



May 3, 2011

Mr. Steve Tarlton, Manager
Radiation Management Program
Hazardous Materials and Waste Management Division
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, Colorado 80246-1530

Subject: Solvent Extraction Demolition Work Plan – Disposition of Solvent

Dear Mr. Tarlton,

Please be advised that Cotter has evaluated options for disposition of used solvent as described below. Cotter prefers to dispose the solvent in a manner consistent with good environmental practice.

Solvent used in the Solvent Extraction process is 11 e (2) byproduct material by definition under the Atomic Energy Act because it was used in the process of recovering uranium from ore. During normal processing, a portion of the solvent is disposed in the tailing impoundments as Solvent Extraction (SX) raffinate.

Cotter considered the following options for solvent disposition: Direct disposal onsite, treat and send offsite for recycle, treat and offer for sale, offsite disposal and sorbtion and disposal onsite.

- Direct disposal onsite is not acceptable due to potential air emissions.
- Treat and send offsite for recycle is not acceptable because of residual radioactivity.
- Treat and offer for sale is not viable because only one potential customer (a uranium mill) was identified and they are not interested in purchase.
- Offsite disposal is unacceptable due to high cost related to residual radioactivity.
- Sorbtion and disposal is the preferred option due to ease of handling and integration into the current demolition and disposal protocol. Also conforms to the Air Pollution Control Division Compliance Order on Consent 2006-71.



Cotter prefers to dispose in a manner consistent with good environmental practice and tested the material for landfill disposal characterization. The treatability study, Attachment A (EAI) showed that the solvent sorbed with oil dri meets the requirements for disposal in a landfill.

Cotter will conduct the solvent sorbtion process as a pre-demolition activity. The sorbed material will be disposed in the Main Impoundment as part of the routine demolition and disposal process. Cotter herein provides an addendum to the Solvent Extraction Demolition Work Plan Appendix A Solvent Extraction Pre-Demolition.

If you have any questions, please contact me at 719 275 7413 Ext 212 or by email at jim.cain@cotterusa.com.

Sincerely,

Jim Cain
Environmental Coordinator/
Radiation Safety Officer

Cc: Mr. John Hamrick
Mr. Phil Egidi

Attachments



April 28, 2011

Jim Cain
Cotter Corporation
P.O. Box 1750
Cañon City, Colorado 81212

RE: SX Solvent Waste Characterization

Dear Mr. Cain,

Prior to demolition of the SX Building at the Cotter Mill, approximately 90,000 gallons of contaminated organic solvent requires appropriate disposal. Absorbent testing indicated Oil-Dri would be a cost effective solidification aid.

In order to identify both a regulatory compliant and environmentally suitable disposal aid and disposal handling process, the solvent was characterized according to EPA RCRA Toxicity Characteristic Leaching Procedure and Characteristic Wastes (TCLP) standards. Waste destined for disposal at an EPA RCRA D landfill must meet the definition of EPA Toxicity under the hazardous waste code 40 CFR Part 261. If a waste fails the test for any one of the 40 contaminants of concern outlined in 40 CFR 261.24, the waste is characterized as hazardous.

ALS Environmental was contracted to perform the analysis of the Oil-Dri solvent, Oil-Dri sludge and SX solvent. Because the solvent is reagent grade and has been in appropriate containment since production, it was not analyzed for TCLP pesticides. Analytical results for both the Oil-Dri solvent and Oil-Dri sludge with corresponding leachates passed TCLP analysis. The SX solvent liquid failed TCLP for the presence of selenium with a concentration of 3.0 ppm. The selenium threshold concentration is 1.0 ppm. ALS analysis results are summarized in the attached chart which includes RCRA toxicity threshold concentrations.

In summary, based on ALS's analysis results, the Oil-Dri solvent and sludge would not be considered a hazardous waste according to RCRA waste characterization contaminants of concern. The liquid solvent would be a hazardous material due to its selenium concentration.

If you have any questions, please feel free to call at 719-275-8951 or email eai@bresnan.net.

Best regards,


Angela M. Bellantoni

Environmental Alternatives Inc.

1107 Main Street, Cañon City, CO 81212
www.envalternatives.com • e-mail: eai@bresnan.net
Phone: 719-275-8951 • Fax: 719-275-1715

Cotter Corporation
 SX Solvent TCLP Analysis
 April 12, 2011

| Contaminant of Concern | Threshold Concentrations | Oil-Dri Solvent | | | Oil-Dri Sludge | | | SX-Solvent |
|--|--------------------------|-----------------|-----------|-----------|----------------|-----------|-----------|------------|
| | | Solid | Leachate | Leachate | Solid | Leachate | Leachate | |
| TCLP Parameters | | | | | | | | |
| Ignitable | Flashpoint < 140°F | 205 | | | 205 | | | 194 |
| Corrosive | pH < 2 or > 12.5 | | | | | | | |
| Reactive CN'S ¹ | 6.0-9.0 | u | | | u | | | u |
| Organic Compounds (mg/L or ppm) | | | | | | | | |
| Benzene | 0.5 | | u | | | u | | u |
| Carbon Tetrachloride | 0.5 | | u | | | u | | u |
| Chloroethane | 0.03 | Pesticide | Pesticide | Pesticide | Pesticide | Pesticide | Pesticide | Pesticide |
| Chlorobenzene | 100 | | u | | | u | | u |
| Chloroform | 6 | | u | | | u | | u |
| o-Cresol | 200 | Pesticide | Pesticide | Pesticide | Pesticide | Pesticide | Pesticide | Pesticide |
| 2,4-D | 10 | Pesticide | Pesticide | Pesticide | Pesticide | Pesticide | Pesticide | Pesticide |
| 1,4-Dichlorobenzene | 7.5 | | u | | | u | | u |
| 1,2-Dichloroethane | 0.5 | | u | | | u | | u |
| 1,1-Dichloroethylene | 0.7 | | u | | | u | | u |
| 2,4-Dinitrotoluene | 0.13 | | u | | | u | | u |
| Endrin | 0.02 | Pesticide | Pesticide | Pesticide | Pesticide | Pesticide | Pesticide | Pesticide |
| Heptachlor | 0.008 | Pesticide | Pesticide | Pesticide | Pesticide | Pesticide | Pesticide | Pesticide |
| Hexachlorobenzene | 0.13 | | u | | | u | | u |
| Hexachlorobutadiene | 0.5 | | u | | | u | | u |
| Hexachloroethane | 3 | | u | | | u | | u |
| Lindane | 0.4 | Pesticide | Pesticide | Pesticide | Pesticide | Pesticide | Pesticide | Pesticide |
| Methoxychlor | 10 | Pesticide | Pesticide | Pesticide | Pesticide | Pesticide | Pesticide | Pesticide |
| Methyl ethyl ketone | 200 | | u | | | u | | u |
| Nitrobenzene | 2 | | u | | | u | | u |
| Pentachlorophenol | 100 | | u | | | u | | u |
| Pyridine | 5 | | u | | | u | | u |
| Tetrachloroethylene | 0.7 | | u | | | u | | u |
| Toxaphene | 0.5 | Pesticide | Pesticide | Pesticide | Pesticide | Pesticide | Pesticide | Pesticide |
| Trichloroethylene | 0.5 | | u | | | u | | u |
| 2,4,5-Trichlorophenol | 400 | | u | | | u | | u |
| 2,4,6-Trichlorophenol | 2 | | u | | | u | | u |
| 2,4,5-TP (Silix) | 1 | Pesticide | Pesticide | Pesticide | Pesticide | Pesticide | Pesticide | Pesticide |
| Vinyl Chloride | 0.2 | | u | | | u | | u |
| Metals (mg/L or ppm) | | | | | | | | |
| Arsenic | 5.00 | | 0.12 | | | 0.28 | | u |
| Barium Total | 100.00 | | u | | | u | | u |
| Cadmium | 1.00 | | u | | | u | | u |
| Chromium | 5.00 | | u | | | u | | u |
| Lead (Inorganic) | 5.00 | | u | | | u | | u |
| Mercury | 0.20 | | u | | | u | | u |
| Selenium | 1.00 | | u | | | u | | 3 |
| Silver | 5.00 | | u | | | u | | u |

| Appendix A - Solvent Extraction Pre-demolition | | | | | | |
|--|--------------------------------|---|------------------------------|------------|-----------|--------------------|
| Complete all information use as many sheets as necessary | | | | | | |
| Task Location | Solvent Extraction | Task Title | Pre Demolition Activities | | | |
| Department | Maintenance/Operations | Prepared By | R. Wooten | | | |
| Supervisor | Craig Simpson | Reviewed By | ALARA Review Committee (ARC) | | | |
| | | Approved By | ARC | | | |
| Standard Requirements (SOP, SP, PPE, etc.) | | | | | | |
| | | | | | | |
| Sequence of Job Steps | Potential Hazards (P,E,C,R) | Safe Procedures/Practices/Controls | Consequence Level | Likelihood | Risk Code | Hazard ID Code* |
| Remove lids from tanks (as necessary) | P, C, R | Trained Personnel, PPE, SP-0003, SP-0009, SP-0019, RH-130, RH-150 | II | C | 2 | 2, 8, 12 |
| Transfer Solutions to Tanks | P, E, C, R | Trained Personnel, PPE, SP-0009, RH-130, RH-150 | I | C | 2 | 1, 21 |
| Add Sorbent To Tanks | P, C, R | Trained Personnel, PPE, SP-0003, SP-0009, SP-0019, RH-130, RH-150 | II | C | 2 | 1, 8, 12, 14, 21 |
| | | | | | | |
| When a completed analysis indicates that the estimated risk code for any of the steps of this task is "medium" or higher (RC=3), then develop a formal written procedure for the task and have it reviewed and approved prior to beginning the work. | | | | | | |
| * From Hazard Identification Sheet | | | | | | |