



COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
SOUTHEAST REGIONAL OFFICE
20 RIVERSIDE DRIVE, LAKEVILLE, MA 02347 (508) 946-2700



[Handwritten mark]

MITT ROMNEY
Governor

STEPHEN R. PRITCHARD
Secretary

KERRY HEALBY
Lieutenant Governor

ROBERT W. GOLLEDGE, Jr.
Commissioner

November 2, 2005

Douglas Cote
58 North Main Street
Berkley, Massachusetts 02779

RE: BERKLEY--BWSC/ASM
Bogs Landing
Off North Main Street
RTN# 4-11247
NOTICE OF AUDIT FINDINGS/
NOTICE OF NONCOMPLIANCE
NON-SE-05-3A-048

*This is an important Notice.
Respond promptly to any requests it contains.
Failure to respond to any such requests could result in serious legal consequences.*

Dear Mr. Cote:

On August 16, 2005, the Massachusetts Department of Environmental Protection, Bureau of Waste Site Cleanup (the Department) received a Phase II-Comprehensive Site Assessment, Method 1 Risk Characterization & Class A-2 Response Action Outcome report prepared for K&B Realty Trust of Lakeville, Massachusetts by Environmental Strategies & Management, Inc. (ES&M) for the above-referenced site.

The Department has completed a file review audit of the documentation contained within the report. The purpose of this Notice is to inform you of the results of the Department's audit.

DETERMINATION

As a result of the audit, the Department has determined that response actions were not performed in compliance with the requirements of the Massachusetts Contingency Plan (MCP). Violations were identified that require additional actions to be taken under the supervision of a Licensed Site Professional (LSP) in order to come into compliance with the MCP. A Notice of Noncompliance (Attachment A) lists the identified violation(s) that require further action at this time. The Audit Memorandum (Attachment B) describes the activities Department personnel performed during the audit and summarizes relevant information.

This information is available in alternate formats. Call Dana M. Caputo, ADA Coordinator at 617-654-1057. TDD Service - 1-800-325-2267.

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**NOTICE OF AUDIT FINDINGS
AND NOTICE OF NONCOMPLIANCE**

The activities that are in noncompliance and the actions the Department wants you to take to come into compliance are described in the Notice of Noncompliance (Attachment A). The Notice of Noncompliance describes: (1) each activity identified during the audit which is in noncompliance, (2) the requirements violated, (3) the action the Department now wants you to take, and (4) the deadline for taking this action. An administrative penalty may be assessed for every day from now on that you are in noncompliance.

You do not need further Department approval to take the actions the Department has specified. However, to avoid further enforcement actions, you must complete the additional actions and submit a Post-Audit Completion Statement in accordance with 310 CMR 40.1170. The Post Audit Completion Statement shall be submitted on a form established by the Department to the attention of Rebecca Walsh, by no later than sixty (60) days from receipt of this Notice. A copy of the Post Audit Completion Statement (BWSC-111) can be found at <http://www.state.ma.us/dep/bwsc/files/forms/trforms.htm>.

If you fail to correct the violations within the specified deadline, the Department may invalidate the RAO submittal and amend its records accordingly. If the RAO cannot be supported, you must submit an RAO Retraction as further explained in Attachment A. You will be billed an Annual Compliance Fee (ACF) for each billable year until and including the year that an RAO Statement for the entire disposal site is submitted.

LICENSED SITE PROFESSIONAL (LSP)

A copy of this notice has been sent to Douglas A. Heely, the LSP-of-Record for the disposal site. However, you, not your LSP, are responsible for responding to this Notice of Noncompliance and correcting the violations identified therein.

LIMITATIONS & RESERVATION OF RIGHTS

The Department's findings were based on the certainty of the information reviewed during the audit. These findings do not: (1) apply to actions or other aspects of the site that were not reviewed in the audit, (2) preclude future audits of past, current, or future actions at the site, (3) in any way constitute a release from any liability, obligation, action or penalty under M.G.L. c. 21E, 310 CMR 40.0000, or any other law, regulation, or requirement, or (4) limit the Department's authority to take or arrange, or to require any Responsible Party or Potentially Responsible Party to perform, any response action authorized by M.G.L. c. 21E which the Department deems necessary to protect health, safety, public welfare, or the environment.

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NOTICE OF AUDIT FINDINGS
AND NOTICE OF NONCOMPLIANCE

If you have any questions regarding this Notice, please contact Rebecca Walsh at (508) 946-2869. Please reference Release Tracking Number RTN 4-11247 and Enforcement Tracking Number NON-SE-05-3A-048 in any future correspondence to the Department regarding the site.

Sincerely,

*Mark E. Wood for*Deborah A. Marshall, Chief
Audits and Site Management SectionM/RW/rt
NOAF 4044-11247.naf

CERTIFIED MAIL # 7004 1350 0004 4566 0108

Attachments:

- A. Notice of Noncompliance
- B. Audit Memorandum

to: Berkley Board of Selectmen
Berkley Board of Health
(508) 822-3511

cc: Douglas A. Heely, LSP-of-Record
Environmental Strategics & Management, Inc.
184 West Main Street
Norton, MA 02766

K&B Realty Trust
c/o Shepard Johnson
Shepard Johnson & Associates, Inc.
628 Pleasant Street, Suite 428
New Bedford, MA 02740

cc: DEP-Boston
Thomas M. Potter, Audit Coordinator

DEP-SERO
Richard Packard, Emergency Response Chief
Regional Enforcement Office- 2 copies
Data Entry: RAOACTAUD, AUDCOM/NAFNON

Bogs Landing, Berkley, 4-11247

Notice of Noncompliance

Attachment A

NOTICE OF NONCOMPLIANCE
NON-SE-05-3A-048LSP of Record: Douglas Healy

ENTITY IN NONCOMPLIANCE:

Douglas Cote
58 North Main Street
Berkley, Massachusetts 02779

LOCATION WHERE NONCOMPLIANCE OCCURRED OR WAS OBSERVED:

Bogs Landing
Off North Main Street
Berkley, Massachusetts 02779

DATE(S) WHEN NONCOMPLIANCE OCCURRED OR WAS OBSERVED:

August 16, 2005 (date RAO was received)

DESCRIPTION OF ACTIVITY IN NONCOMPLIANCE:

1. The laboratory reporting limits of some of the dioxin congeners exceeded the applicable Method 1 GW-1 standards. This is a violation (Class II) of 310 CMR 40.0017(1).
 2. A draft Environmental Protection Agency (EPA) Toxicity Equivalency Factor (TEF) was used to calculate the Toxicity Equivalency Concentration (TEQ) for octochlorinated dibenzo-p-dioxin (OCDD) in lieu of the Department's Office of Research and Standards TEF value. This is a violation (Class II) of 310 CMR 40.0191(2).
 3. One Exposure Point Concentration (EPC) was calculated for chromium and one EPC was calculated for dioxin in soil for the site using eight dioxin soil concentrations and 511 chromium concentrations, respectively. (The chromium EPC combined data from x-ray fluorescence (XRF) and laboratory analyses.) This is a violation (Class II) of 310 CMR 40.0926(3).
 4. Given the miscalculated dioxin concentrations in soil, a re-evaluation for dioxin hot spots is warranted. In addition, a re-evaluation for chromium hot spots in soil is warranted.
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Notice of Noncompliance

given the miscalculated chromium EPC. This is a violation (Class II) of 310 CMR 40.0924(2).

5. During the EPA removal action from May 1998 to January 2000, impacted soil was removed from the wetland area on the northern portion of the site. However, a Stage I Environmental Screening was not conducted. This is a violation (Class II) of 310 CMR 40.0941 and 40.0942.

DESCRIPTION OF REQUIREMENT(S) NOT COMPLIED WITH:

1. Pursuant to 310 CMR 40.0017(1), analytical data used in support of recommendations, conclusions or LSP Opinions shall be scientifically valid and defensible and a level of precision and accuracy commensurate with its stated or intended use.
2. Pursuant to 310 CMR 40.0191(2), the use of relevant policies and guidelines issued by the Department shall be employed during the performance of response actions conducted pursuant to 310 CMR 40.0000.
3. Pursuant to 310 CMR 40.0926(3), in determining or estimating an Exposure Point Concentration, the objective shall be to identify a conservative estimate of the arithmetic mean concentration which represents the average concentration contacted by a receptor at the Exposure Point over the period of exposure.
4. Pursuant to 310 CMR 40.0924(2), hot spots shall be considered distinct exposure points.
5. Pursuant to 310 CMR 40.0942(1), if oil or hazardous materials is present in or is likely to migrate at potentially significant concentrations to an environmental medium in addition to groundwater and soil, then Method 1 alone shall not be used to characterize the risk at the disposal site.

DESCRIPTION OF DEADLINES(S) OF ACTION TO BE TAKEN:

Within sixty (60) days of the receipt of this Notice you must:

1. Submit a revised RAO Statement that addresses the violations in this NON and complies with the requirements of the MCP, or;
2. Retract the existing RAO Statement, and submit a Tier Classification Submittal pursuant to 310 CMR 40.0500, and, if applicable, a Tier 1 permit application.

If you fail to take either one of those actions within the specified deadline, this site may default to a Tier 1D site and you may be assessed a Tier 1D Annual Compliance fee of \$4,000. In addition, you may be required to pay compliance fees until an RAO in compliance with the MCP, has been achieved.

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Notice of Noncompliance

The Annual Compliance Fee (ACF) will be assessed based upon the Tier Classification and applicable fee category of the site on the next annual status date. If the site has not been Tier Classified, you may also need to submit a Tier Classification submittal in accordance with 310 CMR 40.0510. If the site is not Tier Classified on the next annual status date, you will be assessed a Tier ID ACF of \$4,000. If response actions are not completed within five years of the effective date of Tier Classification, you must submit an extension pursuant to 310 CMR 40.0560 or 40.0706.

If you fail to correct the violations identified above and provide documentation of such action to the Department, you may be subject to enforcement action by the Department. The Department may conduct a follow-up audit to determine whether the required actions have been taken. If the Department finds that the violations and deficiencies have not been corrected, then the Department may issue a Notice of Intent to take Response Actions (NORA), Administrative Consent Order, Unilateral Order, or seek Judicial Judgment, as appropriate. You may also be subject to cost recovery under 310 CMR 40.1200 for failure to perform response actions at the disposal site.

Bogs Landing, Berkley, 4-11247

Audit Memorandum

Attachment B

AUDIT MEMORANDUM

I. AUDIT ACTIVITIES

The audit consisted of the following activities:

- an examination of the August 16, 2005 RAO report, and;
- preparation of this Notice of Audit Findings.

II. SITE SUMMARY

According to the RAO report, the "Site" is an approximate 14-acre portion of a 72.2-acre parcel of undeveloped land off North Main Street in Berkley, Massachusetts. A due diligence investigation was conducted in 1995, and in March 1995 the Department was notified that waste had been historically disposed on a portion of the property. Subsequent investigations identified tannery waste and soil containing various chemicals related to tannery wastes on six-acres within the 14-acre Site. Tannery and cesspool wastes were reportedly dumped on a portion of the property from the 1930s to the mid-1960s. For the purposes of the RAO report, the consultant has defined the Bogs Landing Disposal Site as the 14-acre area to provide a buffer between the historic waste disposal area and the remainder of the property.

The United States Environmental Protection Agency (EPA), the Department, and their contractors completed numerous investigations to identify the contaminants of concern on a six-acre portion of the Bogs Landing site. These investigations identified several metals, pentachlorophenol and dioxins in the waste. However, the primary contaminants of concern were identified to be chromium, because it was present in much higher concentrations than other metals, and dioxin, because the regulatory standards for this class of compounds are so low. A brief summary of the investigations and remedial actions conducted at the Site as excerpted from the RAO report is included below. Information on additional investigations and studies is summarized in the RAO report.

In May 1995, groundwater samples were collected from three monitoring wells in the waste disposal area (MW-1, MW-2, and MW-3) and analyzed for 13 Priority Pollutant Metals, total cyanide, hexavalent chromium, volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs). Of these parameters, an SVOC and some metals were detected in the samples, but at concentrations less than the Method 1 GW-1 standards applicable at that time. ✓

In May and June 1996, the EPA collected 12 samples of the waste material in the disposal area for characterization. Metals (lead, copper, antimony, chromium, and zirconium), pentachlorophenol, trichlorobenzene, and dioxin were detected at concentrations greater than the Method 1 S-1/GW-1 standards applicable at that time. ✓

According to the RAO report, in September 1996 the Massachusetts Department of Public Health (MDPH) and the Berkley Board of Health (BBOH) collected private water supply well samples

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Audit Memorandum

from the Town Hall and from 28 residences near the waste disposal area (along Burt Street, Jerome Street and North Main Street). Each sample was analyzed for hexavalent chromium, total chromium, and lead. Hexavalent chromium was not detected in any of the water samples at a reported detection limit of 0.05 milligrams per liter (mg/L, or roughly equivalent to parts per million, ppm). Total chromium was detected in one sample at 0.041 ppm, which is below the MCP Method 1 GW-1 standard of 0.1 ppm. Total chromium was not identified above the detection limits of 0.005 ppm in any of the other samples. Lead was identified in 15 of the 29 samples at concentrations ranging from 0.0013 ppm to 0.011 ppm, but not above the Method 1 GW-1 standard of 0.015 ppm.

In November 1996, groundwater samples were collected from monitoring wells MW-1, MW-2 and MW-3 for dioxin/furan analysis. The toxicity equivalency calculations indicated that dioxins were detected at 14.9 picograms per liter (pg/L)(MW-1), 174.1 pg/L (MW-2) and 13.3 pg/L (MW-3). The concentration calculated for MW-2 exceeded the applicable Method 1 GW-1 standard of 30 pg/L.

In 1997, the EPA and the Department set the cleanup criteria for the Time Critical Removal Action as the Method 1 S-2/GW-1. Accordingly, the goal was to remove all soils with concentrations of total chromium greater than 2,500 micrograms per gram ($\mu\text{g/g}$, roughly equivalent to parts per million, ppm).

According to the RAO, as a follow-up to the 1996 private well sampling, the MDPH selected certain residences along Burt Street, Jerome Street and North Main Street to participate in a second sampling round in 1998. In March and April 1998, water samples were collected from 18 private wells: ten other residents declined to participate in the private well sampling. The 18 samples were analyzed for total chromium, hexavalent chromium, and lead. Nine of these samples were also analyzed for pentachlorophenol. Total chromium was not detected in any of the samples above the laboratory reporting limits of 0.005 ppm. Hexavalent chromium was detected in two water samples at a maximum concentration of 0.0079 ppm, well below the Method 1 GW-1 standard of 0.05 ppm. (However, it should be noted that given the discrepancy between the total chromium and hexavalent chromium results, the laboratory noted that it is likely that the hexavalent chromium concentration in the water samples was less than 0.005 ppm). Lead was identified in 11 of the samples at a maximum concentration of 0.0099 ppm, which is below the current Method 1 GW-1 standard of 0.015 ppm. Pentachlorophenol was not identified in any of the water samples above the reporting limit of 0.0003 ppm. In a May 22, 1998 memorandum, the MDPH concluded that "...the results of the most recent sampling effort indicate that the levels of total chromium, hexavalent chromium, lead and pentachlorophenol present in the targeted wells are either not detected or well below the relevant Massachusetts drinking water standards for public water supplies. In addition, all semivolatile compounds, dioxins, and metals that were analyzed for in the groundwater upgradient of the wells (i.e., beneath the waste site) by the environmental regulatory agencies, including those compounds evaluated in the private well sampling conducted by MDPH, were not detected or were below drinking water standards for public water supplies." The report also stated that "...additional private well testing at this time does not appear to be necessary."

In 1998, an assessment-only Immediate Response Action (IRA) was conducted to further delineate contamination as a result of the disposal of tannery wastes. In summary, metals (including

hexavalent chromium) and SVOCs were not detected in groundwater samples exceeding the Method 1 GW-1 standards. Dioxins were not detected in groundwater samples at concentrations exceeding the Method 1 GW-1 standards (using a low-flow technique to minimize silt). SVOCs were not detected in soil samples. Elevated metals concentrations were detected in soil samples from the waste disposal area. Trivalent chromium was the compound detected at the highest concentrations. ✓

Between May 1998 and January 2000, the EPA conducted a Time Critical Removal Action removing approximately 16,000 cubic yards of waste and soil containing contaminants relating to the waste. The average depth of the excavating was one to two feet with one area excavated to approximately eight feet deep. Soil was also removed from a wetland area in the northern portion of the disposal area. A portable X-ray fluorescence (XRF) meter was used to field check the chromium concentrations and selected soil samples were submitted for laboratory analysis. The residual chromium concentrations in soil ranged from less than the XRF or laboratory detection limits to 1,756 ppm (by XRF) or 1,030 ppm (laboratory confirmation). Three soil samples collected for dioxin analysis reported toxicity equivalency concentrations (TEQ) of 8.0 pg/g (picograms per gram), 8.0 pg/g and 3 pg/g. The RAO noted that laboratory reports for these analyses could not be obtained and the toxicity equivalencies could not be confirmed, thus additional soil sampling was conducted by ES&M for dioxin analysis. ✓

Additional soil and groundwater analysis was conducted in 2004 as part of the Phase II investigation. February 2004 groundwater sampling and analysis of three monitoring wells for SVOCs, 13 Priority Pollutant Metals, hexavalent chromium and dioxins/furans did not detect any SVOCs in the groundwater samples. A nickel concentration in one groundwater sample did not exceed the Method 1 GW-1 standard. Neither total chromium nor hexavalent chromium was detected in any of these samples. None of the dioxin congeners were detected above the stated reporting limits, however, some of the congeners had elevated reporting limits. ✓

In June 2004, three previously installed monitoring wells were sampled for 13 Priority Pollutant Metals, hexavalent chromium, and dioxin/furan analysis. A thallium concentration was detected in one sample above the Method 1 GW-1 standard but was thought to be an anomaly or laboratory error. Subsequent sampling of this well did not confirm this thallium concentration. Neither total chromium nor hexavalent chromium was detected in any of these samples. One dioxin congener was detected in one groundwater sample, but its calculated TEQ did not exceed the Method 1 GW-1 standard. ✓

In August 2004, two other previously installed monitoring wells were sampled for 13 Priority Pollutant Metals, hexavalent chromium, and dioxin/furan analysis. None of the 13 Priority Pollutant Metals or hexavalent chromium was detected in these samples. One dioxin congener was detected in one groundwater sample, but its calculated TEQ did not exceed the Method 1 GW-1 standard. ✓

In October 2004, six soil samples were collected for chromium analysis and three for dioxin analysis from the area west and north of the EPA removal action area. The detected chromium concentrations were well below the Method 1 S-1/GW-1 standard of 1,000 ppm for chromium.

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Dioxin congeners were detected in the three soil samples, but the calculated TEQs did not exceed the Method 1 S-1/GW-1 standard of 4 pg/g. ✓

In November 2004, five soil samples were collected from within the EPA removal action area for dioxin analyses. Dioxin congeners were detected in the five soil samples. The calculated TEQs in the RAO exceeded the Method 1 S-1/GW-1 standard for one sample (U-225). However, a Toxicity Equivalency Factor (TEF) from a draft EPA document was used to calculate the TEQ for octochlorinated dibenzo-p-dioxins (OCDD) (the draft EPA TEF of 0.0001 versus the Department's Office of Research & Standards TEF of 0.001). Calculating the TEQ using the Department's TEF yields a result that exceeds the Method 1 S-1/GW-1 standard for two of these five soil samples. ✓

III. RISK CHARACTERIZATION

The RAO's risk characterization identifies the applicable Method 1 cleanup standards as S-1 for soils and GW-1 and GW-3 for groundwater. Each groundwater monitoring well was considered an exposure point and an Exposure Point Concentration (EPC) was calculated for each. According to the RAO report, none of the EPCs exceeded the Method 1 GW-1 or GW-3 standards and "...a condition of No Significant Risk with respect to groundwater is demonstrated at the Site." However, this conclusion is not substantiated given the elevated detection limits for some dioxin congeners and the draft OCDD TEF used to calculate TEQs. ✓

An EPC was calculated for chromium and dioxin in soil (zero to three foot depth). The eight soil dioxin TEQs (from October and November 2004) were averaged to calculate an EPC for the Site of 1.225 pg/g, which does not exceed the Method 1 S-1/GW-1 standard of 4 pg/g. One EPC for chromium was calculated using the 511 combined results of XRF and laboratory analysis. According to the RAO report, this yielded an EPC of 246 ppm for the Site, which does not exceed the Method 1 S-1/GW-1 standard of 1,000 ppm. The RAO concludes that since these EPCs are below the Method 1 S-1/GW-1 standards, a condition of No Significant Risk exists for soils at the Site. However, this conclusion is not substantiated given the incorrect TEF used to calculate the TEQs for dioxin, the averaging of chromium and dioxin concentrations over a large area, and the incorporation of numerous chromium concentrations at less than detection limits. ✓

In addition, the hot spot evaluation relied upon miscalculated EPCs for dioxin and chromium. Given the miscalculated EPCs, a re-evaluation for chromium and dioxin hot spots is warranted. ✓

As noted in the RAO report, soil was removed from the wetland area on the northern portion of the Site during the EPA removal action. However, a Stage I Environmental Screening to identify exposure pathways and determine the need for further detailed quantitative assessment of those pathways was not conducted for this site. ✓

Bogs Landing, Berkley, 4-11247

Audit Memorandum

IV. DETERMINATION

On the basis of the activities performed during the audit, and in reliance upon the accuracy of information received and/or reviewed during the audit, the Department makes the following determination:

Violations were identified that require further action.

Please refer to the Notice of Noncompliance (Attachment A) relative to the activities in noncompliance and the actions the Department wants you to take to come into compliance.

To: Jeff
FR: Kyla
pages: 13, incl. cover
sheet

RE: Berkeley
cancer cluster