



Clean Harbors Grassy Mountain, LLC.
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Salt Lake City, UT 84122
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Div of Waste Management
and Radiation Control

SEP 16 2015

DSHW-2015-009796

September 15, 2015

Mr. Scott T. Anderson
Director
Division of Waste Management and
Radiation Control
195 North 1950 West
Salt Lake City, UT 84116

RE: Request for Site-Specific Treatment Variance from Technology-Based Requirements for D009 (High Mercury-Inorganic Subcategory) for Clean Harbors Aragonite Spray Dryer Incinerator Residue Waste Clean Harbors Grassy Mountain, LLC., EPA ID No. UTD991301748 ✓

Dear Mr. Anderson:

In accordance with Utah Administrative Code R315-2-13, Clean Harbors Grassy Mountain, LLC. (CHGM) is requesting a Site-Specific Treatment Variance seeking authorization to stabilize one waste stream carrying the waste code D009 (High Mercury-Inorganic Subcategory). The waste, spray dryer solids, identified in this request is characterized by Waste Material Profile Sheet GM91-2668HIHGB, Spray Dryer Solids. The treatment technology code for this subcategory is RMERC. The RMERC technology is described as: *Retorting or roasting in a thermal processing unit capable of volatilizing mercury and condensing the volatilized mercury for recovery.* The RMERC process generates secondary waste streams that require further stabilization.

This request is submitted in accordance with R315-13-1 (40 CFR 268.44 incorporated by reference), which may allow a site-specific variance from an applicable treatment standard provided that the following condition is met:

40 CFR 268.44(h)(2) It is inappropriate to require the waste to be treated to the level specified in the treatment standard or by the method specified as the treatment standard, even though such treatment is technically possible.

"People and Technology Creating a Better Environment"

This request is submitted in accordance with the requirements of 40 CFR 260.20(b).

40 CFR 260.20(b)(1): This petition is being submitted by

Clean Harbors Grassy Mountain, LLC.
3 Miles East, 7 Miles North of Knolls
Exit 41, Off I-80
Knolls, Utah 84029

40 CFR 260.20(b)(2): CHGM requests approval of a variance from the 40CFR 268.40-Treatment Standards for Hazardous Wastes and 40CFR 268.42-Treatment Standards Expressed as Specific Technologies for the EPA waste code D009 (High Mercury-Inorganic Subcategory). CHGM proposes to treat, using stabilization technologies, High-Mercury Subcategory residue wastes from the Clean Harbors Aragonite, LLC incinerator. All actions will be performed in accordance with the Clean Harbors Grassy Mountain State-issued Part B Permit.

40 CFR 260.20(b)(3): CHGM is proposing to dispose of treated High Mercury Subcategory hazardous waste that has been treated below a mercury concentration of 0.025mg/l using the Toxicity Characteristic Leaching Procedure (TCLP). Stabilization is the standard treatment method for waste containing D009 (Low Mercury Subcategory) and CHGM is permitted to perform stabilization processes. CHGM conducted a stabilization treatability studies on this waste stream and determined that this waste can be successfully treated to the applicable treatment standard of 0.025 mg/l TCLP specified for D009 (Low Mercury Subcategory) in 40CFR, Part 268.40. Prior to final disposal of the waste in the landfill, CHGM will confirm that the treatment process is successful in meeting the land disposal restriction treatment standards.

40 CFR 260.20(b)(4): The D009 High Mercury-Inorganic Subcategory is described in the 40 CFR 268.40 “Treatment Standards for Hazardous Wastes” table. The description is as follows:

“Nonwastewaters that exhibit, or are expected to exhibit, the characteristic of toxicity for mercury based on the toxicity characteristic leaching procedure (TCLP) in SW846; and contain greater than or equal to 260 mg/kg total mercury that are inorganic, including incinerator residues and residues from RMERC. (High Mercury-Inorganic Subcategory).”

The listed treatment technology in 40CFR 268.40 for D009 High Mercury-Inorganic Subcategory waste is RMERC.

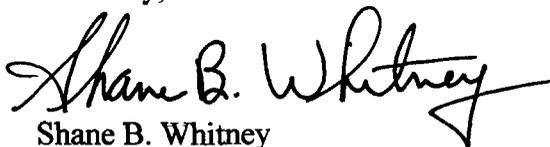
The need and justification for this action is as follows:

- The intent of the RMERC treatment process is to retort or roast materials in a thermal processing unit in order to recover elemental mercury for recycling. However, the waste stream carries several EPA codes which the mercury retorter is not permitted to accept and does not meet their variance under the Boiler and Industrial Furnace (BIF) exemption. Attached with this variance request are correspondence, dated April 22, 2013, from Mercury Waste Solutions, LLC (MWS) documenting the unacceptability of incinerator residue wastes for retort.
- Included with this submittal are analytical data for the untreated waste identifying the hazardous contaminants that require treatment to comply with the Land Disposal Restriction Standards. CHGM performed a treatability demonstration study to determine its ability to successfully treat the waste. Laboratory reports for the post-treatment waste analysis demonstrating CHGM ability to treat this waste stream have been included with this submittal.

“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.”

If you have any questions, please call me or Les Ashwood at (435) 884-8900.

Sincerely,



Shane B. Whitney
General Manager
Grassy Mountain Facility

cc: Ed Costomiris, UDEQ/DWMRC
Jeff Coombs, EHS, Environmental Health Director, Tooele County Health Department
Bryan Slade, Environmental Health Director, Tooele County Health Department
Grassy Mountain File



WASTE MATERIAL PROFILE SHEET

Clean Harbors Profile No. GM91-2668HIHGB

A. GENERAL INFORMATION

GENERATOR EPA ID #REGISTRATION # **UTD981552177** GENERATOR NAME: **Clean Harbors Aragonite LLC**
 GENERATOR CODE (Assigned by Clean Harbors) **AG** CITY **Grantsville** STATE/PROVINCE **UT** ZIP/POSTAL CODE **84029**
 ADDRESS **11600 North Aptus Road** PHONE:
 CUSTOMER CODE (Assigned by Clean Harbors) **AG** CUSTOMER NAME: **Clean Harbors Aragonite LLC**
 ADDRESS **11600 North Aptus Road** CITY **Grantsville** STATE/PROVINCE **UT** ZIP/POSTAL CODE **84029**

B. WASTE DESCRIPTION

WASTE DESCRIPTION: **48287 SPRAY DRYER SOLIDS - HIGH MERCURY**

PROCESS GENERATING WASTE: **INCINERATION OF HAZARDOUS WASTE**

IS THIS WASTE CONTAINED IN SMALL PACKAGING CONTAINED WITHIN A LARGER SHIPPING CONTAINER? **No**

C. PHYSICAL PROPERTIES (at 25C or 77F)

PHYSICAL STATE <input checked="" type="checkbox"/> SOLID WITHOUT FREE LIQUID POWDER MONOLITHIC SOLID LIQUID WITH NO SOLIDS LIQUID/SOLID MIXTURE % FREE LIQUID % SETTLED SOLID % TOTAL SUSPENDED SOLID SLUDGE GAS/AEROSOL	NUMBER OF PHASES/LAYERS 1 2 3 TOP 0.00 % BY VOLUME (Approx.) MIDDLE 0.00 BOTTOM 0.00				VISCOSITY (If liquid present) 1 - 100 (e.g. Water) 101 - 500 (e.g. Motor Oil) 501 - 10,000 (e.g. Molasses) > 10,000		COLOR varies
	ODOR <input checked="" type="checkbox"/> NONE MILD STRONG Describe:		BOILING POINT °F (°C) <= 95 (<=35) 95 - 100 (35-38) 101 - 129 (38-54) >= 130 (>54)		MELTING POINT °F (°C) < 140 (<60) 140-200 (60-93) <input checked="" type="checkbox"/> > 200 (>93)		
FLASH POINT °F (°C) < 73 (<23) 73 - 100 (23-38) 101 - 140 (38-60) 141 - 200 (60-93) > 200 (>93)	pH <= 2 2.1 - 6.9 <input checked="" type="checkbox"/> 7 (Neutral) 7.1 - 12.4 >= 12.5	SPECIFIC GRAVITY < 0.8 (e.g. Gasoline) 0.8-1.0 (e.g. Ethanol) 1.0 (e.g. Water) 1.0-1.2 (e.g. Antifreeze) <input checked="" type="checkbox"/> > 1.2 (e.g. Methylene Chloride)	ASH < 0.1 0.1 - 1.0 <input checked="" type="checkbox"/> Unknown 1.1 - 5.0 5.1 - 20.0		BTU/LB (MJ/kg) <input checked="" type="checkbox"/> < 2,000 (<4.6) 2,000-5,000 (4.6-11.6) 5,000-10,000 (11.6-23.2) > 10,000 (>23.2) Actual:		

D. COMPOSITION (List the complete composition of the waste, include any inert components and/or debris. Ranges for individual components are acceptable. If a trade name is used, please supply an MSDS. Please do not use abbreviations.)

CHEMICAL	MIN	MAX	UOM
ANTIMONY COMPOUNDS	0.0000000	1.0000000	%
ARSENIC COMPOUNDS	0.0000000	1.0000000	%
ARSENIC COMPOUNDS (1.0)	0.0000000	1.0000000	%
ASH	100.0000000	100.0000000	%
BARIIUM COMPOUNDS	0.0000000	1.0000000	%
BENZENE	-	-	Trace
BERYLLIUM COMPOUNDS	0.0000000	1.0000000	%
CADMIUM COMPOUNDS	0.0000000	1.0000000	%
CHROMIUM COMPOUNDS	0.0000000	1.0000000	%
LEAD COMPOUNDS	0.0000000	1.0000000	%

DOES THIS WASTE CONTAIN ANY HEAVY GAUGE METAL DEBRIS OR OTHER LARGE OBJECTS (EX., METAL PLATE OR PIPING >1/4" THICK OR >12" LONG, METAL REINFORCED HOSE >12" LONG, METAL WIRE >12" LONG, METAL VALVES, PIPE FITTINGS, CONCRETE REINFORCING BAR OR PIECES OF CONCRETE >3")? YES NO

If yes, describe, including dimensions:

DOES THIS WASTE CONTAIN ANY METALS IN POWDERED OR OTHER FINELY DIVIDED FORM? YES NO

DOES THIS WASTE CONTAIN OR HAS IT CONTACTED ANY OF THE FOLLOWING: ANIMAL WASTES, HUMAN BLOOD, BLOOD PRODUCTS, BODY FLUIDS, MICROBIOLOGICAL WASTE, PATHOLOGICAL WASTE, HUMAN OR ANIMAL DERIVED SERUMS OR PROTEINS OR ANY OTHER POTENTIALLY INFECTIOUS MATERIAL? YES NO

I acknowledge that this waste material is neither infectious nor does it contain any organism known to be a threat to human health. This certification is based on my knowledge of the material. Select the answer below that applies:

The waste was never exposed to potentially infectious material. YES NO

Chemical disinfection or some other form of sterilization has been applied to the waste. YES NO

I ACKNOWLEDGE THAT THIS PROFILE MEETS THE CLEAN HARBORS BATTERY PACKAGING REQUIREMENTS. YES NO

I ACKNOWLEDGE THAT MY FRIABLE ASBESTOS WASTE IS DOUBLE BAGGED AND WETTED. YES NO

SPECIFY THE SOURCE CODE ASSOCIATED WITH THE WASTE. **G09** SPECIFY THE FORM CODE ASSOCIATED WITH THE WASTE. **W304**



E. CONSTITUENTS

Are these values based on testing or knowledge? Knowledge Testing

If based on knowledge, please describe in detail, the rationale applied to identify and characterize the waste material. Please include reference to Material Safety Data Sheets (MSDS) when applicable. Include the chemical or trade-name represented by the MSDS, and or detailed process or operating procedures which generate the waste.

knowledge

Please indicate which constituents below apply. Concentrations must be entered when applicable to assist in accurate review and expedited approval of your waste profile. Please note that the total regulated metals and other constituents sections require answers.

RCRA	REGULATED METALS	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL	UOM	NOT APPLICABLE
D004	ARSENIC	5.0				<input checked="" type="checkbox"/>
D005	BARIUM	100.0				<input checked="" type="checkbox"/>
D006	CADMIUM	1.0				<input checked="" type="checkbox"/>
D007	CHROMIUM	5.0				<input checked="" type="checkbox"/>
D008	LEAD	5.0				<input checked="" type="checkbox"/>
D009	MERCURY	0.2	260.0000	436.000000	PPM	
D010	SELENIUM	1.0				<input checked="" type="checkbox"/>
D011	SILVER	5.0				<input checked="" type="checkbox"/>
VOLATILE COMPOUNDS						
D018	BENZENE	0.5				
D019	CARBON TETRACHLORIDE	0.5				
D021	CHLOROBENZENE	100.0				
D022	CHLOROFORM	6.0				
D028	1,2-DICHLOROETHANE	0.5				
D029	1,1-DICHLOROETHYLENE	0.7				
D035	METHYL ETHYL KETONE	200.0				
D039	TETRACHLOROETHYLENE	0.7				
D040	TRICHLOROETHYLENE	0.5				
D043	VINYL CHLORIDE	0.2				
SEMI-VOLATILE COMPOUNDS						
D023	o-CRESOL	200.0				
D024	m-CRESOL	200.0				
D025	p-CRESOL	200.0				
D026	CRESOL (TOTAL)	200.0				
D027	1,4-DICHLOROBENZENE	7.5				
D030	2,4-DINITROTOLUENE	0.13				
D032	HEXACHLOROBENZENE	0.13				
D033	HEXACHLOROBUTADIENE	0.5				
D034	HEXACHLOROETHANE	3.0				
D036	NITROBENZENE	2.0				
D037	PENTACHLOROPHENOL	100.0				
D038	PYRIDINE	5.0				
D041	2,4,5-TRICHLOROPHENOL	400.0				
D042	2,4,6-TRICHLOROPHENOL	2.0				
PESTICIDES AND HERBICIDES						
D012	ENDRIN	0.02				
D013	LINDANE	0.4				
D014	METHOXYCHLOR	10.0				
D015	TOXAPHENE	0.5				
D016	2,4-D	10.0				
D017	2,4,5-TP (SILVEX)	1.0				
D020	CHLORDANE	0.03				
D031	HEPTACHLOR (AND ITS EPOXIDE)	0.008				

OTHER CONSTITUENTS	MAX	UOM	NOT APPLICABLE
BROMINE			<input checked="" type="checkbox"/>
CHLORINE			<input checked="" type="checkbox"/>
FLUORINE			<input checked="" type="checkbox"/>
IODINE			<input checked="" type="checkbox"/>
SULFUR			<input checked="" type="checkbox"/>
POTASSIUM			<input checked="" type="checkbox"/>
SODIUM			<input checked="" type="checkbox"/>
AMMONIA			<input checked="" type="checkbox"/>
CYANIDE AMENABLE			<input checked="" type="checkbox"/>
CYANIDE REACTIVE			<input checked="" type="checkbox"/>
CYANIDE TOTAL			<input checked="" type="checkbox"/>
SULFIDE REACTIVE			<input checked="" type="checkbox"/>

HOCs	PCBs
<input checked="" type="checkbox"/> NONE	<input checked="" type="checkbox"/> NONE
<input type="checkbox"/> < 1000 PPM	<input type="checkbox"/> < 50 PPM
<input type="checkbox"/> ≥ 1000 PPM	<input type="checkbox"/> ≥ 50 PPM
IF PCBs ARE PRESENT, IS THE WASTE REGULATED BY TSCA 40 CFR 761?	
YES	<input checked="" type="checkbox"/> NO

ADDITIONAL HAZARDS
DOES THIS WASTE HAVE ANY UNDISCLOSED HAZARDS OR PRIOR INCIDENTS ASSOCIATED WITH IT, WHICH COULD AFFECT THE WAY IT SHOULD BE HANDLED?
YES NO (If yes, explain)

CHOOSE ALL THAT APPLY
DEA REGULATED SUBSTANCES EXPLOSIVE FUMING OSHA REGULATED CARCINOGENS
POLYMERIZABLE RADIOACTIVE REACTIVE MATERIAL NONE OF THE ABOVE



F. REGULATORY STATUS

YES NO USEPA HAZARDOUS WASTE?
D004 D005 D006 D007 D008 D009 D010 D011 F001 F002 F003 F004 F005 F006 F007 F008 F009 F010 F011 F012 F019

YES NO DO ANY STATE WASTE CODES APPLY?
 Texas Waste Code _____

YES NO DO ANY CANADIAN PROVINCIAL WASTE CODES APPLY?

YES NO IS THIS WASTE PROHIBITED FROM LAND DISPOSAL WITHOUT FURTHER TREATMENT PER 40 CFR PART 268?
 LDR CATEGORY: **Partially meets LDR standards**
 VARIANCE INFO: _____

YES NO IS THIS A UNIVERSAL WASTE?

YES NO IS THE GENERATOR OF THE WASTE CLASSIFIED AS CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR (CESQG)?

YES NO IS THIS MATERIAL GOING TO BE MANAGED AS A RCRA EXEMPT COMMERCIAL PRODUCT, WHICH IS FUEL (40 CFR 261.2 (C)(2)(II))?

YES NO DOES TREATMENT OF THIS WASTE GENERATE A F006 OR F019 SLUDGE?

YES NO IS THIS WASTE STREAM SUBJECT TO THE INORGANIC METAL BEARING WASTE PROHIBITION FOUND AT 40 CFR 268.3(C)?

YES NO DOES THIS WASTE CONTAIN VOC'S IN CONCENTRATIONS >=500 PPM?

YES NO DOES THE WASTE CONTAIN GREATER THAN 20% OF ORGANIC CONSTITUENTS WITH A VAPOR PRESSURE >= .3KPA (.044 PSIA)?

YES NO DOES THIS WASTE CONTAIN AN ORGANIC CONSTITUENT WHICH IN ITS PURE FORM HAS A VAPOR PRESSURE > 77 KPA (11.2 PSIA)?

YES NO IS THIS CERCLA REGULATED (SUPERFUND) WASTE ?

YES NO IS THE WASTE SUBJECT TO ONE OF THE FOLLOWING NESHAP RULES?
 Hazardous Organic NESHAP (HON) rule (subpart G) Pharmaceuticals production (subpart GGG)

YES NO IF THIS IS A US EPA HAZARDOUS WASTE, DOES THIS WASTE STREAM CONTAIN BENZENE?
 YES NO Does the waste stream come from a facility with one of the SIC codes listed under benzene NESHAP or is this waste regulated under the benzene NESHAP rules because the original source of the waste is from a chemical manufacturing, coke by-product recovery, or petroleum refinery process?
 YES NO Is the generating source of this waste stream a facility with Total Annual Benzene (TAB) >10 Mg/year?
 What is the TAB quantity for your facility? **10.000000** Megagram/year (1 Mg = 2,200 lbs)
 The basis for this determination is: Knowledge of the Waste Or Test Data Knowledge Testing
 Describe the knowledge : **tsdf**

G. DOT/TDG INFORMATION

DOT/TDG PROPER SHIPPING NAME:
NA3077, HAZARDOUS WASTE, SOLID, N.O.S., (SPRYDRYER), 9, PG III

H. TRANSPORTATION REQUIREMENTS

ESTIMATED SHIPMENT FREQUENCY ONE TIME WEEKLY MONTHLY QUARTERLY YEARLY OTHER Other

<p>CONTAINERIZED</p> <p><u>0-0</u> CONTAINERS/SHIPMENT</p> <p>STORAGE CAPACITY:</p> <p>CONTAINER TYPE:</p> <p>CUBIC YARD BOX PALLET</p> <p>TOTE TANK DRUM</p> <p>OTHER: DRUM SIZE:</p>	<p>BULK LIQUID</p> <p>GALLONS/SHIPMENT: 0 Min - 0 Max</p>	<p><input checked="" type="checkbox"/> BULK SOLID</p> <p>SHIPMENT UOM: <input checked="" type="checkbox"/> TON YARD</p> <p>TONS/YARDS/SHIPMENT: 1.00 Min - 50.00 Max</p>
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I. SPECIAL REQUEST

COMMENTS OR REQUESTS:

GENERATOR'S CERTIFICATION

I certify that I am authorized to execute this document as an authorized agent. I hereby certify that all information submitted in this and attached documents is correct to the best of my knowledge. I also certify that any samples submitted are representative of the actual waste. If Clean Harbors discovers a discrepancy during the approval process, Generator grants Clean Harbors the authority to amend the profile, as Clean Harbors deems necessary, to reflect the discrepancy.

AUTHORIZED SIGNATURE 	NAME (PRINT) L. Pearson	TITLE OB	DATE 8/5/15
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Addendum

D. COMPOSITION

CHEMICAL	MIN	MAX	UOM
MERCURY	260.000 0000	436.00 00000	PPM
MERCURY COMPOUNDS	0.00000 00	500.00 00000	PPM
NICKEL SULFATE HEXAHYDRATE	0.00000 00	1.0000 000	%
SILVER COMPOUNDS	0.00000 00	1.0000 000	%
THALLIUM COMPOUNDS	0.00000 00	1.0000 000	%
VANADIUM PENTOXIDE	0.00000 00	1.0000 000	%
ZINC COMPOUNDS	0.00000 00	1.0000 000	%
ZINC SELENIDE	0.00000 00	1.0000 000	%

F. REGULATORY STATUS

USEPA HAZARDOUS WASTE?

F024 F025 F032 F034 F035 F037 F038 F039 K001 K009 K010 K011 K013 K014 K015 K016 K017 K018 K019 K020 K021 K022 K023 K024 K025 K026 K027 K029 K030 K031 K032 K033 K034 K035 K036 K037 K038 K039 K040 K041 K042 K046 K048 K049 K050 K051 K052 K060 K061 K062 K069 K071 K073 K083 K084 K085 K086 K087 K093 K094 K095 K096 K097 K098 K100 K101 K102 K103 K104 K105 K107 K108 K109 K110 K111 K112 K113 K114 K115 K116 K117 K118 K123 K124 K125 K126 K136 K156 K169 K170 K171 K172 P001 P002 P003 P004 P005 P006 P007 P008 P009 P010 P011 P012 P013 P014 P015 P016 P017 P018 P020 P021 P022 P023 P024 P026 P027 P028 P029 P030 P031 P033 P034 P036 P037 P038 P039 P040 P041 P042 P043 P044 P045 P046 P047 P048 P049 P050 P051 P054 P056 P057 P058 P059 P060 P062 P063 P064 P066 P067 P068 P069 P070 P071 P072 P073 P074 P075 P077 P082 P084 P085 P087 P088 P089 P092 P093 P094 P095 P096 P097 P098 P099 P101 P102 P103 P104 P105 P106 P108 P109 P110 P111 P113 P114 P115 P116 P118 P119 P120 P121 P122 P123 P185 P188 P189 P191 P192 P197 U001 U002 U003 U004 U005 U006 U007 U008 U009 U010 U011 U012 U014 U015 U016 U017 U018 U019 U020 U021 U022 U024 U025 U026 U027 U028 U029 U030 U031 U032 U034 U035 U036 U037 U038 U039 U041 U042 U043 U044 U045 U046 U047 U048 U049 U050 U051 U052 U053 U055 U056 U057 U058 U059 U060 U061 U062 U063 U064 U066 U067 U068 U069 U070 U071 U072 U073 U074 U075 U076 U077 U078 U079 U080 U081 U082 U083 U084 U085 U086 U087 U088 U089 U090 U091 U092 U093 U094 U095 U097 U098 U099 U101 U102 U103 U105 U106 U107 U108 U109 U110 U111 U112 U113 U114 U115 U116 U117 U118 U119 U120 U121 U122 U123 U124 U125 U126 U127 U128 U129 U130 U131 U132 U134 U135 U136 U137 U138 U140 U141 U142 U143 U144 U145 U146 U147 U148 U149 U150 U152 U153 U154 U155 U156 U157 U158 U159 U161 U162 U163 U164 U165 U166 U167 U168 U169 U170 U171 U172 U173 U174 U176 U177 U178 U179 U180 U181 U182 U183 U184 U185 U186 U187 U188 U190 U191 U192 U193 U194 U196 U197 U200 U201 U203 U204 U205 U206 U207 U208 U209 U210 U211 U213 U214 U215 U216 U217 U218 U219 U220 U221 U222 U223 U225 U226 U227 U228 U235 U236 U237 U238 U239 U240 U243 U244 U246 U247 U248 U249 U328 U353 U359 U364 U367 U394 U395 U404

G. DOT/TDG INFORMATION

WM Mercury Waste, Inc.

21211 Durand Avenue
Union Grove, Wisconsin 53182-9711
800.741.3343 or 262.878.2599
262.878.2699 Fax



April 22, 2013

Mr. Scott Sullivan,
Clean Harbors, Inc.
42 Longwater Drive
Norwell, MA 02061

Dear Mr. Sullivan,

Based upon our previous discussions, WM Mercury Waste, Inc. is not able to accept for retort the incineration residues with high mercury concentrations from your Aragonite Facility. Based upon the information you have provided regarding the characterization of the waste, we are not permitted to receive the material at our facility. In addition the waste does not meet the criteria for waste materials we are able to accept for retort in 40 CFR 266.100(d).

If you have any questions regarding our acceptance criteria, please feel free to call at anytime at 262-878-2599.

Sincerely,

A handwritten signature in black ink, appearing to read 'Pat Baskfield'.

Patrick Baskfield
Sr. Manager Operations
WM Mercury Waste, Inc.

CC: Clean Harbors File

Untreated Waste Analysis: ID SDAG-2

HSWA Analytical Review

Matrix Spray Dryer Solids

BOX ID SDAG-2

IN SERVICE DATE

From: 11/8/2014
To: 11/10/2014

YES NO

Dioxin Campaign:

K061 Campaign:

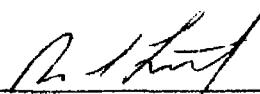
FAILED TREATMENT STANDARDS

TCLP Metals
Daily Composite

Analyte	Waste Codes	Treatment Standard (mg/L)	Result	Units
Cd	D006 F006-009 F011-12 F039 K028 K069 K100 UTS	0.11	7.36	mg/L
Hg	D009	0.2	9.61	mg/L
Hg	F039 K071 K106 P092 UTS	0.025	9.61	mg/L
Ag	D011 F006-009 F011-12 F039 P099 P104 UTS	0.14	0.538	mg/L
Zn	K061 UTS	4.3	39.5	mg/L

ROLLOFF BOX
TOTAL MERCURY: 401mg/Kg

Reviewed by: _____



Untreated Waste Analysis: ID SDAG-2

<i>LIMS Number</i>	1412002	<i>Sample Fraction</i>	04	<i>Sample Fraction ID</i>	SDAG-2	
<i>Sample Date</i>	12/1/2014	Hg		<i>Report</i>	SDAG-2	
		<i>Result</i>	<i>Units</i>	<i>Limit</i>	<i>Analyst</i>	<i>Date of Analysis</i>

Metals

Mercury 7471A	401	mg/Kg	0.055	cre	12/1/2014
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Post-treatment Waste Analysis: ID SDAG-2



Clean Harbors, Inc. Laboratory Test Report

Report ID
201503241229
Tuesday, March 24, 2015

All results are reported on a wet-weight basis unless otherwise noted.

Client ID SDAG21

Lab Sample ID KE1576110

SDG 1796

Test *Metals NWW UTS (liquids)

Analytical Method: EPA 6010C

Prep Method: EPA 3005A

TCLP Batch ID: NA

Prep Batch ID: E0916-15

Data Entered By: ShayJ

Sampling Date: 3/12/2015

Cleanup Batch ID:

Peer Reviewed By: WaiteD

Analysis Date: 3/20/2015

Analysis Batch ID: 150320 OES GMT 1796

Parameter	CAS Nbr	DF	Result	Flag	LOQ	LOD	Test Units	Project Limits
Antimony	7440-36-0	1.0	ND		0.200	0.100	mg/L	1.15 mg/L TCLP
Arsenic	7440-38-2	1.0	ND		0.300	0.300	mg/L	5.0 mg/L TCLP
Barium	7440-39-3	1.0	0.286		0.100	0.010	mg/L	21 mg/L TCLP
Beryllium	7440-41-7	1.0	ND		0.200	0.200	mg/L	1.22 mg/L TCLP
Cadmium	7440-43-9	1.0	ND		0.100	0.030	mg/L	0.11 mg/L TCLP
Chromium	7440-47-3	1.0	ND		0.100	0.050	mg/L	0.60 mg/L TCLP
Lead	7439-92-1	1.0	ND		0.100	0.100	mg/L	0.75 mg/L TCLP
Nickel	7440-02-0	1.0	ND		0.100	0.100	mg/L	11 mg/L TCLP
Selenium	7782-49-2	1.0	ND		0.500	0.250	mg/L	5.7 mg/L TCLP
Silver	7440-22-4	1.0	ND		0.100	0.100	mg/L	0.14 mg/L TCLP
Thallium	7740-28-0	1.0	ND		0.200	0.100	mg/L	0.20 mg/L TCLP
Vanadium	7440-62-2	1.0	ND		0.100	0.100	mg/L	1.6 mg/L TCLP
Zinc	7440-66-6	1.0	ND		1.100	0.550	mg/L	4.3 mg/L TCLP

QC Issues

3005

There were low matrix spike recoveries for barium (38%), lead (63%), nickel (70%), selenium (10%) and thallium (64%). The LCS results were within acceptance limits. All MS/MSD RPDs were within acceptance limits except for selenium. This indicates that the analytical process was in control and that the low matrix spike results were a product of matrix interference. None of the samples had barium or selenium concentrations within 80% to 100% of the UTS limit.

Batch QC Smp: KE1576110

Projects differ from one another in their requirements. The client must ensure that all analytes needed are present and that the reporting limits are appropriate for the data's use. Project Limits are provided as a best-faith effort courtesy. The Client is solely responsible for ensuring that these limits are correct for their project.

** END OF TEST GROUP **

Lab Manager
Richard Roylance
(308) 235-8222

2247 South Highway 71 *

Kimball Laboratory
Kimball * NE 69145 US

Post-treatment Waste Analysis: ID SDAG-2



Clean Harbors, Inc. Laboratory Test Report

Report ID
201503241229
Tuesday, March 24, 2015

All results are reported on a wet-weight basis unless otherwise noted.

Client ID SDAG2-1

Lab Sample ID KE1576110

SDG 1796

Test *Mercury NWW UTS (liquids)

Analytical Method: EPA 7470A

Prep Method: EPA 7470A

TCLP Batch ID: E0907-150317

Prep Batch ID: E0897-90

Data Entered By: Shayj

Sampling Date: 3/12/2015

Cleanup Batch ID:

Peer Reviewed By: WaiteD

Analysis Date: 3/19/2015

Analysis Batch ID: 150319 Hg AGMT1796

Parameter	CAS Nbr	DF	Result	Flag	LOQ	LOD	Test Units	Project Limits
Mercury	7439-97-6	5.0	ND		10.000	10.000	ug/L	0.025 mg/L TCLP

QC Issues

7470

There was a low matrix spike recovery for mercury (73%). The mercury LCS recovery (102%) and the MS/MSD RPD (0%) were within acceptance limits. This indicates that the analytical process was in control and that the low matrix spike recovery was a product of matrix interference. Batch QC Smp: KE1576110

Projects differ from one another in their requirements. The client must ensure that all analytes needed are present and that the reporting limits are appropriate for the data's use. Project Limits are provided as a best-faith effort courtesy. The Client is solely responsible for ensuring that these limits are correct for their project.

**** END OF TEST GROUP ****

Lab Manager
Richard Roylance
(308) 235-8222

2247 South Highway 71 *

Kimball Laboratory
Kimball * NE 69145 US

Untreated Waste Analysis: ID 25768

HSWA Analytical Review

Matrix Spray Dryer Solids

BOX ID 25768

IN SERVICE DATE

From: 11/13/2014
To: 11/15/2014

YES NO

Dioxin Campaign:

K061 Campaign:

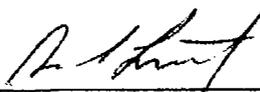
FAILED TREATMENT STANDARDS

**TCLP Metals
Daily Composite**

Analyte	Waste Codes	Treatment Standard (mg/L)	Result	Units
Cd	D006 F006-009 F011-12 F039 K028 K069 K100 UTS	0.11	2.8	mg/L
Pb	F006-009 F011-012 F039 K001 K048 K062 K069 K088-087 K100 P110 U051 U144-148 UTS	0.75	1.86	mg/L
Hg	D009	0.2	84.5	mg/L
Hg	F039 K071 K106 P092 UTS	0.025	84.5	mg/L
Ag	D011 F006-009 F011-12 F039 P099 P104 UTS	0.14	0.329	mg/L
Zn	K061 UTS	4.3	54.7	mg/L

ROLLOFF BOX

TOTAL MERCURY 279mg/Kg

Reviewed by: 

Untreated Waste Analysis: ID 25768

<i>LIMS Number</i>	1412172	<i>Sample Fraction</i>	14	<i>Sample Fraction ID</i>		
<i>Sample Date</i>	12/13/2014	Hg		<i>Report</i>	25768	
Spray Dryer		<i>Result</i>	<i>Units</i>	<i>Limit</i>	<i>Analyst</i>	<i>Date of Analysis</i>

Metals

Mercury 7471A	-----	279	mg/Kg	0.055	gt	12/15/2014
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Post-treatment Waste Analysis: ID 25768



Clean Harbors, Inc. Laboratory Test Report

Report ID
20150326744
Thursday, March 26, 2015

All results are reported on a wet-weight basis unless otherwise noted.

Client ID 25768-1

Lab Sample ID KE1576113

SDG 1796

Test *Metals NWW UTS (liquids)
Analytical Method: EPA 6010C
Prep Method: EPA 3005A

TCLP Batch ID: NA
Prep Batch ID: E0916-15

Data Entered By: Shayj
Peer Reviewed By: WaiteD

Sampling Date: 3/12/2015
Analysis Date: 3/20/2015

Cleanup Batch ID:
Analysis Batch ID: 150320 OES GMT 1796

Parameter	CAS Nbr	DF	Result	Flag	LOQ	LOD	Test Units	Project Limits
Antimony	7440-36-0	1.0	ND		0.200	0.100	mg/L	1.15 mg/L TCLP
Arsenic	7440-38-2	1.0	ND		0.300	0.300	mg/L	5.0 mg/L TCLP
Barium	7440-39-3	1.0	0.197		0.100	0.010	mg/L	21 mg/L TCLP
Beryllium	7440-41-7	1.0	ND		0.200	0.200	mg/L	1.22 mg/L TCLP
Cadmium	7440-43-9	1.0	ND		0.100	0.030	mg/L	0.11 mg/L TCLP
Chromium	7440-47-3	1.0	ND		0.100	0.050	mg/L	0.60 mg/L TCLP
Lead	7439-92-1	1.0	ND		0.100	0.100	mg/L	0.75 mg/L TCLP
Nickel	7440-02-0	1.0	ND		0.100	0.100	mg/L	11 mg/L TCLP
Selenium	7782-49-2	1.0	ND		0.500	0.250	mg/L	5.7 mg/L TCLP
Silver	7440-22-4	1.0	ND		0.100	0.100	mg/L	0.14 mg/L TCLP
Thallium	7740-28-0	1.0	ND		0.200	0.100	mg/L	0.20 mg/L TCLP
Vanadium	7440-62-2	1.0	ND		0.100	0.100	mg/L	1.6 mg/L TCLP
Zinc	7440-66-6	1.0	ND		1.100	0.550	mg/L	4.3 mg/L TCLP

QC Issues

3005

There were low matrix spike recoveries for barium (38%), lead (63%), nickel (70%), selenium (10%) and thallium (64%). The LCS results were within acceptance limits. All MS/MSD RPDs were within acceptance limits except for selenium. This indicates that the analytical process was in control and that the low matrix spike results were a product of matrix interference. None of the samples had barium or selenium concentrations within 80% to 100% of the UTS limit.

Batch QC Smp: KE1576110

Projects differ from one another in their requirements. The client must ensure that all analytes needed are present and that the reporting limits are appropriate for the data's use. Project Limits are provided as a best-faith effort courtesy. The Client is solely responsible for ensuring that these limits are correct for their project.

** END OF TEST GROUP **

Lab Manager
Richard Roylance
(308) 235-8222

2247 South Highway 71 *

Kimball Laboratory
Kimball * NE 69145 US

Post-treatment Waste Analysis: ID 25768



Clean Harbors, Inc. Laboratory Test Report

Report ID
20150326744
Thursday, March 26, 2015

All results are reported on a wet-weight basis unless otherwise noted.

Client ID 25768-1

Lab Sample ID KE1576113

SDG 1796

Test *Mercury NWW UTS (liquids)

Analytical Method: EPA 7470A

Prep Method: EPA 7470A

TCLP Batch ID: E0907-150317

Prep Batch ID: E0897-90

Data Entered By: ShayJ

Sampling Date: 3/12/2015

Cleanup Batch ID:

Peer Reviewed By: WaiteD

Analysis Date: 3/19/2015

Analysis Batch ID: 150319 Hg AGMT1796

Parameter	CAS Nbr	DF	Result	Flag	LOQ	LOD	Test Units	Project Limits
Mercury	7439-97-6	5.0	ND		10.000	10.000	ug/L	0.025 mg/L TCLP

QC Issues

7470

There was a low matrix spike recovery for mercury (73%). The mercury LCS recovery (102%) and the MS/MSD RPD (0%) were within acceptance limits. This indicates that the analytical process was in control and that the low matrix spike recovery was a product of matrix interference. Batch QC Smp: KE1576110

Projects differ from one another in their requirements. The client must ensure that all analytes needed are present and that the reporting limits are appropriate for the data's use. Project Limits are provided as a best-faith effort courtesy. The Client is solely responsible for ensuring that these limits are correct for their project.

**** END OF TEST GROUP ****

Lab Manager
Richard Roylance
(308) 235-8222

2247 South Highway 71 *

Kimball Laboratory
Kimball * NE 69145 US

Untreated Waste Analysis: ID CHRT20231

HSWA Analytical Review

Matrix Spray Dryer Solid

BOX ID CHRT20231

IN SERVICE DATE

From: 12/11/2014
To: 12/14/2014

YES NO

Dioxin Campaign:

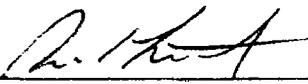
K061 Campaign:

FAILED TREATMENT STANDARDS

TCLP Metals
Daily Composite

Analyte	Waste Codes	Treatment Standard (mg/L)	Result	Units
Cd	D006 F006-009 F011-12 F039 K028 K069 K100 UTS	0.11	2.82	mg/L
Pb	F006-009 F011-012 F039 K001 K048 K082 K069 K086-087 K100 P110 U051 U144-146 UTS	0.75	1.66	mg/L
Hg	D009	0.2	36.5	mg/L
Hg	F039 K071 K106 P092 UTS	0.025	36.5	mg/L
Ag	D011 F006-009 F011-12 F039 P099 P104 UTS	0.14	0.161	mg/L
Zn	K061 UTS	4.3	26	mg/L

ROLLOFF BOX
TOTAL MERCURY 436mg/Kg

Reviewed by: 

Untreated Waste Analysis: ID CHRT20231

<i>LIMS Number</i>	1501057	<i>Sample Fraction</i>	18	<i>Sample Fraction ID</i>	
<i>Sample Date</i>	1/7/2015	Hg		<i>Report</i>	CHRT20231
Spray dryer		<i>Result</i>		<i>Units</i>	<i>Limit</i>
				<i>Analyst</i>	<i>Date of Analysis</i>

Metals

Mercury 7471A	436	mg/Kg	0.055	gt	1/9/2015
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Post-treatment Waste Analysis: ID CHRT20231



Clean Harbors, Inc. Laboratory Test Report

Report ID
20150326747
Thursday, March 26, 2015

All results are reported on a wet-weight basis unless otherwise noted.

Client ID CHRT20231-1

Lab Sample ID KE1576116

SDG 1796

Test *Metals NWW UTS (liquids)

Analytical Method: EPA 6010C

Prep Method: EPA 3005A

TCLP Batch ID: NA

Prep Batch ID: E0916-15

Data Entered By: ShayJ

Sampling Date: 3/12/2015

Cleanup Batch ID:

Peer Reviewed By: WaiteD

Analysis Date: 3/20/2015

Analysis Batch ID: 150320 OES GMT 1796

Parameter	CAS Nbr	DF	Result	Flag	LOQ	LOD	Test Units	Project Limits
Antimony	7440-36-0	1.0	ND		0.200	0.100	mg/L	1.15 mg/L TCLP
Arsenic	7440-38-2	1.0	ND		0.300	0.300	mg/L	5.0 mg/L TCLP
Barium	7440-39-3	1.0	0.426		0.100	0.010	mg/L	21 mg/L TCLP
Beryllium	7440-41-7	1.0	ND		0.200	0.200	mg/L	1.22 mg/L TCLP
Cadmium	7440-43-9	1.0	ND		0.100	0.030	mg/L	0.11 mg/L TCLP
Chromium	7440-47-3	1.0	ND		0.100	0.050	mg/L	0.60 mg/L TCLP
Lead	7439-92-1	1.0	ND		0.100	0.100	mg/L	0.75 mg/L TCLP
Nickel	7440-02-0	1.0	ND		0.100	0.100	mg/L	11 mg/L TCLP
Selenium	7782-49-2	1.0	ND		0.500	0.250	mg/L	5.7 mg/L TCLP
Silver	7440-22-4	1.0	ND		0.100	0.100	mg/L	0.14 mg/L TCLP
Thallium	7740-28-0	1.0	ND		0.200	0.100	mg/L	0.20 mg/L TCLP
Vanadium	7440-62-2	1.0	ND		0.100	0.100	mg/L	1.6 mg/L TCLP
Zinc	7440-66-6	1.0	ND		1.100	0.550	mg/L	4.3 mg/L TCLP

QC Issues

3005

There were low matrix spike recoveries for barium (38%), lead (63%), nickel (70%), selenium (10%) and thallium (64%). The LCS results were within acceptance limits. All MS/MSD RPDs were within acceptance limits except for selenium. This indicates that the analytical process was in control and that the low matrix spike results were a product of matrix interference. None of the samples had barium or selenium concentrations within 80% to 100% of the UTS limit.

Batch QC Smp: KE1576110

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** END OF TEST GROUP **

Lab Manager
Richard Roylance
(308) 235-8222

2247 South Highway 71 *

Kimball Laboratory
Kimball * NE 69145 US

Test Report Page 4 of 5

Post-treatment Waste Analysis: ID CHRT20231



Clean Harbors, Inc. Laboratory Test Report

Report ID
20150326747
Thursday, March 26, 2015

All results are reported on a wet-weight basis unless otherwise noted.

Client ID CHRT20231-1

Lab Sample ID KE1576116

SDG 1796

Test *Mercury NWW UTS (liquids)

Analytical Method: EPA 7470A

Prep Method: EPA 7470A

TCLP Batch ID: E0907-150317

Prep Batch ID: E0897-90

Data Entered By: ShayJ

Sampling Date: 3/12/2015

Cleanup Batch ID:

Peer Reviewed By: WaiteD

Analysis Date: 3/19/2015

Analysis Batch ID: 150319 Hg AGMT1796

Parameter	CAS Nbr	DF	Result	Flag	LOQ	LOD	Test Units	Project Limits
Mercury	7439-97-6	5.0	ND		10.000	10.000	ug/L	0.025 mg/L TCLP

QC Issues

7470

There was a low matrix spike recovery for mercury (73%). The mercury LCS recovery (102%) and the MS/MSD RPD (0%) were within acceptance limits. This indicates that the analytical process was in control and that the low matrix spike recovery was a product of matrix interference. Batch QC Smp: KE1576110

Projects differ from one another in their requirements. The client must ensure that all analytes needed are present and that the reporting limits are appropriate for the data's use. Project Limits are provided as a best-faith effort courtesy. The Client is solely responsible for ensuring that these limits are correct for their project.

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Kimball Laboratory
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