

SOLID WASTE MANAGEMENT UNITS AND CORRECTIVE ACTION

US ECOLOGY NEVADA

March 2010

SECTION 14
SOLID WASTE MANAGEMENT UNITS AND CORRECTIVE ACTION
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SECTION 14

SOLID WASTE MANAGEMENT UNITS AND CORRECTIVE ACTION

14.1.0 CORRECTIVE ACTION CHRONOLOGY

ARCRA Facility Investigation (RFI) was started at US Ecology Nevada in 1986 and was completed with the submittal of the Final RFI Report in 1998 (USEN, 1998a). A brief summary of the RFI process is presented below.

In 1986, the U.S. Environmental Protection Agency (EPA) Groundwater Task Force (GWTF) determined that the construction and location of a monitoring well (MW-307) created a potential pathway of increased permeability (USEN, 1987). The GWTF also determined that a number of shallow wells (labeled as 100 series) provided additional vertical conduits for potential liquid or vapor migration.

In 1987, the Jacobs Engineering Group performed a RCRA Facility Assessment (RFA) for the EPA (EPA, 1986). The RFA identified six (6) solid waste management units (SWMUs) associated with the hazardous waste management facility (HWMF). The SWMUs consisted of the following areas:

- Inactive Chemical Disposal Trenches #1-9
- Inactive Waste Pile
- Polychlorinated Biphenyl (PCB) Cell #10
- PCB Draining and Flushing Area
- Truck Washing Pad
- Radioactive Disposal Cells #9-22

In 1988, USEN started the actual RFI work. The company installed additional groundwater monitoring wells in the upper and lower water-bearing zones (Mark Group, 1989).

In 1990, USEN received approval for its RFI Workplan (USEN, 1990) and further RFI work characterized the nature and extent of potential hazardous constituents in the soil, soil vapor, and groundwater. Soils were sampled in the vicinity of the PCB Draining and Flushing Processing Area (EMCON, 1994), wells were installed to characterize the lower water-bearing zone, and vadose zone wells were installed to test for vapors in areas of dry soils. (Geraghty and Miller, Inc., 1990; 1991a, 1991b). An RFI Report was submitted to the Nevada Division of Environmental Protection (NvDEP) on April 13, 1992, discussing the findings of the investigation (USEN, 1992). The report evaluated potential releases to air, soil, surface water, subsurface gas and groundwater from the identified SWMUs, and the associated nature, extent and rate of migration.

In 1994, additional soil gas samples were obtained from the vadose zone. Vapor samples were also obtained from the air/water interface in the 300-series wells. The results of the sampling event indicated volatile organics were found in the vapor in all 300-series monitoring wells, including up-gradient well MW-313 (Camp, Dresser, and McKee, 1995).

In 1995, the Interim Measures Plan (IMP) (Camp, Dresser, and McKee, 1996) was developed to deal with hazardous constituents detected in the groundwater above the statistically significant level, at point-of-compliance (POC) wells MW-312 and MW-315. During Phases I and II of the IMP, three (3) wells and two (2) piezometers were installed and sampled: MW-312A, MW-315A, MW-323, B96-1 and B96-2.

In March 1998, a Current Conditions Report (CCR) was prepared and submitted to NvDEP. NvDEP review comments were incorporated into the Final CCR, Revision 1, submitted September 30, 1998, and the document was approved on December 1, 1998, by NvDEP (USEN, 1998b).

The CCR reviewed the site history, and included information on chemical wastes that were disposed in unlined cut-and-fill trenches until 1985. The CCR described existing information pertinent to the HWMF including operations, processes, waste management, geology, hydrogeology, contamination, migration pathways, potential receptor populations, and interim corrective measures, and the CCR included a natural resource damage assessment summary.

In April 1998, the supplemental RFI Workplan, Revision 0, was prepared and submitted to the NvDEP. The workplan supplemented data gathered during the 1990 RFI, and met additional data needs identified in the CCR. As required by the facility permit (NvDEP, 1998), a Corrective Action Plan (CAP) also was prepared and submitted to the NvDEP in July 1998 (USEN, 1998c).

USEN incorporated NvDEP comments, and submitted the supplemental 1998 RFI Workplan, Revision 1, in November 1998 (USEN, 1998d). The 1998 RFI Workplan, Revision 1, included a modification to the methods of purging and sampling of groundwater to gather evidence in support of the conceptual contaminant migration model presented in the CCR. Sufficient information was available regarding extent and migration of constituents in the subsurface (vadose zone and groundwater) to complete the RFI process. The resulting report from the implementation of the 1998 RFI Workplan, Revision 1 (USEN, 1998d), was the 1998 RFI Report, Revision 1 (USEN, 1998a), which presented the results of the 1998 RFI and a summary of the 1992 RFI Report (USEN, 1992).

- The RFI process identified two SWMUs as the most probable sources of groundwater and soil gas contamination. This contamination is probably caused by liquids contained in pre-RCRA Chemical Trenches 1-9 and Chemical Trench 10. Observed vadose zone and groundwater contamination is a result of diffusive migration of soil gas, potentially enhanced by man-made, preferential pathways created by exploratory borings and monitoring wells on site. The 1998 RFI Report (USEN, 1998a) concludes that neither the vadose zone nor groundwater contamination represent an immediate hazard to human health or the environment. The four (4) other SWMUs identified in the 1987 RFA (EPA 1986) were determined to not be current contaminant sources and these units are not expected to become sources of contamination in the future. The remaining units are the Inactive Waste Pile, the PCB Draining and Flushing Area, the Truck Washing Pad and the Radioactive Disposal Cells #9-22.

14.1.1 Current Status of SWMUs

USEN closed inactive SWMUs in accordance with Permit requirements. The identification of each SWMU and its current status is listed in Table 1-1. Letters and other documentation of closure are included in Attachment A.

SWMUs	Status
Inactive Chemical Disposal Trenches #1-9	Closed
Cell #10	Closed
Cell #11	Active
Cell #12	Active
PCB Draining and Flushing Area (PCB Building)	Active
Truck Washing Pad and Evaporative Tank	Active
Radioactive Disposal Cells #9-22	Closed (December 1997)
Terminator (Waste Stabilization Pug Mill)	Closed (August 2001)
Sodium and Potassium Persulfate Fire SWMU	Closed (December 1996)
Batch Stabilization Tanks 1, 2, 3, 4, and 5	Active
Waste Consolidation and Storage Areas 1 and 2	Active
Dry Hazardous Waste Disposal Areas 1 and 2	Active
Low Temperature Thermal Desorption Unit	Closed (2010)
Dry Hazardous Waste Storage Areas 3 and 4	Future
Container Management Storage Building	Active

14.2.0 CORRECTIVE MEASURES STUDY

Corrective Action identifies and evaluates alternatives to mitigate and/or remediate releases of hazardous waste or hazardous constituents that potentially pose a threat to human health and the environment. A Corrective Measures Study (CMS) Report was submitted to the NvDEP during April 2003. The CMS considered exposure pathways, future facility use, and technical limitations as site-specific characteristics. A CMS Work Plan (USEN, 1999) was approved and implemented in 1999 to address detection of some volatile organic compounds (VOCs) detected in several groundwater monitoring wells. The CMS Work Plan included a pilot study of a soil vapor extraction (SVE) system and venting of selected groundwater monitoring wells, as well as increased air, soil gas, and groundwater monitoring activities.

Removing vapors from the vadose zone is the recommended corrective measure for the facility. Soil Vapor Extraction (SVE) removes VOCs from the vadose zone and promotes their natural attenuation. The SVE pilot project concluded that operating an SVE well system would reduce soil gas contamination and impacts to groundwater.

As part of the CMS, several monitoring wells were examined and determined to provide a pathway for downward migration of waste constituents. In order to protect groundwater beneath the site from vadose zone contamination, USEN and the NvDEP agreed to remove 11 monitoring wells and install nine (9) replacement wells. A three (3) phase well abandonment and installation work plan was approved by the NvDEP in October 2002. Phase I of the well abandonment and installation work began in January 2003. Five (5) monitoring wells were installed and nine (9) wells were plugged and abandoned by May 2003. Phase I well installations included two (2) additional background wells. Phase II requires installing four

(4) monitoring wells along the western facility boundary during 2004. Phase III requires plugging and abandoning two (2) additional wells along the western facility boundary for monitoring the LLRW Disposal Facility. Phase III will occur after four (4) quarters of sampling the Phase II wells.

Groundwater continues to be monitored to assess the effectiveness of the pilot study.

14.3.0 CORRECTIVE ACTION SCHEDULE

Corrective action has been on-going at the facility since 1987, starting with the closing of monitoring wells and vadose zone "dry wells," which created a contaminant migration pathway. Since then, interim measures have been in effect with the installation of additional monitoring locations and inspection of monitoring well integrity.

Field activities related to the CMS began in March 1999. As part of the CMS, a pilot study SVE system was installed. The pilot SVE well has been running continuously since installation, and has been effective in removing waste constituents from the soil gas. USEN ended the CMS in 2002, and submitted the results of the study to the NVDEP in April 2003.

14.4.0 REFERENCES

Individual reports have been submitted to NVDEP relative to SWMUs. These documents are extensive, and include:

Camp, Dresser, and McKee, 1995. *1994 Vadose Zone Sampling Summary Report*.

Camp, Dresser, and McKee, 1996. *US Ecology, Beatty Facility Interim Measures Plan, Phase I and II*.

EMCON, 1994. *Corrective Measures Study, PCB Draining and Flushing Area, US Ecology Landfill, Beatty, Nevada*.

Geraghty and Miller, Inc., 1990. *Abandonment of Five Groundwater Monitoring Wells at the US Ecology, Inc., Beatty, Nevada Facility Chemical Site*.

Geraghty and Miller, Inc., 1991a. *Drilling and Installation of Six Monitoring Wells at the US Ecology, Inc., Beatty, Nevada Facility Chemical Site*.

Geraghty and Miller, Inc., 1991b. *Drilling, Sampling, and Installation of Two Monitoring Wells at the US Ecology, Inc., Beatty, Nevada Facility Rad Site*.

Mark Group, 1989. *Exploratory Boring and Monitoring Well Installation Program, US Ecology RCRA Facility, Beatty, Nevada*. 2 Volumes. Prepared for US Ecology.

NDEP, 1998. *Beatty, Nevada Hazardous Waste Management Facility Permit*. HW Permit NEV HW0011, Rev. 1, April 1997.

US Ecology, 1987. *Monitoring Well 307 Evaluation*.

US Ecology, 1990. *RCRA Facility Investigation Workplan, US Ecology, Beatty, Nevada Facility, Permit # NEV HW002*.

US Ecology, 1992. *RCRA Facility Investigation Report, US Ecology, Beatty, Nevada Facility, Permit # NEV HW002.*

US Ecology, 1995. *Corrective Action Plan, Beatty, Nevada Facility Permit # NEV-HW002.*

US Ecology, 1998a. *RCRA Facility Investigation Report, Revision 1, submitted to NDEP December 20, 1998.*

US Ecology, 1998b. *Current Conditions Report for US Ecology's Hazardous Waste Management Facility, Located near Beatty, Nevada, HW Permit NEV HW0011.*

US Ecology, 1998c. *Corrective Action Plan, Beatty, Nevada Facility Permit # NEV-HW002.* Submitted to NDEP July 20, 1998.

US Ecology, 1998d. *RCRA Facility Investigation Workplan, Revision 1.* Submitted to NDEP November 20, 1998.

US Ecology, 1999. *Corrective Measures Study.* Submitted to NDEP February 8, 1999.

US Ecology, 2003. *Corrective Measures Study Report.* Submitted to NvDEP April 7, 2003.

U.S. EPA, 1986. *Groundwater Task Force Report, Beatty, Nevada Facility*

ATTACHMENT A
LETTERS AND DOCUMENTATION OF SWMU CLOSURES

ALLEN BILGGL *Administrator*

STATE OF NEVADA

R. MICHAEL TURNIPSEED, *Director*

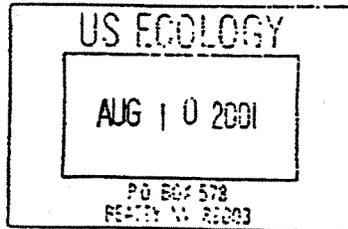
(775) 657-4650

P 657-4678

Administration
Facsimile 657-5556

Water Pollution Control
Facsimile 657-4654

Mining Regulation and
Reclamation
Facsimile 654-5259



KENNY C. GUINN
Governor



Waste Management
Corrective Actions
Federal Facilities

Air Quality
Water Quality Planning

Facsimile 657-6296

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL PROTECTION

333 W. Nye Lane, Room 138

Carson City, Nevada 89706

Mr. Jim Hancock
Facility Manager
US Ecology
PO Box 578
Beatty, Nevada 89003

August 3, 2001

Subject: Class 2 Permit modification to Permit NEVHW0011 (Permit) to include a "Low Temperature Thermal Desorption Unit" (LTTD Unit) and a Class one (1*) modification to include two (2) Dry Hazardous Waste Storage Areas.

Reference(s): Class II Permit Modification Request of 3/8/2000 (Temporary Authorization request 40 CFR 270.42(e)(2)(ii), and related correspondence [7/21, 9/26, 10/31, 11/6/2000, 2/9, 3/30, 6/19/2001] Ltr(s) Taguchi to Denison. And, Class 1* request of 7/13, 2001 for the Dry Hazardous Waste Storage Area.

Dear Mr. Hancock:

The Division approves the Modification request pursuant to §§270.42(b)(6). Please note that the new section replaces the section previously occupied by the "Terminator." Please find enclosed the modified section(s) and revise your copy accordingly. As no comments were submitted in response to the Public Notice of 11/3/2000, the Division has modified accordingly and has included such terms as are protective of human health and the environment. Please note, this Unit is currently undergoing a Performance Assessment phase, and will likely be subject of additional and/or more stringent conditions upon further review. Upon receipt of this letter US Ecology shall provide written notification to the facility mailing list to satisfy the requirement of 40 CFR 270.42(a) for the DHWSAs.

The Division has previously established the regulatory criteria under which this Unit shall be permitted (5/22/01 Ltr Taylor to Taguchi). Please provide a revised Application addressing the items below, minus the documents itemized in Section VI.A.2 of the Permit. Please be aware that no treatment of waste subject to Subpart AA, BB or CC may take place until such time as US Ecology has implemented the monitoring requirements of Section VI.C. Prior to treatment of this waste please notify the Division of the implementation of the monitoring requirements of this section.

As US Ecology has elected to proceed with incorporating the LTTD Unit into the current Part B Application rather the Permit due in October, please provide the following by August 31, 2001.

1. A Complete and Updated Part A Application, particularly with respect to the LTTD Unit.
-Please, exclude the wastes that are restricted by Permit Section VI.B, in the X03 Unit description.

Mr. Jim Hancock
Facility Manager
JS Ecology
August 3, 2001
Page 2

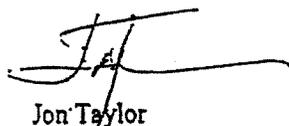
2. The Tank Assessment Report and detailed piping diagram, showing monitoring points, installed gauges, instrumentation etc. Also, please include a listing of all monitoring equipment, used to comply with the Permit requirements.
3. A resubmitted Application with respect to the LTTD and DHWSAs, without strikeouts and underlines. US Ecology has also indicated the need to "resize" the waste, and/or use a "cement" mixer in some cases. Please include these items with full descriptions and controls in the application.
4. Please provide plot plans showing all permitted structures for both the LTTD Unit and DHWSAs at a scale of 1" = 10'. Also as discussed with Mr. Hancock and Ms. Taguchi during a Division site visit, an example management plan meeting the examples of 40 CFR § Appendix V for the DHWSA. Example plot plan should explain and show graphically how incompatible wastes would be managed in the DHWSA.
5. Please provide analytical results for the wastes that have been treated in the LTTD to date. This should include all the analytical for both pre and post treatment.

US Ecology has made various reference to "resizing" of waste. The Division has explained that this Unit may not be used (without controls) for any waste over 500 ppm VOC. Please be aware the Division has restricted any pretreatment of waste (Section VI.A.1.c.1) associated with the LTTD, until the pretreatment unit has appropriate controls placed on it.

The Division approves the closure of the "Terminator," as submitted in April of 2000. US Ecology may consider the Unit approved for closure by the Division without comment.

Please direct inquiries to the undersigned at (775) 687-4670 or jtaylor@govmail.state.nv.us, ext. 3005.

Sincerely,



Jon Taylor
Staff Engineer
RCRA Facilities Branch
Bureau of Waste Management

JT:map

cc:

w/o enc:

as stated
Charles A. White, Dir. of Reg. Affairs, 915 L St. Ste 1430, Sacramento, CA 95814
Mike Elges NDEP/BAQ
Frank Mabry NDEP/LV
USE file

US Ecology, Inc.
P.O. Box 578
Sandy, Nevada 89002

800/228-3948
702/553-2288
Fax: 702/553-2742

USEcology, Inc.

an American Ecology company

March 20, 1998

Mr. Jeffrey Denison
Waste Management Bureau
Nevada Division of Environmental Protection
333 West Nye Lane
Carson City, NV 89706

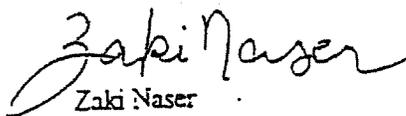
RE: Permit No. NEV-HW0011; Permit Condition XIV.D.5

Dear Mr. Denison:

Attached is the final PCB Draining and Flushing SWMU Closure Report documenting the remediation activities performed at the PCB Building. US Ecology believes that the corrective action for the PCB Draining and Flushing area has been completed. As the attached report indicates, the cleanup measures have met and exceeded the requirements of the CMS.

Should you have any questions, do not hesitate to contact me or Lori Taguchi at (702) 553-2033.

Sincerely,



Zaki Naser
General Manager

Without Attachments:
Joe Nagel, Corporate Office

- Certification

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.

Signature: _____

Zaki Nazer

Date: _____

3-20-98

USEcology

an American Ecology company

August 8, 1997

Mr. Jeffrey Denison
Waste Management Bureau
Nevada Division of Environmental Protection
333 West Nye Lane
Carson City, NV 89706-0851

RE: Permit NEV HW0011, Part XIII.A, Part XII.E.1.a and Part XIII.E.2

Dear Mr. Denison:

The purpose of this letter is to provide operator/permittee certification of closure for Trench 10 at US Ecology's Beatty Facility in accordance with Permit Condition XIII.E.2.a.

In addition, this is to certify that the requirements in Permit Conditions XIII.E.2.a and b for Trench 10 were recorded at the Nye County Recorder's Office in accordance with Nevada Law. This submittal (Record of Survey, Map 301884, Trench 10) was recorded with Nye County on January 28, 1992. US Ecology has requested that the Nye County Recorder's Office provide the NDEP with a copy of the submittal (see attached letter to Nye County Recorder).

If you have any questions, please do not hesitate to contact me at (800) 239-3943.

Sincerely,



Zaki Naser
General Manager

cc: Joe Nagel

Certification

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.

Signed:

Zaki Nazari

Date:

8.8.97

BOB MILLER
Governor

STATE OF NEVADA

CHARLOTTE CRAWFORD
Director



YVONNE SYLVA
Administrator
VACANT
State Health Division

DEPARTMENT OF HUMAN RESOURCES
HEALTH DIVISION

505 E. King Street, Room 201

Carson City, Nevada 89701-4797

Telephone: (702) 687-4740 • Fax: (702) 687-3859

December 30, 1997

Joe Nagel, CEO
US Ecology, Inc.
American Ecology Corporation
120 Franklin Road
Oak Ridge, TN 37830

Re: Nevada Radioactive Material License No. 13-11-0043-02

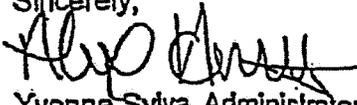
Dear Mr. Nagel:

Enclosed is Amendment No. 17 to Nevada Radioactive Material License No. 13-11-0043-02. This amendment transfers the license to the State of Nevada, Department of Human Resources, Health Division, Bureau of Health Protection Services.

The radioactive waste disposal area of U.S. Ecology's Beatty, Nevada facility, including the security fence immediately surrounding the area, is now under Nevada State Health Division authority. All questions or concerns regarding this area are to be directed to the Radiological Health Section, Bureau of Health Protection Services, Nevada State Health Division, 1179 Fairview Drive, Suite 102, Carson City, Nevada, 89701-5405; phone (702) 687-5394 x 276.

A copy of a letter dated December 18, 1997 from the Texas Commerce Bank is also enclosed. The letter concerns transfer of the \$842,000 performance bond to the Nevada Division of Environmental Protection in conjunction with this licensing action.

Sincerely,


Yvonne Sylva, Administrator
Nevada State Health Division

Enclosure

cc: Stanley Marshall, Supervisor, Radiological Health Section
Alan Tinney, Chief, Bureau of Health Protection Services

NEVADA STATE HEALTH DIVISION
RADIOACTIVE MATERIAL LICENSE
SUPPLEMENTARY SHEET

License Number 13-11-0043

Amendment No. 17

US Ecology, Inc.
American Ecology Corporation
120 Franklin Road
Oak Ridge, TN 37803

In accordance with letter dated January 13, 1997 signed by Mark Cade, and letter dated September 1997 signed by Joe Nagel, Nevada Radioactive Material License No 13-11-0043-02 is transferred to the State of Nevada, Department of Human Resources, Health Division, Bureau of Protection Services.

December 30, 1997

Yvonne Sylva ASD III FOR:
Yvonne Sylva, Administrator
Health Division

PETER G. MORROS, Director
L.H. DODGION, Administrator

(702) 687-4670
DD 687-4678

Administration
Mining Regulation and Reclamation
Water Pollution Control
Facsimile 687-5856

Address Reply to:
Capital Complex
Carson City, NV 89710

STATE OF NEVADA
BOB MILLER
Governor



US ECOLOGY
DEC 16 1996
BEATTY, NV

Waste Management
Corrective Actions
Federal Facilities
Air Quality
Water Quality Planning
Facsimile 687-6396

Located at:
223 W. Nye Lane
Carson City, NV 89710

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL PROTECTION

Capitol Complex
Carson City, Nevada 89710
December 9, 1996

ZAKI NASER
FACILITY & ENVIRONMENTAL MANAGER
US ECOLOGY
PO BOX 578
BEATTY NV 89003

RE: SODIUM AND POTASSIUM PERSULFATE FIRE SWMU REPORT DATED APRIL 1,
1996

Dear Mr. Naser:

NDEP has reviewed the above document and agrees with the findings contained therein. No further action is required for the affected area due to the release of the chemical stabilization reagents sodium and potassium persulfate.

~~Please contact me with any questions regarding this letter. I can be reached at (702) 687-4670, ext. 3005.~~

Sincerely,

A handwritten signature in black ink, appearing to read "Catherine R. Pool".

Catherine R. Pool, P.E.
RCRA Permitting Branch
Bureau of Waste Management

CRP:gf

Enclosure

cc: Don Brady, American Ecology, Houston
Jeffrey C. Dension, NDEP