STATE OF NEVADA
Jim Gibbons, Governor
Department of Conservation & Natural Resources
Allen Biaggi, Director
DIVISION OF ENVIRONMENTAL PROTECTION
Leo M. Drozdoff, P.E., Administrator

January 29, 2008

Mr. Mark Paris
Basic Remediation Company
875 West Warm Springs Road
Henderson, NV 89011

Ms. Susan Crowley
Tronox LLC
PO Box 55
Henderson, NV 89009

Mr. Curt Richards
Olin Corporation
3855 North Ocoee Street, Suite 200,
Cleveland, TN 37312

Mr. Joe Kelly
Montrose Chemical Corp of CA
600 Ericksen Ave NE, Suite 380
Bainbridge Island, WA 98110

Mr. Brian Spiller
Stauffer Management Co LLC
1800 Concord Pike
Wilmington, DE 19850-6438

Mr. Craig Wilkinson
Titanium Metals Corporation
PO Box 2128
Henderson, NV 89009

Re. **BMI Plant Sites and Common Areas Projects, Henderson, Nevada**
Advisement Regarding Radionuclide Analyses

Dear Sirs and Madam:

All of the companies listed above shall be referred to as "the Companies" for the purposes of this letter. NDEP has received responses to the NDEP's December 7, 2007 letter from each of the Companies. NDEP has considered each of the responses and issues the following guidance:

1. Regarding new radionuclide data, the Companies must utilize radionuclide methods that are the same as the methods employed in the BRC/TIMET shallow soils background data set. This will insure comparability without unnecessary confusion or justifications. The Companies must insure that preparatory (prep) methods and analytical procedures produce comparable data. Failure to do so in future data sets will result in rejection of data. If a Company's QAPP requires additional modification, please advise the NDEP **by February 29, 2008**.
2. Regarding new data, please note that the NDEP does not approve of the use of gamma spectroscopy (spec) for the analysis of Radium-228(Ra-228), or any other radionuclide.
3. Regarding existing data, it is noted that both ICP and ICP/MS methods have been used for the analyses of metals. It is noted that the ICP/MS data is more sensitive, however, the methods are comparable.
4. Regarding existing data, the NDEP generally concurs with the methodology outlined by BRC in their letter dated January 10, 2008 for uranium. This method will be described below with exceptions noted by the NDEP.
    a. For historical data sets with compromised uranium data, background comparisons should first be made to uranium as a metal. If these background comparisons pass, nothing further is required.
    b. If the metallic uranium background comparisons fail, isotope-specific correction factors must be developed and applied in order to quantitate risk. Please note that isotopic correction factors will need to be developed (or verified) separately for each data set (by sub-area, parcel, site, etc.) because of the potential for analytic and geologic differences between sub-areas or sites.

c. While the NDEP's original request was directed at uranium, it appears that some data sets may have other radionuclides that are not comparable to background because of analytical issues (e.g.: thorium and radium isotopes). Additional discussion is provided below.
d. Please note that if it is not reasonable to assume secular equilibrium, then correction factors cannot be applied, and re-analysis might be required.
e. For example, the thorium isotopic data for Phase A at TRONOX are much lower than background. The reasons need to be expeditiously investigated and identified.
f. For example, the Thorium-230 (Th-230), Uranium-234 (U-234) and Uranium-238 (U-238) data at BMI Parcel 4B are much lower than background. Again, the reasons need to be expeditiously investigated and identified.
g. It is noted that correction factors could be developed for thorium based on an assumption of secular equilibrium with uranium (since uranium is also analyzed as a metal).
h. Ra-226 and Ra-228 have been analyzed by gamma spec at some sites. It has not been demonstrated that these data are comparable with the background radium data that involved alpha-spec (Ra-226) and beta emission (Ra-228) analysis. The correlation needs to be demonstrated prior to use of historic gamma spec data for radium isotopes.
i. In particular, TIMET has noted that some data sets contain Ra-228 data by gamma spectroscopy. TIMET has proposed to compare these data to gamma spectroscopy data collected for the background data set to attempt to develop a correlation factor. To date, TIMET has not been able to develop a statistical relationship upon which a correlation factor can be developed. Hence, it is not evident that this will be possible. This issue requires further discussion among the Companies. This issue could be addressed in several ways.
    i. Back quantitation of Ra-228 from a parent radionuclide (if the parent radionuclide data are comparable with background).
    ii. Use of a correlation factor if developable.
    iii. The NDEP is amenable to other suggestions by the Companies.
j. In addition, TIMET has noted that there may be differences between the site data set for lead-210 (Pb-210) and the background data set. These differences need to be expeditiously investigated and identified. It is expected that TIMET will respond to this issue **by February 29, 2008**.
k. The remaining Companies with radionuclide data should affirm that their data sets do not have any comparability issues with regards to Pb-210 (or any other compound). This affirmation is required **by February 29, 2008**.

Whereas NDEP recognizes that assumptions of relative abundance and secular equilibrium can be used to recalculate the activity of various radionuclides, this approach needs to be defended in each case. This is cumbersome, potentially unreliable, and requires longer review time. It is preferable that this situation is avoided and that data are collected that are directly comparable to the background data set.

Please contact me with any questions (tel: 702-486-2850 x247; e-mail: brakvica@ndep.nv.gov).

Sincerely,

Brian A Rakvica, P.E.
Supervisor, Special Projects Branch
Bureau of Corrective Actions

BAR:s

CC: Jim Najima, NDEP, BCA, Carson City
Marysia Skorska, NDEP, BCA, Las Vegas
Shannon Harbour, NDEP, BCA, Las Vegas
Todd Croft, NDEP, BCA, Las Vegas
Greg Lovato, NDEP, BCA, Carson City
Barry Conaty, Akin, Gump, Strauss, Hauer & Feld, L.L.P., 1333 New Hampshire Avenue, N.W., Washington, D.C. 20036
Brenda Pohlmann, City of Henderson, PO Box 95050, Henderson, NV 89009
Mitch Kaplan, U.S. Environmental Protection Agency, Region 9, mail code: WST-5, 75 Hawthorne Street, San Francisco, CA 94105-3901
Rob Mrowka, Clark County Comprehensive Planning, PO Box 551741, Las Vegas, NV, 89155-1741
Ranajit Sahu, BRC, 311 North Story Place, Alhambra, CA 91801
Rick Kellogg, BRC, 875 West Warm Springs, Henderson, NV 89011
Kirk Stowers, Broadbent & Associates, 8 West Pacific Avenue, Henderson, Nevada 89015
George Crouse, Syngenta Crop Protection, Inc., 410 Swing Road, Greensboro, NC 27409
Nicholas Pogoncheff, PES Environmental, Inc., 1682 Novato Blvd., Suite 100, Novato, CA 94947-7021
Lee Erickson, Stauffer Management Company LLC, P.O. Box 18890 Golden, CO 80402
Keith Bailey, Environmental Answers, 3229 Persimmon Creek Drive, Edmond, OK 73013
Jeff Gibson, AMPAC, 3770 Howard Hughes Parkway, Suite 300, Las Vegas, Nevada 89109
Sally Bilodeau, ENSR, 1220 Avenida Acaso, Camarillo, CA 93012-8727
Stan Smith, Olin Chlor Alkali, PO Box 86, Henderson, Nevada 89009
Paul Sundberg, Montrose Chemical Corporation, 3846 Estate Drive, Stockton, California 95209
Joe Kelly, Montrose Chemical Corporation of CA, 600 Ericksen Avenue NE, Suite 380, Bainbridge Island, WA 98110
Jon Erskine, Northgate Environmental Management, Inc., 300 Frank H. Ogawa Plaza, Suite 510, Oakland, CA 94612
Deni Chambers, Northgate Environmental Management, Inc., 300 Frank H. Ogawa Plaza, Suite 510, Oakland, CA 94612
Robert Infelise, Cox Castle Nicholson, 555 California Street, 10th Floor, San Francisco, CA 94104-1513
Michael Ford, Bryan Cave, One Renaissance Square, Two North Central Avenue, Suite 2200, Phoenix, AZ 85004
Dave Gratson, Neptune and Company, 1505 15th Street, Suite B, Los Alamos, NM 87544

Paul Black, Neptune and Company, Inc., 8550 West 14th Street, Suite 100, Lakewood, CO 80215
Teri Copeland, 5737 Kanan Rd., #182, Agoura Hills, CA 91301
Paul Hackenberry, Hackenberry Associates, 550 West Plumb Lane, B425, Reno, NV, 89509