A Major Source Material
Decommissioning in New Jersey

Jenny Goodman
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Bureau of Environmental Radiation
Jenny.goodman@dep.nj.gov
The Problem

• The manufacturing process resulted in baghouse dust, dross, and slag which contained the radioactive material. The practice was to “place” the waste in the back storage yard.

• The Nuclear Regulatory Commission continues the licensing of SMC and allows SMC to continue to accumulate their waste in the storage yard.

• Several amendment requests and renewal applications requested increased possession limits because of the accumulation of waste and NRC continued to agree.
Restricted Area Materials Designation

<table>
<thead>
<tr>
<th>Area</th>
<th>Stockpile Material</th>
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<tbody>
<tr>
<td>1.</td>
<td>Excavated soil</td>
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<tr>
<td>2.</td>
<td>Excavated soil from D111</td>
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<tr>
<td>3.</td>
<td>CANAL, crushed slag from Area 4</td>
</tr>
<tr>
<td>4.</td>
<td>Ferrochromium slag (from the electric arc process)</td>
</tr>
<tr>
<td>5A.</td>
<td>Ferrochromium slag (from the electric arc process)</td>
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<tr>
<td>5B.</td>
<td>Dechlorination cafosite from D111</td>
</tr>
<tr>
<td>6.</td>
<td>Ferrochromium slag (from the aluminothermic process)</td>
</tr>
<tr>
<td>7.</td>
<td>Combination of Area 4, 6, and B materials</td>
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<tr>
<td>8.</td>
<td>Boghouse Dust</td>
</tr>
<tr>
<td>9.</td>
<td>Combination of Area 4 and B materials, predominantly boghouse dust</td>
</tr>
</tbody>
</table>

Figure 18.3
STORAGE YARD PLAN
(2005 AERIAL PHOTO)

TRC
SHELDAWAY METALLURGICAL CORPORATION
NEWFIELD, NEW JERSEY
21 DOROTHY ROAD:
NEWFIELD, NEW JERSEY 07974
(908) 253-5600

Date: 06/29
Project No.: 120506-0201209-0000002
~ 2000 m³ stockpiled in Storage Yard
Radiation Readings at a distance of 20 ft were 100 - 300 microR/hr
Background readings were 3-6 microR/hr
~20,000 m3 stockpiled in the Storage Yard
Radiation readings of 150-450 microR/hr at a distance of about 20 ft
Site Background – 3-6 microR/hr
<table>
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<tr>
<th>Area 1</th>
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<th>U</th>
<th>Area 2</th>
<th>Th</th>
<th>Ra</th>
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<th>Th</th>
<th>Ra</th>
<th>U</th>
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October 20, 1986

W. T. Crow, Acting Chief
Uranium Field License Branch
Division of Fuel Cycle and Material Safety
United States Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Crow:

The Bureau of Environmental Radiation (BER) appreciates the opportunity to provide input in the U.S. Nuclear Regulatory Commission's (NRC) license renewal process for Shieldalloy. The BER has regarded this site with some concern due

Also of concern is the future impact of this facility, if and when licensed operations cease and the facility is released for unrestricted use. BER recommends that the NRC examine the ability of the licensee to decontaminate and decommission the site. This recommendation results from the Department's previous experience with other NRC sites in New Jersey which processed and stored large quantities of ore and residue.

Sincerely,

Eileen Hotte, Ph.D.
Bureau Chief
It all started...

- Enforcement Conference in King of Prussia, Region 1
- MARRSIM speak
- NJ just published their cleanup regulations (August 7, 2000) requiring 15 mrem/y and 100 mrem/y all controls fail for restricted release
Decommissioning Plans

• Rev. 0 about 10 pages – concept of on-site burial
• 10/21/2005 Rev. 1 was submitted but not accepted for technical review
This is when the fun began

- 6/30/2006 SMC submits Rev. 1a
- 10/2006 NRC finalizes NUREG 1757
- 11/2006 NRC published FRN Opportunity to Request Hearing on DP Rev.1a
- 12/22/06 NJDEP files a petition for a hearing seeking to rescind the portion of the finalized NUREG-1757, and request the NRC to stay review of the DP Rev. 1a
- 1/12/07 Commission denies hearing request and stay on DP review
- 1/26/07 NJDEP files hearing request on SMC DP Rev. 1a with 17 contentions
- 3/16/07 NJDEP submits 62-page comment letter to NRC on Rev. 1a
- 3/2007 ASLB grants NJDEP Hearing request on Rev. 1a
- 7/5/2007 NRC issues RAI’s on Rev. 1a
- 9/26/07 USEPA submits 43-page comment letter to NRC on Rev. 1a
- Somewhere around here we sued the NRC over NUREG 1757 in 3rd Circuit Court
- 10/16/08 NJ submits application to become an Agreement State
SMC Decommissioning Plan Rev. 1a (6/30/06)

• July 5, 2007 letter from NRC staff (44 pages) with 73 RAIs including:
  • No justification for source term of slag or baghouse dust piles
  • No basis for volumes of material
  • No input data for groundwater flow model
  • Radon calculations were off by seven orders of magnitude
  • ALARA analysis dismissed regulatory costs
  • Did not provide all characterization data (soil or groundwater)
  • No discussion of contamination in Hudson Branch
Eligibility Requirements in LTR 20.1403(a)

• Demonstrate that either further reductions in residual radioactivity to unrestricted use would result in net public harm, OR

• Were not being made because the residual levels associated with restricted conditions were ALARA.
  • Used both conditions in different sections of the DP
  • No justification provided for either approach
  • Only provided a dose assessment to 70 years, not 1000 as required
  • Same discount rate for present and future doses
  • Some cases $2,000 per person-rem and other cases $20,000
The Atomic Safety and Licensing Board (ASLB)

- Conducts hearings for the Commission and performs such other regulatory functions as the Commission authorizes. The Chief Administrative Judge develops and applies procedures governing the activities of boards and administrative judges and makes appropriate recommendations to the Commission concerning the rules governing the conduct of hearings.

- Hearing Requests
- Staff Updates
- ASLB Memoranda & Orders
Took NRC to 3rd Circuit over NUREG 1757

Applied to become an Agreement State

Hearing Request Granted On Rev. 1a DP
What Finally Worked?

• Our case against the NRC over NUREG 1757 did not.

• The Hearing in front of the Atomic Safety and Licensing Board never took place, because...

• We became an Agreement State and regulatory authority over SMC was given to us on September 30, 2009.
October 8, 2009

Hoy Frakes, President
Shieldalloy Metallurgical Corporation
60790 Southgate Rd.
Cambridge, OH 43725-9414

Dear Mr. Frakes:

As you know, as of September 30, 2009, the State of New Jersey assumed regulatory authority for your source material license (SMB-743) at the Newfield facility. The US Nuclear Regulatory Commission (NRC) has transferred their files to us, including Rev. 1b of your Decommissioning Plan (DP).

Upon review, we have determined that Rev. 1b does not meet the Department’s regulations. Therefore, Shieldalloy Metallurgical Corporation (SMC) is required to submit a revised DP, which complies with N.J.A.C. 7:28-58.1 (10 CFR 40 incorporated by reference) and N.J.A.C. 7:28-12.1 et seq., which would result in license termination.

Because the NRC accepted the current DP as meeting the timeliness provisions in 10 CFR 40.42, the Department has determined that SMC will remain in compliance if a revised DP is submitted by January 31, 2010. The revised DP shall include, but not be limited to the elements listed in 10 CFR 40.42(g)(4), including a detailed cost estimate and plan for assuring the availability of adequate funds for completion of decommissioning as provided in 10 CFR 40.36.

If you have any questions, please contact Jenny Goodman at (609) 984-5498.

Sincerely,

Patricia Gardner, Manager
Bureau of Environmental Radiation
Wait a minute, not so fast...

Together, the NRC’s insufficient explanations on the applicability of criterion 25 and the retention of jurisdiction render its transfer of regulatory authority to New Jersey arbitrary and capricious. We therefore grant Shieldalloy’s petition, vacate the NRC’s transfer of authority, and remand for proceedings consistent with this opinion.

So ordered.
DC Circuit Court of Appeals Rundown

- 11/9/2009 DC Circuit ruled in SMC’s favor NRC’s transfer was vacated
- 10/12/2011, the NRC issued a decision that remanded jurisdiction over SMC back to New Jersey
- 11/22/2011 SMC filed a Petition for Review of the remand with the D.C. Circuit.
- DC Circuit again transferred authority back to NRC
- 8/5/2013 NRC again issued a decision that remanded jurisdiction over SMC back to NJ
- SMC again takes the issue to DC Circuit, this time over interpretation of 20.1403(a)
- The NRC again gives jurisdiction back to NJ this time explaining 20.1403(a)
- 10/14/2013 Finally, DC Circuit agrees with the NRC and authority is transferred back to NJ
As of May 28. 2021
Just one more thing...

• Question everything, trust no one
• Don’t be intimidated, if you don’t understand something, be persistent
• Follow the data, even if there is resistance
• Don’t be afraid to be wrong
Yous Guys got any questions?