DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA750)
Migration of Contaminated Groundwater Under Control

Facility Name: *Thermo King de Puerto Rico, Inc.*

Facility Address: B Street, Zeno Gandía Industrial Park, Hato Abajo, Arecibo, Puerto Rico

Facility EPA ID #: 110000580390 (PRD090497959)

DEFINITIONS

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators(1) (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Migration of Contaminated Groundwater Under Control" EI

A positive "Migration of Contaminated Groundwater Under Control" EI determination ("YE" status code) indicates that the migration of "contaminated" groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original "area of contaminated groundwater" (for all groundwater "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Migration of Contaminated Groundwater Under Control" EI pertains ONLY to the physical migration (i.e., further spread) of contaminated ground water and contaminants within groundwater (e.g., non-aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

AVAILABLE, RELEVANT AND SIGNIFICANT INFORMATION

1. Has all available relevant/significant information on known and reasonably suspected releases to the groundwater media, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been considered in this EI determination?

☒ If yes - check here and continue with #2 below.

☐ If no - re-evaluate existing data, or

☐ If data are not available, skip to #8 and enter "IN" (more information needed) status code.

GROUND WATER KNOWN OR REASONABLY SUSPECTED TO BE CONTAMINATED

2. Is groundwater known or reasonably suspected to be "contaminated"[1] above appropriately protective "levels" (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

☒ If yes – continue after identifying key contaminants, citing appropriate "levels," and referencing supporting documentation.

☐ If no – skip to #8 and enter "YE" status code, after citing appropriate "levels," and referencing supporting documentation to demonstrate that groundwater is not "contaminated."

☐ If unknown – skip to #8 and enter "IN" status code.

Rationale

VOCs are present in ground water on-site. Several VOCs have been detected in excess of the EPA Maximum Contaminant Levels (MCLs) in the shallow and deep aquifers, as well as in perched water zones. 1,1-DCE is the primary contaminant of concern at the site based on its concentration in ground water relative to other detected contaminants. 1,1-DCE is a degradation product of 1,1,1-TCA which was stored in tanks and dispensed at the source area. A summary of site information is provided in Attachment A.

[1] "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriate "levels" (appropriate for the protection of the groundwater resource and its beneficial uses).

MIGRATION STABILIZED

3. Has the migration of contaminated groundwater stabilized (such that contaminated groundwater is expected to remain within "existing area of contaminated groundwater"[2] as defined by the monitoring locations designated at the time of this determination)?

   ☒ If yes – continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the "existing area of groundwater contamination"[2]).

   ☐ If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the "existing area of groundwater contamination"[2]) – skip to #8 and enter "NO" status code, after providing an explanation.

   ☐ If unknown – skip to #8 and enter "IN" status code.

Rationale

Additional site work was conducted in 2012, including the installation of downgradient extent monitor well MW-15S and regularly scheduled annual ground water monitoring. Results of annual ground water monitoring (11/2012) show that the lateral extent of ground water contamination has been defined and that VOC concentrations in ground water are stable or decreasing. A summary of site information is provided in Attachment A.

DISCHARGE INTO SURFACE WATER BODIES

4. Does "contaminated" groundwater discharge into surface water bodies?

   ☐ If yes – continue after identifying potentially affected surface water bodies.

   ☒ If no – skip to #7 (and enter a "YE" status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater "contamination" does not enter surface water bodies.

   ☐ If unknown – skip to #8 and enter "IN" status code.

[2] "existing area of contaminated groundwater" is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of "contamination" that can and will be sampled/tested in the future to physically verify that all "contaminated" groundwater remains within this area, and that the further migration of "contaminated" groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

Rationale

No surface water bodies have been identified within the footprint of the ground water contaminant plume. The nearest surface water body is the Atlantic Ocean located 1 mile north of the site. Ground water is not expected to discharge to nearby downgradient surface water bodies (See Attachment A).

DISCHARGE LIKELY INSIGNIFICANT

5. Is the discharge of "contaminated" groundwater into surface water likely to be "insignificant" (i.e., the maximum concentration[3] of each contaminant discharging into surface water is less than 10 times their appropriate groundwater "level," and there are no other conditions (e.g., the nature, and number, of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?

☐ If yes – skip to #7 (and enter "YE" status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration[3] of key contaminants discharged above their groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) provide a statement of professional judgment/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.

☐ If no – (the discharge of "contaminated" groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration3 of each contaminant discharged above its groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations[3] are increasing; and 2) for any contaminants discharging into surface water in concentrations greater than 100 times their appropriate groundwater "levels," the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing.

☐ If unknown – enter "IN" status code in #8.

Rationale

Not applicable

[3] As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

DISCHARGE CURRENTLY ACCEPTABLE

6. Can the discharge of "contaminated" groundwater into surface water be shown to be "currently acceptable" (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented[4])?

☐ If yes – continue after either:

1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site's surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater;

OR

2) providing or referencing an interim-assessment[5], appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment "levels," as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.

☐ If no – (the discharge of "contaminated" groundwater can not be shown to be "currently acceptable") - skip to #8 and enter "NO" status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems.

☐ If unknown – skip to 8 and enter "IN" status code.

Rationale

Not Applicable

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[4] Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

[5] The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

FUTURE MONITORING

7. Will groundwater monitoring / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the "existing area of contaminated groundwater?"

☒ If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the "existing area of groundwater contamination."

☐ If no - enter "NO" status code in #8.

☐ If unknown - enter "IN" status code in #8.

Rationale

Continued annual ground water monitoring for volatile organic compounds (VOCs) at the site is planned in general accordance with the United States Environmental Protection Agency (EPA), Facility Lead Corrective Action Agreement Program (FLCAAP) dated November 15, 2001. See Attachment A.

DETERMINATION

8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

☒ YE – Yes, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the facility, EPA ID # 110000580390, located at B Street, Zeno Gandía Industrial Park, Hato Abajo, Arecibo, Puerto Rico. Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater" This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

☐ NO – Unacceptable migration of contaminated groundwater is observed or expected.

☐ IN – More information is needed to make a determination.

Completed by	(signature)	Luis A. Negron	Date 10/23/13
	(print)	Luis Negron	
	(title)	Env. Engineer	
Reviewed by	(signature)	Jesse Aviles	Date 2013-10-31
	(print)	Jesse Aviles	
	(title)	Env. Scientist	
Supervisor	(signature)	R Torres	Date 12/4/13
	(print)	Ramon Torres	
	(title)	CEPD RRB Branch Chief	
EPA Region or State		2	

Contact telephone and email:

Name: Luis Negron

Telephone: 787-977-5855

Email: negron.luis@epa.gov

REFERENCES

1. **U. S. Environmental Protection Agency.** Environmental Indicators. [Online] September 4, 2012. http://www.epa.gov/osw/hazard/correctiveaction/eis/index.htm.

Attachment A
Ground Water Quality Data

Environmental Resources Management

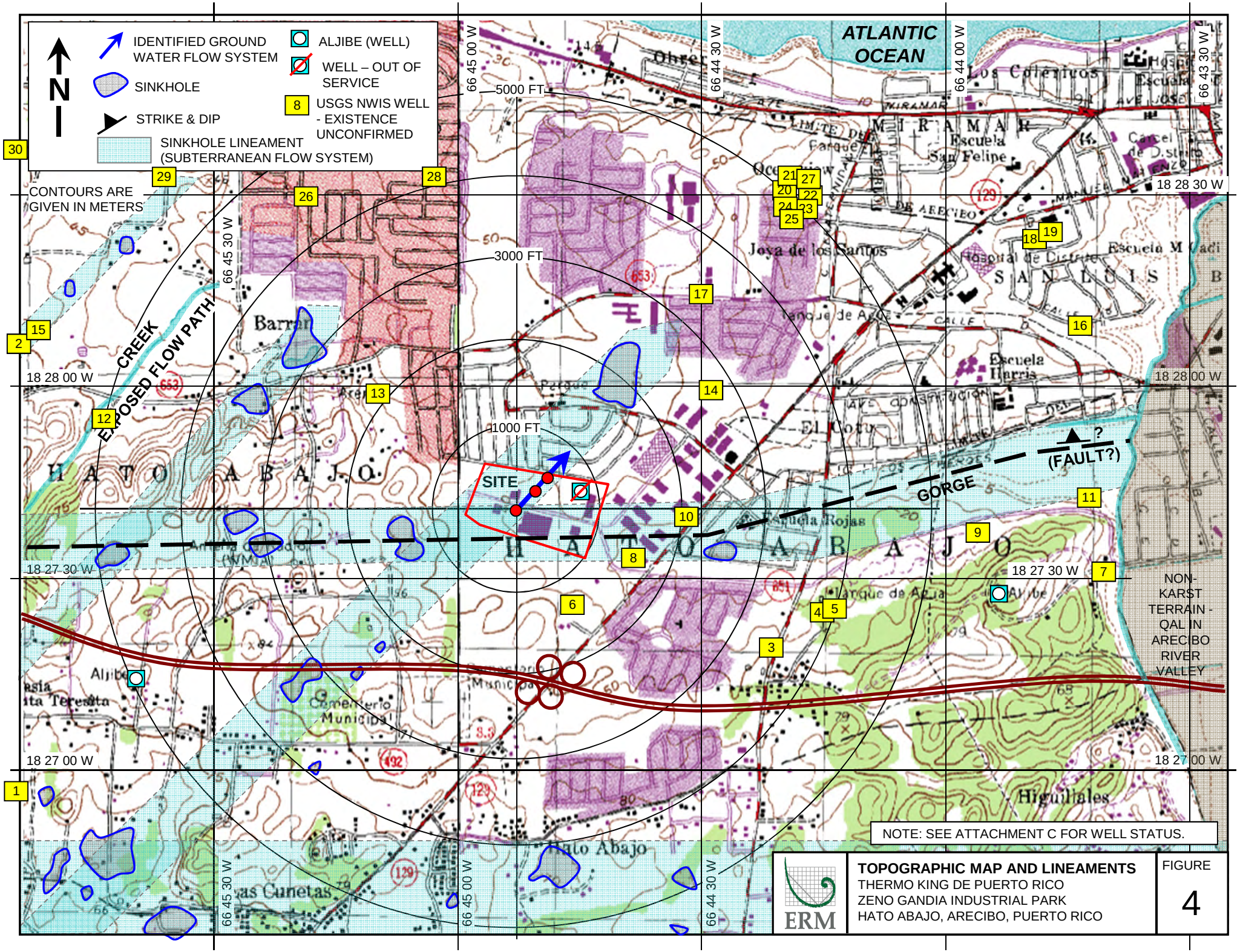
LOCATION MAP
THERMO KING DE PUERTO RICO
ZENO GANDIA INDUSTRIAL PARK
HATO ABAJO, ARECIBO, PUERTO RICO

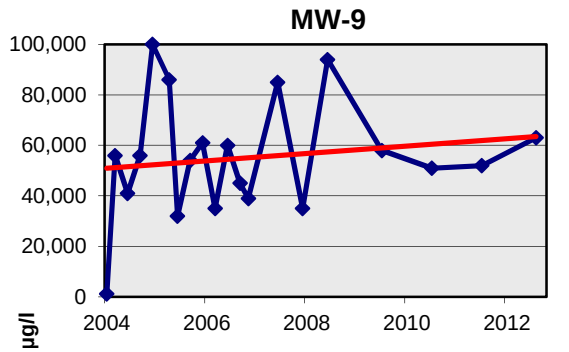
FIGURE
1

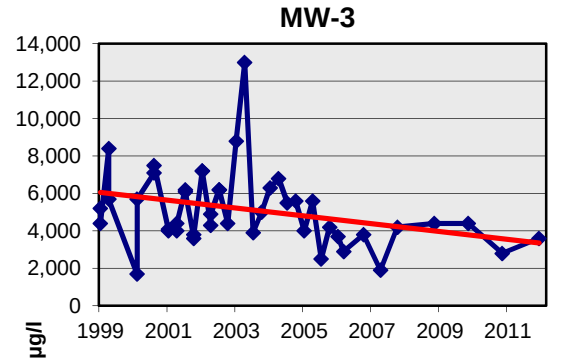
ERM

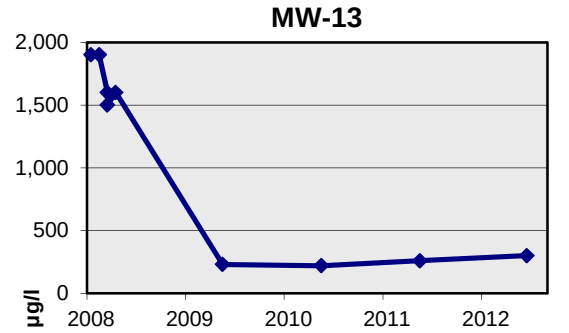
SITE PLAN
THERMO KING DE PUERTO RICO
ZENO GANDIA INDUSTRIAL PARK
HATO ABAJO, ARECIBO, PUERTO RICO

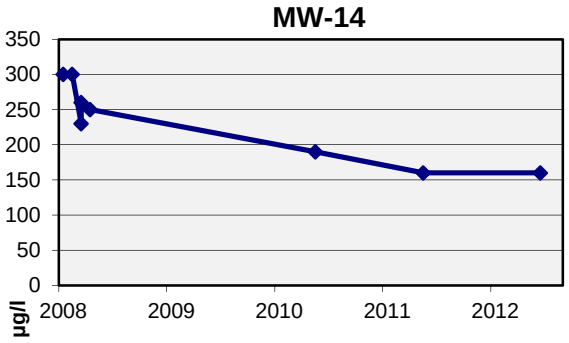
FIGURE
2

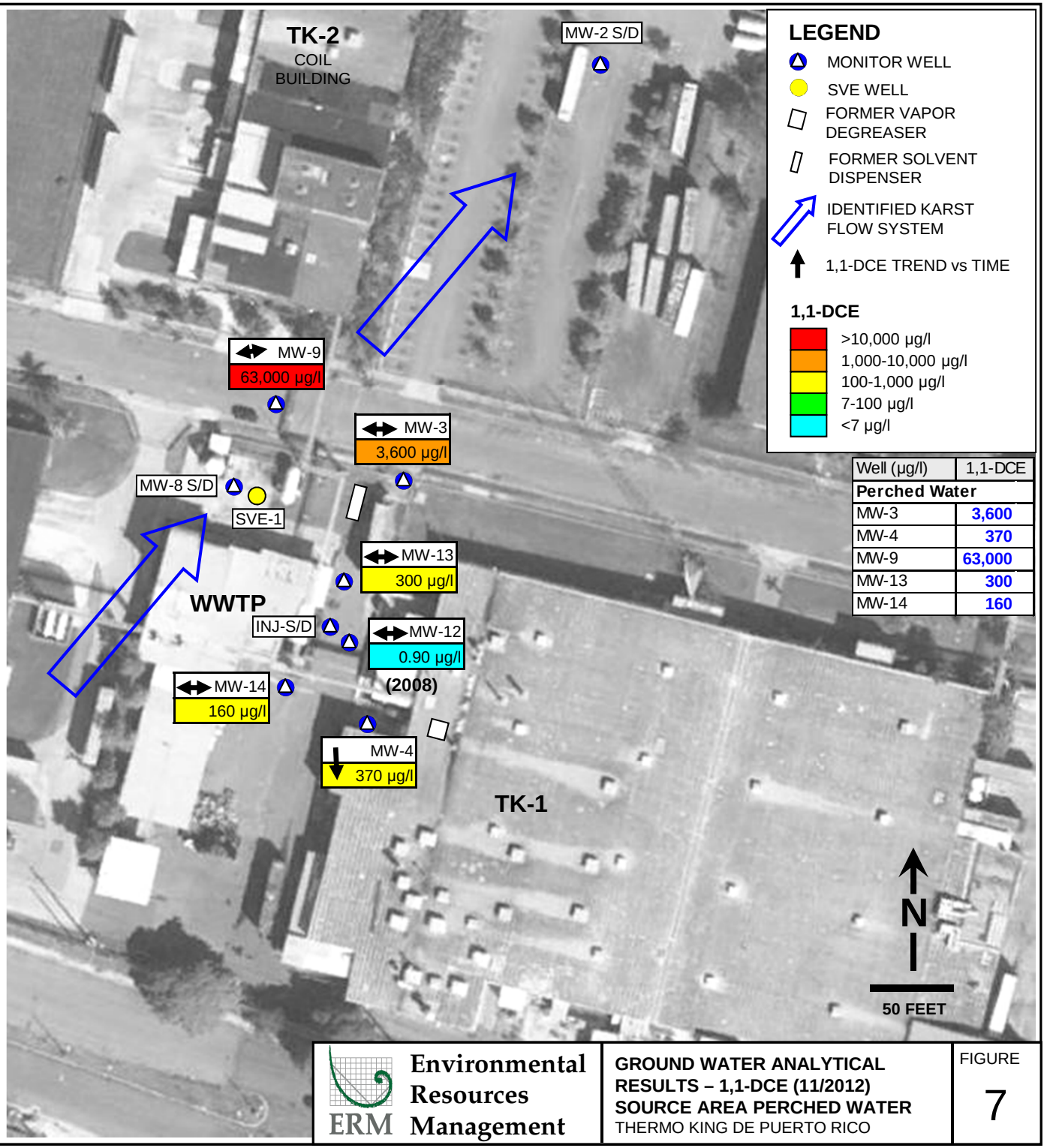

N
IDENTIFIED GROUND WATER FLOW SYSTEM
SINKHOLE
STRIKE & DIP
SINKHOLE LINEAMENT (SUBTERRANEAN FLOW SYSTEM)
ALJIBE (WELL)
WELL – OUT OF SERVICE
8 USGS NWIS WELL - EXISTENCE UNCONFIRMED
CONTOURS ARE GIVEN IN METERS
ATLANTIC OCEAN
5000 FT
3000 FT
1000 FT
SITE
EXPOSED FLOW PATH
CREEK
GORGE
(FAULT?)
NON-KARST TERRAIN - QAL IN ARECIBO RIVER VALLEY
NOTE: SEE ATTACHMENT C FOR WELL STATUS.
TOPOGRAPHIC MAP AND LINEAMENTS
THERMO KING DE PUERTO RICO
ZENO GANDIA INDUSTRIAL PARK
HATO ABAJO, ARECIBO, PUERTO RICO
ERM
FIGURE
4









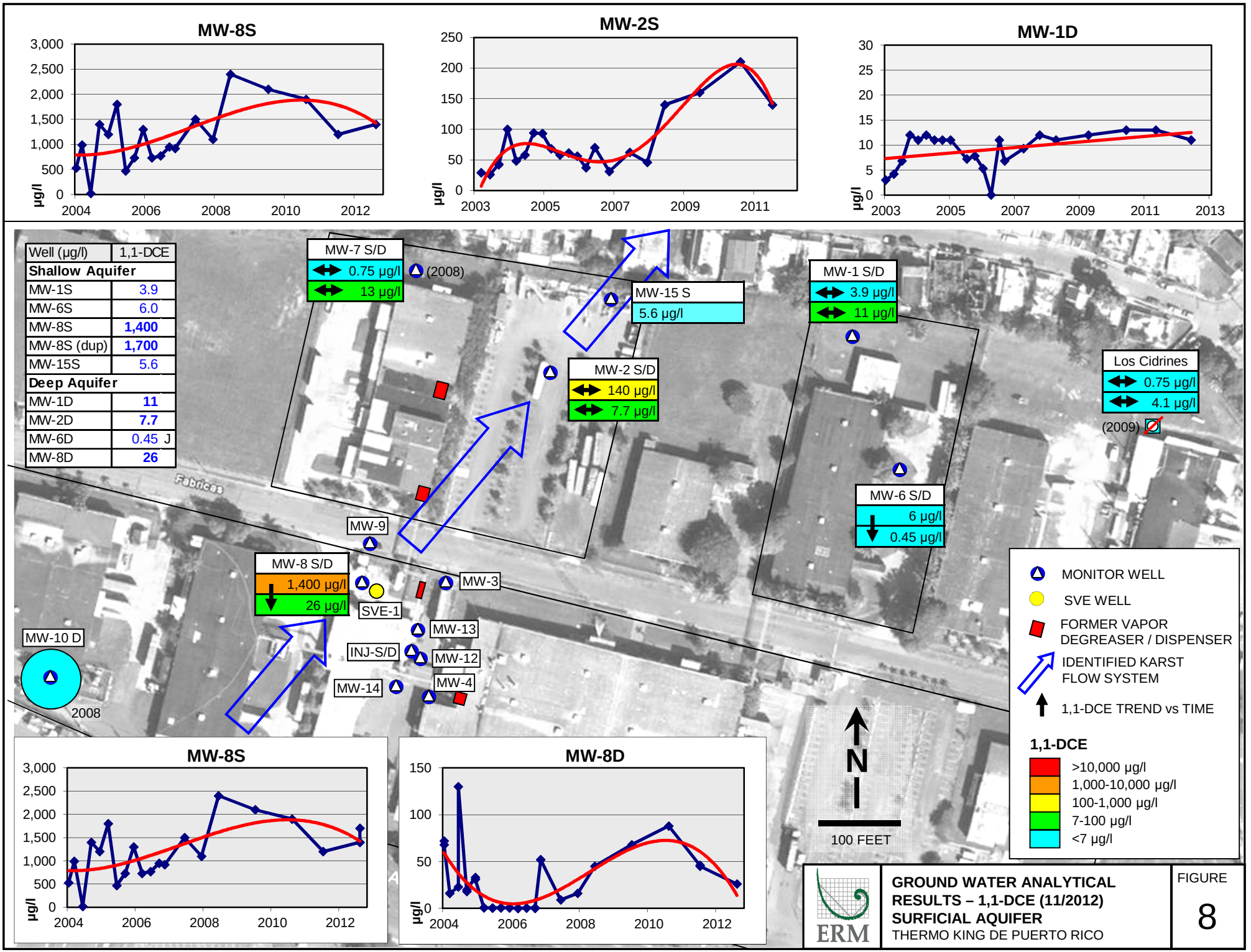


Well (µg/l)	1,1-DCE
Perched Water	
MW-3	3,600
MW-4	370
MW-9	63,000
MW-13	300
MW-14	160

Environmental Resources Management

GROUND WATER ANALYTICAL RESULTS – 1,1-DCE (11/2012)
SOURCE AREA PERCHED WATER
THERMO KING DE PUERTO RICO

FIGURE
7



ERM

GROUND WATER ANALYTICAL RESULTS – 1,1-DCE (11/2012)
SURFICIAL AQUIFER
THERMO KING DE PUERTO RICO

FIGURE
8

TABLE 2. MONITOR WELL CONSTRUCTION DATA - THERMO KING DE PUERTO RICO

Monitor Well	Installation Date	Ground Surface Elevation (ft msl)	Top of Casing Elevation (ft msl)	Well Depth (ft bgs)	Screen Length (ft)	Well Screen-Top Elevation (ft msl)	Well Screen-Bottom Elevation (ft msl)	Well Diameter (inches)	Depth to Ground Water (ft BTOC)	Ground Water Elevation (ft msl)	Notes
MW-1S		134.32	133.99	140.42	15	8.57	-6.43	2	126.93	7.06	
MW-1D		134.32	133.96	211.58	10	-67.62	-77.62	2	126.94	7.02	
MW-2S		137.27	137.07	140.08	15	11.99	-3.01	2	137.07	0.00	Dry
MW-2D		137.27	137.07	207.22	10	-60.15	-70.15	2	129.95	7.12	
MW-3		134.32	134.15	70.52	10	73.63	63.63	2	57.37	76.78	Perched water
MW-4		134.91	134.71	40.22	10	104.49	94.49	2	28.70	106.01	Perched water
MW-5D	5/2003	Well abandoned 4/2/04 due to damage.				--	--	--	--	--	
MW-6S		130.67	130.38	138.58	15	6.80	-8.20	2	123.16	7.22	
MW-6D		130.67	130.38	206.35	10	-65.97	-75.97	2	123.14	7.24	
MW-7S		141.24	140.91	139.08	15	16.83	1.83	2	130.70	10.21	
MW-7D		141.24	140.91	206.56	10	-55.65	-65.55	2	133.24	7.67	
MW-8S		136.06	135.68	140.48	15	10.20	-4.80	2	128.27	7.41	
MW-8D		136.06	135.70	198.47	10	-52.77	-62.77	2	128.33	7.37	
MW-9		134.68	134.19	91.68	10	52.51	42.51	2	79.54	54.65	Perched water
MW-10D		143.24	143.11	202.78	100	40.33	-59.67	2	135.68	7.43	
MW-12	6/13/08	--	--	38.5	20	--	--	2	6.75	--	Perched water
MW-13	6/12/08	--	--	45	20	--	--	2	29.90	--	Perched water
MW-14	6/16/08	--	--	40	20	--	--	2	33.26	--	Perched water
MW-15S	8/7/12	--	--	148	20	--	--	2	129.98	--	
SVE-1S	8/9/12	--	--	58	50	--	--	2	--	--	Bentonite + grout intervals:
SVE-1D	8/9/12	--	--	125	40	--	--	2	>125	--	1-6 ft. and 65-80 ft.
INJ-S/D-1	6/13/08	Perozone well		40 --	1 1	35 ft BGS 40 ft BGS	-- --	2 --	-- --	-- --	Injection point. Single well boring, two bubble diffusers
INJ-S/D-2	7/2/08	Perozone well		40	1	37 ft BGS	--	2	--	--	Injection point - 1 bubble diffuser
Water Supply Well (out of service)											
Los Cidrines		130.25	132.25	233.45	120	18.80	-101.20	8		Dedicated pump malfunction 10/2010	

Elevations resurveyed on June 26, 2003 with respect to the National Geodetic Survey System.
Vertical datums are expressed in relation to average mean sea level.

TABLE 3. GROUND WATER ELEVATIONS

Monitor Well	Top of Casing Elevation (ft msl)	Date	Depth to Ground Water (ft BTOC)	Ground Water Elevation (ft msl)
MW-1S	133.99	11/12/12	126.93	7.06
MW-1D	133.96	11/12/12	126.94	7.02
MW-2S	137.07	11/12/12	Dry	Dry
MW-2D	137.07	11/12/12	129.95	7.12
MW-3	134.15	11/12/12	57.37	76.78
MW-4	134.71	11/12/12	28.70	106.01
MW-6S	130.38	11/12/12	123.16	7.22
MW-6D	130.38	11/12/12	123.14	7.24
MW-7S	140.91	11/12/12	130.70	10.21
MW-7D	140.91	11/12/12	133.24	7.67
MW-8S	135.68	11/12/12	128.27	7.41
MW-8D	135.70	11/12/12	128.33	7.37
MW-9	134.19	11/12/12	79.54	54.65
MW-10D	143.11	11/12/12	135.68	7.43
MW-12	--	11/12/12	6.75	--
MW-13	--	11/12/12	29.90	--
MW-14	--	11/12/12	33.26	--
MW-15S	--	11/12/12	130.06	--

TABLE 4. GROUND WATER FIELD PARAMETERS

Monitor Well	Aquifer	Sample Date	Temperature (degrees Celsius)	pH	Conductivity (uS/cm)	Dissolved Oxygen (mg/l)	ORP (millivolts)	Turbidity (NTUs)
MW-3	Perched	11/12/12	29.1	5.8	0.43	3.4	-95	21.5
MW-4	Perched	11/13/12	30.5	6.1	0.602	2.2	-129	231
MW-9	Perched	11/13/12	29.7	5.9	2.66	4.1	-86	892
MW-13	Perched	11/13/12	29.7	6.1	0.587	1.8	-73	60.2
MW-14	Perched	11/13/12	30.6	5.6	0.186	2.2	-102	305
MW-1S	Shallow	11/16/12	28.1	6.7	0.704	5.2	121	24.6
MW-6S	Shallow	11/15/12	28.0	7.7	99.9	3.4	126	0.0
MW-8S	Shallow	11/14/12	28.8	7.7	1.41	0.8	41	0.0
MW-15S	Shallow	11/13/12	30.3	7.8	99.9	3.2	81	81.9
MW-1D	Deep	11/16/12	26.8	6.6	0.90	1.1	178	8.3
MW-2D	Deep	11/15/12	27.6	7.9	1.58	4.2	87	0.0
MW-6D	Deep	11/15/12	28.0	7.8	99.9	3.0	97	0.0
MW-8D	Deep	11/14/12	27.4	1.3	7.64	2.5	93	0.0

TABLE 6. GROUNDWATER ANALYTICAL RESULTS - THERMO KING, ARECIBO FACILITY, PUERTO RICO

Monitor Well	Vinyl Chloride	1,1-DCE	1,1-DCA	Benzene	TCE	Toluene	PCE	Ethyl-benzene	m-, p-Xylene	o-Xylene	Total Xylenes	MTBE	cis-1,2-DCE	Carbon disulfide	Isopropylbenzene	Bromoform	Cyclo-hexane	Styrene	trans-1,2-DCE
EPA MCLs	2.0	7.0	--	5.0	5.0	1,000	5.0	700	10,000	10,000	10,000	--	70	--		80	--	100	100
Perched Water																			
MW-3	**83**	**3,600**	**410**	**34**	4.1	2.0	1.2	2.3	2.9	3.8	6.6	11	1.6	0.19 J	0.66	2.5	0.75	0.12 J	0.39 J
MW-4	**180**	**370**	**160**	ND	1.6 J	ND	ND	ND	ND	ND	ND	ND	3.5 J	ND	ND	ND	ND	ND	ND
MW-9	**31**	**63,000**	**2,800**	ND	81	ND	ND	ND	14 J	ND	14 J	ND	32	ND	ND	ND	ND	ND	ND
MW-12	0.32	0.90	0.66	ND	ND	0.34	ND	ND	ND	--	ND	ND	--	--	ND	--	--	--	--
MW-13	**6.9**	**300**	**41**	**21**	ND	ND	ND	ND	2.3 J	2.4 J	4.6 J	6.2	ND	ND	ND	ND	ND	ND	ND
MW-14	**2.5**	**160**	**34**	2.4	0.8	ND	0.45 J	ND	0.23 J	ND	0.23 J	ND	0.27 J	ND	ND	ND	ND	ND	ND
Shallow Aquifer																			
MW-1S	ND	3.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-2S	0.41 **J**	140.0	12.00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--
MW-6S	ND	6.0	0.55	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-7S	ND	0.75	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--
MW-8S	**43**	**1,400**	**120**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-8S (dup)	**48**	**1,700**	**150**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-15S	ND	5.6	ND	ND	ND	ND	ND	ND	0.41 J	0.21 J	0.62	ND	ND	ND	ND	ND	ND	ND	ND
Deep Aquifer																			
MW-1D	ND	**11**	0.41 J	0.1 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-2D	ND	**7.7**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-6D	ND	0.45 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-7D	ND	**13**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--
MW-8D	ND	**26**	**18**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW-10D	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	--	--	--	--
Los Cidrines	Not sampled due to malfunctioning dedicated pump						--	--	--	--	--	--	--	--	--	--	--	--	--

MCLs = Maximum Contaminant Level TCA = Trichloroethane B = analyte found in laboratory blank associated with the sample MTBE= Methyl -tert Butyl Ether

DCE = Dichloroethene TCE = Trichloroethene E = analyte concentration exceeded instrument calibration range and was reanalyzed J = estimated value

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
CARIBBEAN ENVIRONMENTAL PROTECTION DIVISION
CENTRO EUROPA BUILDING, SUITE 417
1492 PONCE DE LEON AVENUE, STOP 22
SAN JUAN, PR 00907-4127

COPY

NOV 15 2001

Mr. Irwin H. Flashman, Esq.
O'Neill & Borges
Eight Floor
American International Plaza
250 Muñoz Rivera Avenue
San Juan, Puerto Rico 00910-1808

Re: Thermo King de Puerto Rico, Inc.
Zeno Gandia Industrial Park
Arecibo, Puerto Rico

Dear Mr. Flashman:

The U.S. Environmental Protection Agency (EPA) has reviewed the Thermo King of Puerto Rico, Inc. Arecibo, Puerto Rico (Thermo King) facility ground water contamination findings presented by you to this office. After researching the options to approach the Thermo King's contamination issues, it was found that the Thermo King facility will benefit from EPA's Region 2 Facility Agreement Program. As it was discussed in an October 22, 2001 telephone conversation between you, and Mr. Luis Negron, of my staff, the Facility Agreement Program its an innovative program that will be used for the first time by EPA Region 2. The Facility Lead Program has been successfully used by other EPA Regions, and states in order to accelerate cleanups at facilities subject to RCRA corrective action. Should Thermo King accept to participate in the Facility Lead Program it will set a precedent in the EPA Region 2 Corrective Action Program. By this means, I am extending a formal invitation to your client to participate in EPA's, Region 2, Facility Lead Program in order to achieve the corrective action goals at the Thermo King facility.

It is EPA's understanding that Region's 2 Facility Lead Program offers benefits to all the parties involved in the process by providing the means to achieve the corrective action goals in a streamlined and expeditious manner. EPA request that Thermo King documents its decision to participate in EPA's Region 2 Facility Lead Program by responding with a Commitment Letter acknowledging its understanding and acceptance of the goals and expectations described in the enclosed Facility Lead Agreement. We would appreciate receiving Thermo Kings Commitment Letter within thirty (30) days of your receipt of this letter. EPA will treat the receipt of your signed Letter of Commitment as the initiation of corrective action, and a commitment by Thermo King to perform the applicable requirements set forth in the enclosed Facility Lead Agreement. We look forward to working with Thermo King to achieve the goals of this Region's corrective action program.

If you have any questions regarding this letter or will like to have a meeting to further discuss the Facility Lead Program, please contact Mr. Victor Trinidad, Chief, Environmental Management Branch (EMB) at (787) 977-5817, or Mr. Luis Negron, RCRA Project Officer at (787) 977-5855.

Sincerely,

Carl-Axel P. Soderberg, Director
Caribbean Environmental Protection Division

Enclosures

cc: Mr. Carmelo Vazquez,
Director Land Pollution Control Area, PREQB

Facility Lead Agreement

I. CORRECTIVE ACTION GOALS

By agreeing to participate in the Facility Lead Corrective Action Program with EPA, the Facility commits to:

A. Determine the extent and sources of all releases of hazardous wastes or hazardous waste constituents at or from the Facility using quality data;

B. Evaluate and meet EPA's Environmental Indicators ("Environmental Indicator Forms" Provided as attachment I);

C. Perform interim measures at the Facility to prevent or mitigate unacceptable threats to human health and the environment by: 1) controlling human exposures, and 2) controlling migration of any groundwater contamination at or from the Facility from releases of hazardous wastes or hazardous constituents;

D. Conduct effective public involvement; and

E. Communicate regularly to EPA, the State, and the community on corrective action progress at the Facility.

EPA agrees to provide an appropriate level of oversight to assist the Facility to meet these goals.

II. WORK TO BE PERFORMED

The Facility agrees to demonstrate achievement of the goals listed in Section I by performing the work (as appropriate) described below. These goals may be achieved through a combination of sampling activities, previous work, and documentation of valid historical data.

A. Develop a Workplan

1. Within ninety (90) calendar days of the date of its Commitment Letter, the Facility agrees to submit a site specific Workplan to EPA. The Workplan is subject to approval by EPA and shall include a strategy and schedule to implement pertinent tasks identified in this Agreement, which include, but are not limited to, the following:

    a. Site characterization (Section II.B)

b. Quality Assurance and Sampling Plan (Section II.B and D)

c. Evaluation of Environmental Indicator goals (Section II.C)

d. Ongoing or planned Interim Measures (Section II.D)

e. Community Relations Plan (Section II.E)

f. Reports to EPA (Section II.F and IV)

g. Selection of a land use scenario (Section II.B)

2. The Facility may also add other tasks to the Workplan.

B. Determine the extent and sources of releases of hazardous wastes or hazardous constituents at or from the Facility using quality data.

1. Site Characterization - The Facility will develop a site specific workplan that determines the nature and extent of all releases of hazardous wastes and hazardous constituents at or from the Facility. The characterization will include investigative tasks such as sampling, analyses, data validation and data interpretation and will be conducted in a manner consistent with the provisions of EPA guidance for a "RCRA Facility Investigation" and guidance for "Risk-Based Screening" (provided as attachment II and III). At a minimum, the Facility shall perform the following:

a. Soil - Identify maximum concentrations and determine the extent of any releases of hazardous wastes and hazardous constituents to soil. Sampling shall continue until concentrations in soil reach Region III's Risk-Based Concentration (RBC) Table (provided as attachment IV) using an appropriate land use scenario approved by EPA (see "Risk-Based Concentration Tables"). In addition, evaluate the potential of hazardous wastes and hazardous constituents in Soil to affect other media through cross media transfer (e.g., screening against Soil Screening Levels "SSLs" for groundwater).

b.Groundwater - Determine maximum concentrations of hazardous wastes and hazardous constituents in groundwater and, to the extent practicable, the source of the groundwater contamination. The horizontal and vertical extent of any releases to groundwater shall be delineated until concentrations of hazardous wastes and hazardous constituents in groundwater reach maximum contaminant levels ("MCLs"), or, where no MCLs have been promulgated, Region III's Risk-Based Concentration (RBC) Table using the tap water column, independent of whether the aquifer is currently utilized as a source of potable water.

c.Surface Water and Sediment - Where contaminated groundwater potentially discharges to a surface water body, determine the maximum

concentrations of hazardous wastes and hazardous constituents in surface water and sediment, and assess the extent of impact of hazardous wastes and hazardous constituents to the surface water body and sediments to levels considering the state-designated use of the surface water body and the potential exposure to human and/or ecological receptors.

d. Air - Where there is the potential for indoor or outdoor air to be contaminated by particulates or vapors through cross-media transfer, determine the maximum concentrations through appropriate methods (e.g., sampling, modeling).

2. Data Quality - The Facility agrees to perform site screening and site characterization through the use of high quality field data collection protocols and appropriate EPA laboratory methods specified in 2.a and 2.b below such that the analytical results accurately represent site characteristics (see attachment V "Quality Assurance/Quality Control" document). The data collected must support decisions regarding the applicability and effectiveness of interim measures' and/or final remedial decisions. In addition the Facility shall:

a. Ensure that all laboratories used by the Facility for analyses perform such analyses according to the EPA methods included in "Test Methods for Evaluating Solid Waste" (SW-846, November 1986) or other methods deemed satisfactory to EPA;

b. Ensure that all laboratories used by the Facility for analyses participate in a quality assurance/quality control program equivalent to that which is followed by EPA; and

c. Ensure that data is reliable by having it data undergo 3rd party data validation.

3. Exposure Assessment - The Facility agrees to identify all potential exposure pathways.

4. Site Screening - The Facility agrees to use the Screening process specified in the Risk-Based Screening document located on EPA Region III's website.

5. Future Land Use - A "reasonably expected future land use" shall be identified for the facility. (See the discussion in the Advanced Notice of Proposed Rulemaking, May 1, 1996). The Facility shall include a schedule in the Workplan for submitting land use information and a plan for sharing land use assumptions with the public.

C. Evaluate and meet EPA's Environmental Indicators.

1. The Facility agrees to assess current exposures and evaluate potential

contaminated groundwater migration pathways as priority activities of the site investigation.

2. The Facility agrees to implement Interim Measures as soon as possible to achieve the Environmental Indicator goals.

D. Perform Interim Measures at the Facility to prevent or mitigate threats to human health and/or the environment.

1. The Facility agrees to implement Interim Measures:

   a. When it is necessary to protect human health and/or the environment.

   b. To meet the Environmental Indicator goals of eliminating current human exposure to and controlling groundwater contamination from releases of hazardous wastes or hazardous constituents to the extent practicable. Interim Measures implemented shall be consistent with the long term cleanup objectives at the Facility.

2. The Facility will conduct appropriate monitoring and/or confirmatory sampling of Interim Measures to assess their effectiveness. The quantity, quality, and frequency of the monitoring will be dependent upon the Interim Measures selected.

E. Conduct effective public involvement.

1. The Facility agrees to:

   a. Develop a Community Relations Plan which will describe how it will Conduct public involvement activities to inform the local community, the State and any other interested parties of activities throughout the corrective action process. EPA guidance for conducting effective public involvement in the RCRA program can be found in the RCRA Public Participation Manual, 1996 Edition. (See EPA's website at www.epa.gov/epaoswer/hazwaste/permit/pubpart/manual.htm)

   b. Provide EPA with a fact sheet summarizing the status of the work to date within sixty (60) calendar days of the Letter of Commitment. At a minimum, this fact sheet shall be updated Semi-annually.

F. Communicate regularly to EPA, the State, and the community on corrective action progress at the Facility.

1. The Facility agrees to submit:

   a. A Letter of Commitment which shall include a proposed time-frame for a meeting with EPA to discuss the known current conditions and to outline

the work necessary to meet EPA's Environmental Indicator objectives. The letter will also identify a Facility Project Coordinator, who will be responsible for the implementation of the corrective action activities and serve as the Facility's point of contact.

b. An Environmental Indicators report to EPA and the State when the Facility has collected sufficient data, and taken action as necessary, to control current human exposures to contamination and the migration of any groundwater contamination.

c. A Site Investigation report to EPA and the State when the Facility has identified the nature and extent of all releases of hazardous wastes and/or hazardous constituents at or from the Facility.

d. Annual Progress Reports to EPA and the State summarizing the work performed (including new interim measures), public involvement activities, proposed schedule changes, and a summary of anticipated activities to be conducted over the next year. The first Annual Progress Report shall be submitted to EPA and the State one year from the date of the Letter of Commitment.

e. In addition to the written reports identified above, the Facility may choose to present information to EPA in the form of oral presentations and request EPA comment on technical issues or proposed actions

III. FINAL REMEDIES - COMPLETING CORRECTIVE ACTION

Eliminating human exposure to hazardous wastes and hazardous constituents and controlling migration of contaminated groundwater are short-term corrective action objectives. Interim Measure activities implemented to achieve these short-term objectives are based on reasonably expected human exposures under current land and groundwater use conditions. The RCRA Corrective Action Program's overall mission is to protect human health and the environment. To achieve this goal, final remedies must be based on potential future land and groundwater uses and ecological receptors.

A. At the completion of site characterization activities, EPA will evaluate the need to issue a Corrective Action Permit or Order to the Facility.

B. Under certain circumstances' implementation of Interim Measures may achieve the final remedial goals. In that case, EPA will public notice a tentative determination and solicit comment prior to making a final Agency determination regarding final corrective action remedies at the Facility.

IV. CERTIFICATION

Reports specified in Section II. F.1.b, Section II.F.1.c and Section II.F.1.d, when submitted to EPA and the State, shall be certified by a "responsible corporate officer1." The Facility agrees to provide the certification in the following form:

I certify that the information contained in this Report is true, accurate, and complete. As to [the/those identified portion(s)] of this [type of submission] for which I cannot personally verify [its/their] accuracy, I certify that this Report and all attachments were prepared in accordance with procedures 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, or the immediate supervisor of such person(s), the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Name: Title: Signature :

Footnote: 1. A "responsible corporate officer" means: (a) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or (b) the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. A person is a "duly authorized representative" only if: (1) the authorization is made in writing by a person described above; and (2) the authorization specifies either an individual or position having responsibility for overall operation of the regulated facility or activity (a duly authorized representative may thus be either a named individual or any individual occupying a named position).

V. SAMPLING AND DATA/DOCUMENT AVAILABILITY AND PRESERVATION

A. The Facility shall submit to EPA the results of all sampling and/or tests or other data generated by, or on behalf of, Facility.

B. At the request of EPA, the Facility shall provide or allow EPA or its authorized representatives to take split or duplicate samples of all samples collected by Facility pursuant to this Agreement. The Facility agrees not to limit access to the property or otherwise affect EPA's authority to collect samples pursuant to applicable law, including, but not limited to, RCRA and CERCLA.

C. The Facility may assert a business confidentiality claim covering all or part of any information submitted to EPA pursuant to this Agreement in the manner described in 40 C.F.R. § 2.203(b). The Facility shall not assert any confidentiality claim with regard to any physical, sampling, monitoring, or analytical data.

D. Commencing on the date the Letter of Commitment is submitted to EPA, the Facility agrees that it shall preserve and make available to EPA for inspection and copying, all data, records and documents in its possession or in the possession of its divisions, officers, directors, employees, agents, contractors, successors, and assigns which relate in any way to this Agreement or to hazardous waste management and/or disposal at the Facility.

VI. RESERVATION OF RIGHTS

A. EPA reserves all of its statutory and regulatory powers, authorities, rights, and remedies, both legal and equitable, which may pertain to the Facility's activities. This Agreement shall not be construed as a covenant not to sue, release, waiver, or limitation of any rights, remedies, powers, and/or authorities, civil or criminal, which EPA has under RCRA, CERCLA, or any other statutory, regulatory, or common law authority of the United States.

B. EPA reserves the right to disapprove work performed by the Facility pursuant to this Agreement and to request or direct that Facility perform additional tasks.

C. EPA reserves the right to require or to perform any portion of the work consented to herein or any additional site characterization, feasibility study, and remedial work as it deems necessary to protect human health and/or the environment. EPA may exercise its authority under CERCLA to undertake response actions at any time. EPA reserves its right to seek reimbursement from the Facility for costs incurred by the United States. Notwithstanding compliance with the terms of this Agreement, the Facility is not released from liability, if any, for the costs of any response actions taken or authorized by EPA.

D. If EPA determines that activities undertaken pursuant to this Agreement have caused or may cause a release of hazardous waste or hazardous constituent(s), or a threat to human health and/or the environment, or that the Facility is not capable of undertaking the work agreed upon, EPA may order the Facility to stop further implementation of activities undertaken pursuant to this Agreement for such period of time as EPA determines may be needed to abate any such release or threat and/or to undertake any action which EPA determines is necessary to abate such release or threat.

E. EPA and the Facility acknowledge and agree that EPA's approval of any Statements of Work (SOWs) or any workplan submitted pursuant to this Agreement does not constitute a warranty or representation that the SOWs or workplans will achieve the required cleanup or performance standards. Compliance by the Facility with the terms of this Agreement shall not relieve it of its obligations to comply with RCRA or any other applicable local, state, or federal laws and regulations.

F. Notwithstanding any other provision herein, no action or decision by EPA pursuant to this Agreement, including without limitation, decisions of the Regional Administrator, the Director of the Waste and Chemicals Management Division, or any authorized representative of EPA, shall constitute final agency action giving rise to any right of judicial review prior to EPA's initiation of an enforcement action, including an action for penalties or an action to compel the Facility's compliance with RCRA.

G. Notwithstanding any other terms or conditions in this Agreement, EPA may decide to issue a Corrective Action Permit or Order to the Facility at any time.

H. Indemnification: The Facility agrees to indemnify and save and hold harmless the United States government, its agencies, departments, agents, and employees, from any and all claims or causes of action arising from or on account of acts or omissions of the Facility or its officers, employees, agents, independent contractors, receivers, trustees, and assigns in carrying out activities required by this Agreement. This indemnification shall not be construed in any way as affecting or limiting the rights or obligations of the Facility or the United States under their various contracts. The Facility shall not be responsible for indemnifying the EPA for claims or causes of action solely from or on account of acts or omissions of EPA.

VII. OTHER APPLICABLE LAWS

All actions shall be undertaken in accordance with the requirements of all applicable local, state, and federal laws and regulations. The Facility shall obtain or require its authorized representatives to obtain all permits and approvals necessary under such laws and regulations.

VIII. NOTICE OF NON-LIABILITY OF EPA

EPA shall not be deemed a party to any contract involving the Facility and relating to activities at the Facility and shall not be liable for any claim or cause of action arising from or on account of any act, or the omission of the Facility, its officers, employees, contractors, receivers, trustees, agents or assigns, in carrying out the activities required by this Agreement.

IX. EFFECTIVE DATE

The effective date of this Agreement is the date of the Letter of Commitment submitted by the Facility to EPA.