This procedure describes the process by which Emerald Services – Tacoma manages waste acceptance. It details requirements for waste off-loading, sampling, verification testing, and process turnaround.

2. Scope

This procedure applies to all wastes received for management at the Emerald Services - Tacoma facility. It is intended for use by employees trained in applicable DOT regulations


Emerald Services Verification Flowchart
All steps are taken by Laboratory Staff, results are noted on each sample laboratory benchsheet.
Laboratory receives samples from Waste Acceptance sampling, prepares benchsheet(s), notes physical description(s) and sets up radiation meter for radiation screen
Perform ignitability screen on all layers
Did ignitability screen indicate potentially low Btu for waste?
no
yes
Perform Karl Fischer titration
Does titration confirm low Btu for waste?
no
yes
Do titration results indicate a Btu value within 1000 of target?
no
yes
Perform Btu screen
Is Btu value greater than profile value?
no
yes
Perform water reactivity screen
Did sample fail water reactivity screen?
yes
no
Does sample contain a water layer as indicated by ignitability screen?
no
yes
Request additional sample for pH, cyanide and sulfide analysis
Perform pH analysis
Is water soluble layer pH between 2.0 and 12.5?
yes
no
Is pH greater than 5.0 and sulfide suspected?
no
yes
Perform sulfide screen
Are sulfide results <500 ppm?
yes
no
Is pH greater than 5.0 and cyanide suspected?
yes
no
Perform cyanide screen
Are cyanide results <250 ppm?
yes
no
Discrepancy
Stop analysis on sample and report discrepancy to Environmental at conclusion of testing of batch
Perform compatibility screen
Is sample compatible with typical waste?
no
yes
Did sample show radiation level above background?
yes
no
Were discrepancies noted between profile and verification results?
yes
no
Note any justifications for waste discrepancies on laboratory benchsheet
Mark the laboratory benchsheet "accepted" and notify Check-In Staff and Environmental of completion of verification testing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Laboratory receives samples from Waste Acceptance sampling, prepares benchsheet(s), notes physical description(s), and sets up radiation meter for radiation screen
Perform ignitability screen on all layers
Did ignitability screen indicate potentially low Btu for waste?
Perform Karl Fischer titration
Does titration confirm low Btu for waste?
Do titration results indicate Btu value >6000-6000?
Perform Btu screen
Is Btu value > 5000 Btu/lb?
Perform water reactivity screen
Did sample fail water reactivity screen?
Does sample contain a water layer as indicated by ignitability screen?
Request additional sample for pH, cyanide, and sulfide analysis
Perform pH analysis,
Is water soluble layer pH between 2.0 and 12.5?
Is pH greater than 5.0 and sulfide suspected?
Perform sulfide screen
Is sulfide result <500 ppm?
Is pH greater than 5.0 and cyanide suspected?
Perform cyanide screen
Are cyanide results <250 ppm?
Perform compatibility screen
Discrepancy
Stop analysis on sample and report discrepancy to Environmental at conclusion of testing of batch
Is sample compatible with typical waste?
Did sample show radiation level above background?
Note any justifications for waste discrepancies on laboratory benchsheet
Were discrepancies noted between profile and verification results?
Mark the laboratory benchsheet "accepted" and notify Check-In Staff and Environmental of completion of verification testing
yes
no

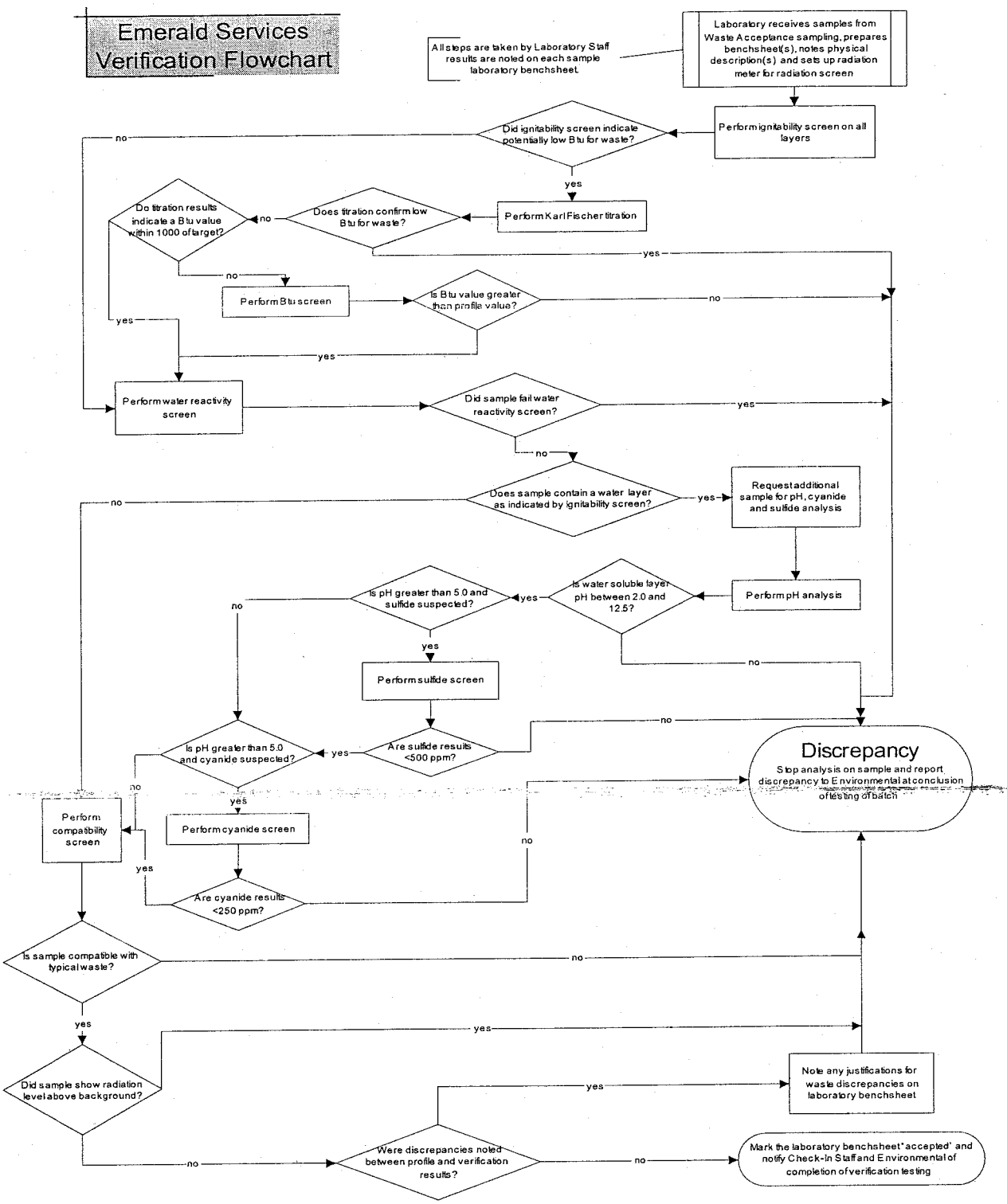
Revision History			
Rev	**Description of Change**	**Author**	**Effective Date**
0	Initial Publication	R. Thomas	2/6/2001
1	To include WDOE comments from 02-May-2001 working meeting and change to Procedures and Work Instructions Document Number system.	R. Thomas	2/19/2001
2	Changes for submission to WDOE for Class 3 permit modification	R. Thomas	11/09/2001
3	Changes for submission to Ecology for Class 3 permit modification	S. Smith	03/28/2002
4	Changes for submission to Ecology for Class 3 permit modification	S. Smith	06/05/2002
5	Revision based on request by VP Environmental Affairs to publish initial version of Emerald Services, Inc. EMS	K. Whitney	07/03/2002
6	Changes for submission to Ecology for Class 3 permit modification	S. Smith	09/20/2002
7	Changes for submission to Ecology for Class II permit modification	S. Smith	01/31/2003
8	Clarification regarding Check-In Staff responsibilities for waste streams which fail verification testing and are profiled to alternate facilities.	K. Whitney	09/11/2003
9	Changes for submission to Ecology for Class 2 permit modification – Btu limit removal	S. Smith	7/20/05

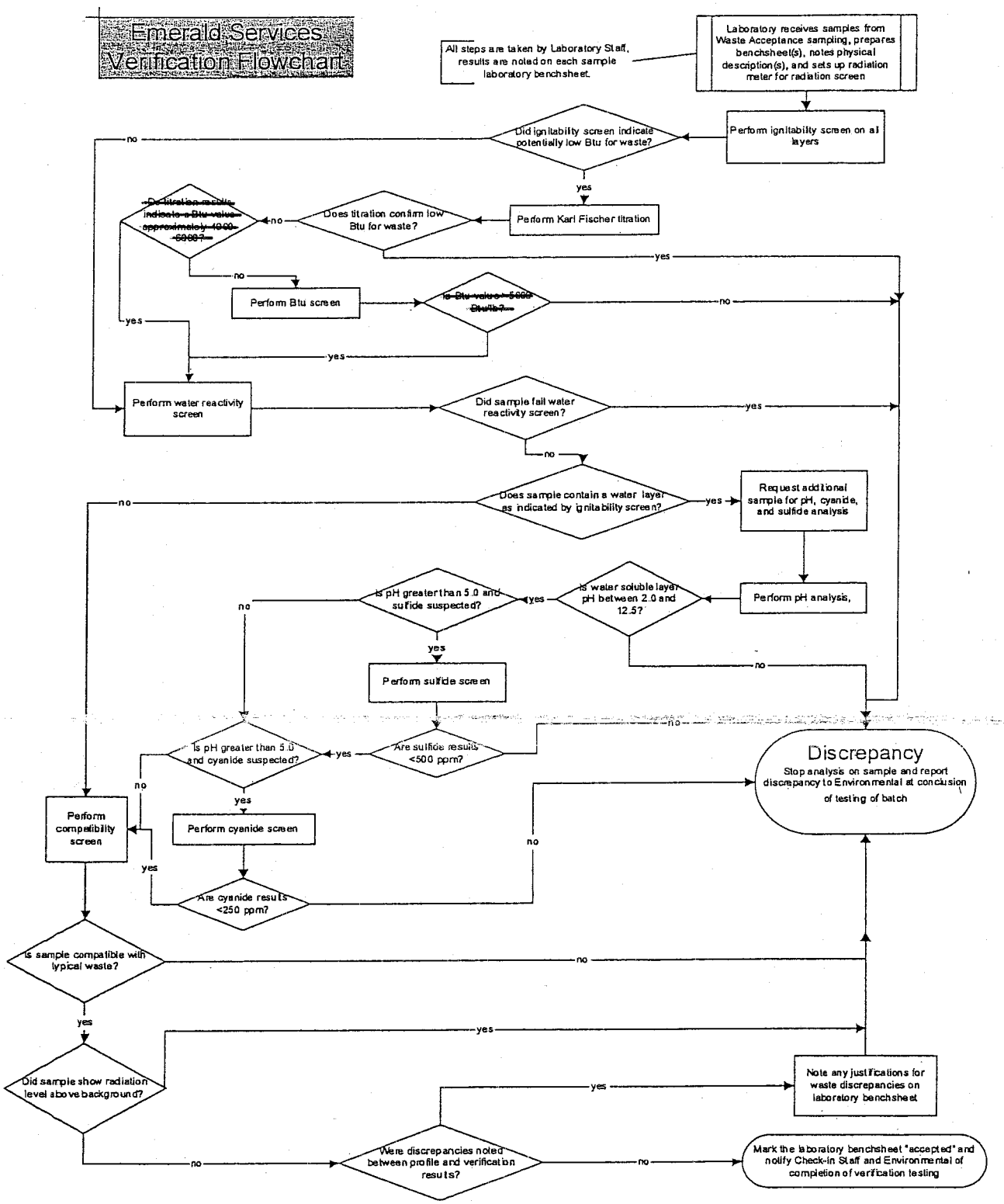
Reference Documents	
Document Number	**Document Title**
WAD 981 769 110	Waste Analysis Plan, part of the Emerald Services, Inc. *Permit for the Storage of Dangerous Waste*

1. Purpose

The purpose of this procedure is to outline actions Emerald personnel will take to resolve waste discrepancies in order to ensure all wastes received at the Emerald Services Tacoma facility are managed in accordance with the facility Dangerous Waste Permit and other applicable federal, state, and local regulations.

2. Scope

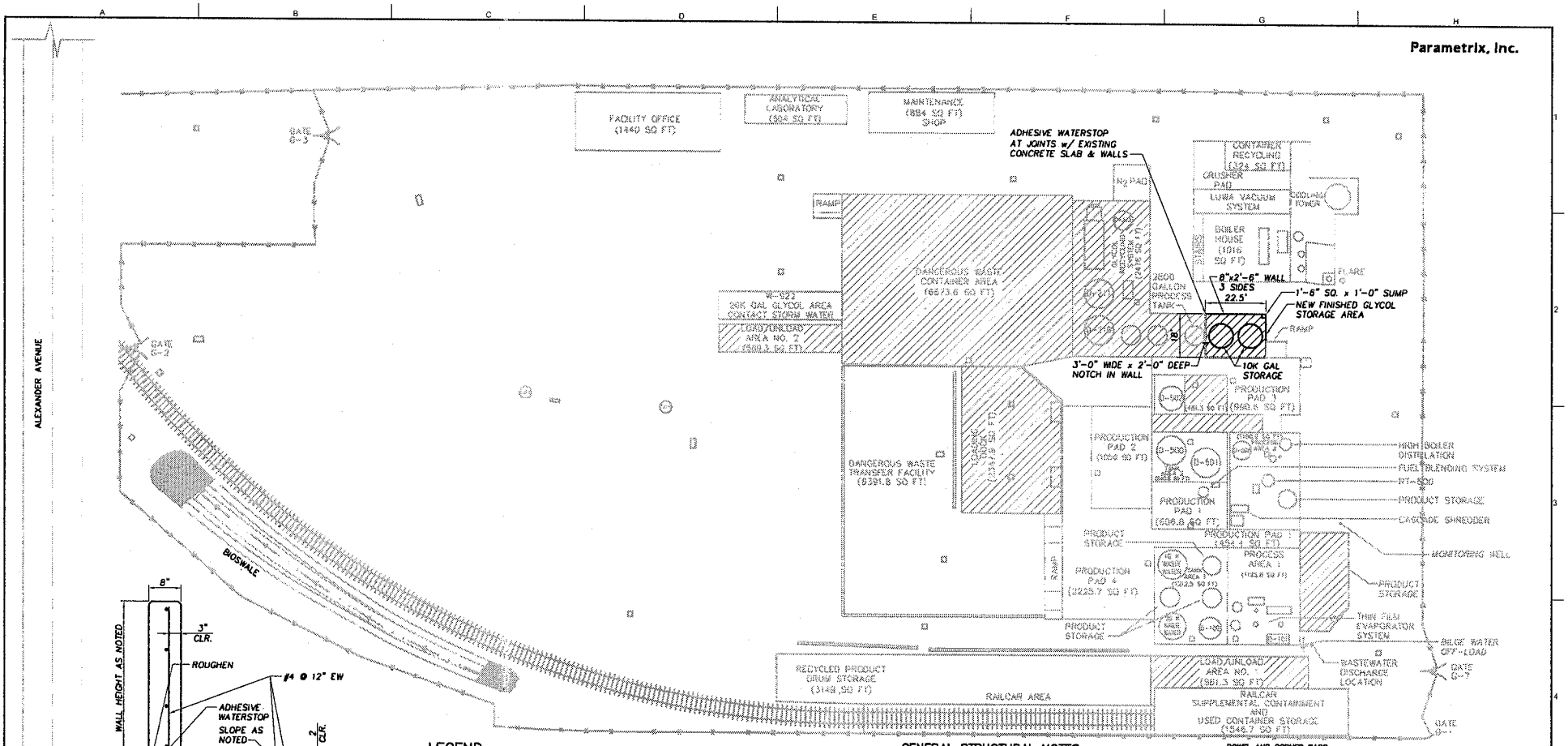

Emerald Services Verification Flowchart
All steps are taken by Laboratory Staff results are noted on each sample laboratory benchsheet.
Laboratory receives samples from Waste Acceptance sampling, prepares benchsheet(s), notes physical description(s) and sets up radiation meter for radiation screen
Perform ignitability screen on all layers
Did ignitability screen indicate potentially low Btu for waste?
Perform Karl Fischer titration
Does titration confirm low Btu for waste?
Do titration results indicate a Btu value within 1000 of target?
Perform Btu screen
Is Btu value greater than profile value?
Perform water reactivity screen
Did sample fail water reactivity screen?
Does sample contain a water layer as indicated by ignitability screen?
Request additional sample for pH, cyanide and sulfide analysis
Perform pH analysis
Is water soluble layer pH between 2.0 and 12.5?
Is pH greater than 5.0 and sulfide suspected?
Perform sulfide screen
Are sulfide results <500 ppm?
Is pH greater than 5.0 and cyanide suspected?
Perform cyanide screen
Are cyanide results <250 ppm?
Discrepancy
Stop analysis on sample and report discrepancy to Environmental at conclusion of testing of batch
Perform compatibility screen
Is sample compatible with typical waste?
Did sample show radiation level above background?
Note any justifications for waste discrepancies on laboratory benchsheet
Were discrepancies noted between profile and verification results?
Mark the laboratory benchsheet "accepted" and notify Check-In Staff and Environmental of completion of verification testing
yes
no

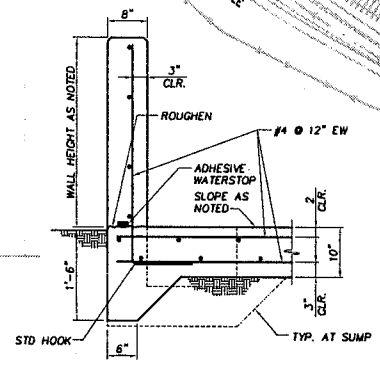

Emerald Services Verification Flowchart
All steps are taken by Laboratory Staff, results are noted on each sample laboratory benchsheet.
Laboratory receives samples from Waste Acceptance sampling, prepares benchsheet(s), notes physical description(s), and sets up radiation meter for radiation screen
Perform ignitability screen on all layers
Did ignitability screen indicate potentially low Btu for waste?
no
yes
Perform Karl Fischer titration
Does titration confirm low Btu for waste?
~~Do titration results indicate a Btu value approximately 4000-5000?~~
Perform Btu screen
~~Is Btu value > 5000 Btu/lb?~~
Perform water reactivity screen
Did sample fail water reactivity screen?
Does sample contain a water layer as indicated by ignitability screen?
Request additional sample for pH, cyanide, and sulfide analysis
Perform pH analysis,
Is water soluble layer pH between 2.0 and 12.5?
Is pH greater than 5.0 and sulfide suspected?
Perform sulfide screen
Are sulfide results <500 ppm?
Is pH greater than 5.0 and cyanide suspected?
Perform cyanide screen
Are cyanide results <250 ppm?
Perform compatibility screen
Is sample compatible with typical waste?
Did sample show radiation level above background?
Note any justifications for waste discrepancies on laboratory benchsheet
Were discrepancies noted between profile and verification results?
Mark the laboratory benchsheet "accepted" and notify Check-in Staff and Environmental of completion of verification testing
Discrepancy
Stop analysis on sample and report discrepancy to Environmental at conclusion of testing of batch

Expansion of Glycol Storage Containment

Engineer Plans and Specifications

Parametrix, Inc.





NOTE:
TOP OF SLAB ELEVATION AT WALLS SHALL MATCH ADJACENT EXISTING SLABS. DRILL AND EPOXY TANK & EQUIPMENT ANCHOR BOLTS AS REQUIRED.

TYPICAL CONTAINMENT SECTION
1"=1'-0"

LEGEND
- FENCELINE
- CATCH BASIN
- TRENCH DRAIN
- GATE
- UNCOVERED AREA

SITE PLAN
SCALE: 1" = 20'-0"

TRUE NORTH
FACILITY NORTH

GENERAL STRUCTURAL NOTES:

DESIGN CRITERIA
APPLICABLE BUILDING CODE:
2003 INTERNATIONAL BUILDING CODE

FOUNDATIONS
ASSUMED SITE CONDITIONS:
ON FIRM UNDISTURBED EARTH – SOIL BEARING.....2000 PSF
SHORING, TEMPORARY SUPPORTS AND PROTECTION OF EXISTING IMPROVEMENTS ARE THE RESPONSIBILITY OF THE CONTRACTOR.

CONCRETE
ALL DETAILING, FABRICATION AND ERECTION OF REINFORCING BARS, SHALL BE IN ACCORDANCE WITH MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES ACI 315, LATEST EDITION. CONCRETE CONSTRUCTION SHALL CONFORM TO ACI 318 BUILDING CODE, LATEST EDITION.

DESIGN STRENGTH:
CAST-IN-PLACE CONCRETE, UNLESS OTHERWISE NOTED:
FOUNDATIONS $f'c$ = 4000 PSI AT 28 DAYS
SLABS AND WALLS $f'c$ = 4000 PSI AT 28 DAYS
REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ASTM A615, GRADE 60.

ACCESSORY BARS:
RIGIDLY SUPPORT BARS ON APPROVED ACCESSORIES. PROVIDE #4 RAISER BARS AT 36" ON CENTERS MAXIMUM TO SUPPORT TOP REINFORCING STEEL IN SLABS/MATS.

DOWEL AND CORNER BARS:
ALL HORIZONTAL BARS SHALL BE CONTINUOUS AROUND CORNERS AND THROUGH COLUMN PILASTERS. PROVIDE DOWELS AND CORNER BARS FOR ALL COLUMN AND WALL REINFORCEMENT, AT LEAST THE SAME SIZE AND SPACING AS BARS WITH WHICH THEY ARE LAPPED. LAP SPLICES AND EMBEDMENT SHALL BE PER ACI 318, OR AS NOTED

ADHESIVE WATERSTOPS SHALL BE "ADEKA", "HYDRO-TITE" OR EQUIVALENT.

LAP REINFORCING STEEL 40 BAR DIAMETERS.

DRILLED-IN EXPANSION BOLTS:
EXPANSION BOLTS SHALL BE "KWIK BOLTS" BY HILTI CORP. OR APPROVED EQUAL. ICBO CERTIFICATION AND SPECIAL INSPECTION IS REQUIRED. MINIMUM SPACING SHALL BE 12 BOLT DIAMETERS AND MINIMUM EDGE DISTANCE 6 BOLT DIAMETERS UNLESS NOTED OTHERWISE.

BOLT DIAMETER (IN.)	½	⅝	¾	⅞	1
MIN. EMBEDMENT IN STRUCTURAL CONCRETE (IN.)	4	4	5	6	7

ADHESIVE/EPOXY ANCHORING SYSTEM:
HIGH STRENGTH RODS SHALL BE ASTM A36, STAINLESS STEEL RODS SHALL BE AISI 304. REINFORCING BARS AND RODS ANCHORED INTO EXISTING CONCRETE SHALL BE IN DRILLED HOLE WITH HILTI "HVA" CAPSULE, OR SIKA "SIKADUR" EPOXY INJECTION GEL OR APPROVED EQUAL. ICC EVALUATION AND SPECIAL INSPECTION IS REQUIRED.

BAR DIAMETER (IN.)	½	⅝	¾	⅞	1
MIN. EMBEDMENT IN STRUCTURAL CONCRETE (IN.)	4½	5	6⅝	8⅝	8¼

REVISIONS	DATE	BY

DESIGNED GIANNI
DRAWN M. AUDAR
CADD CHECKED
CHECKED
APPROVED

ONE INCH AT FULL SCALE. IF NOT, SCALE ACCORDINGLY
FILE NAME 3454005020SF2-1B.DWG
JOB No. 215-3454-005
DATE FEBRUARY 2005

STATE OF WASHINGTON BARRO REGISTERED PROFESSIONAL ENGINEER — EXPIRES: 07/07/06
STATE OF WASHINGTON STEVEN A. WAGNER 18711 REGISTERED PROFESSIONAL ENGINEER — EXPIRES: 03/07/06

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PROJECT NAME
EMERALD RECYCLING
TACOMA, WASHINGTON

FACILITY LAYOUT DIAGRAM WITH GLYCOL EXPANSION AREA

DRAWING NO. 1 OF 2
C-1

DATE: 02/28/05 1:26pm
WAGES: XREFS: 3454005A X3454005P03T03-1B