Supplemental Response to CEC Data Request A96

Amended Application for Certification for HYDROGEN ENERGY CALIFORNIA (08-AFC-8A) Kern County, California

November 2012
DATA REQUEST

A96. Please provide any known hazardous materials accidental release history at similar facilities that utilize the same or similar chemical or engineering processes.

SUPPLEMENTAL RESPONSE

In response to Data Request A96, docketed on October 22, 2012, the Applicant provided Table A96-1, which listed accidental releases of hazardous materials from facilities that use or store chemicals in a similar manner to HECA. Supplemental Table A96-1 provides information for molten sulfur and nitric acid. As previously stated in the Applicant’s response to Data Request A96, it must be understood that the HECA Project is unique and does not share many similarities to the processes and facilities presented in Table A96-1 or Supplemental Table A96-1.

TABLE

Supplemental Table A96-1 Hazardous Material Releases
### Supplemental Table A96-1
#### Hazardous Material Releases

<table>
<thead>
<tr>
<th>Chemical Unit</th>
<th>Location</th>
<th>Date</th>
<th>Release</th>
<th>Summary</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Molten Sulfur</td>
<td>Delaware, LA (Mannan, 2005)</td>
<td>February 10, 2002</td>
<td>1,000 tons</td>
<td>Spill led to a fire at the tank site.</td>
<td>The HECA project will mitigate the potential for sulfur fires by storing only degassed sulfur (see Comment 1 below).</td>
</tr>
<tr>
<td>Molten Sulfur</td>
<td>Claymont, DE (Mannan, 2005)</td>
<td>January 11, 2002</td>
<td>Up to 2,000 tons</td>
<td>30-year-old tank spilled and started a fire.</td>
<td>The HECA project will mitigate the potential for sulfur fires by storing only degassed sulfur (see Comment 1 below).</td>
</tr>
<tr>
<td>Molten Sulfur</td>
<td>Medicine Hat, AB, Canada (Mannan, 2005)</td>
<td>December 4, 2002</td>
<td></td>
<td>Freight train derailed, spilling molten sulfur and catching fire.</td>
<td>The HECA project will mitigate the potential for sulfur fires by transporting only degassed sulfur (see Comment 1 below).</td>
</tr>
<tr>
<td>Molten Sulfur</td>
<td>Kawasaki, Japan (Mannan, 2005)</td>
<td>December 1995</td>
<td>14,000 tons</td>
<td>Receiving of molten sulfur was stopped at the storage tank of a refinery because its level gauge did not function. A fire started and sulfur burned when inspection of the gauge was being carried out with the calibration chamber at the upper side of the tank open.</td>
<td>See Comment 1 below.</td>
</tr>
<tr>
<td>Molten Sulfur</td>
<td>Gold River, BC, Canada (CCOHS, 1987)</td>
<td>August 8, 1987</td>
<td></td>
<td>Recovery boiler tube leak caused a mill shutdown. Deceased was in the process of shutting a valve beneath a molten sulfur storage tank when the bottom cone section of the tank fell out, covering him in molten sulfur and sweeping him off the catwalk platform to the ground approximately 12 feet below.</td>
<td>There is insufficient information to draw appropriate conclusions.</td>
</tr>
</tbody>
</table>
### Supplemental Table A96-1

**Hazardous Material Releases (Continued)**

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</tr>
</thead>
<tbody>
<tr>
<td>Sulfur</td>
<td>Western Cape Province, South Africa (Batterman, 1998)</td>
<td>December 16, 1995</td>
<td>14,000 tons</td>
<td>A series of fires spread rapidly by strong and persistent winds ignited a sulfur pile.</td>
<td>HECA will address noted deficiencies in the emergency plans, including lack of communication and coordination in the response, fire hydrants with insufficient capacity, and inadequate and untimely communication with adjacent and affected communities.</td>
</tr>
<tr>
<td>Molten Sulfur</td>
<td>Delaware, LA (CSB CIRC, 2002)</td>
<td>February 18, 2002</td>
<td>1,000 tons</td>
<td>Molten sulfur spilled from a storage tank. Between 100 and 200 pounds flowed into a cooling water trench; no environmental damage reported.</td>
<td>There is insufficient information to draw appropriate conclusions.</td>
</tr>
<tr>
<td>Sulfur</td>
<td>Lille, France (AP, 2009)</td>
<td>March 21, 2009</td>
<td></td>
<td>A fire broke out at a chemical factory, resulting in a release of sulfur dioxide.</td>
<td>There is insufficient information to draw appropriate conclusions.</td>
</tr>
<tr>
<td>Sulfur</td>
<td>Chembur, India (Fireworld, 2002)</td>
<td>February 11, 2002</td>
<td></td>
<td>A fire broke out in the high chimney of a sulfur removal plant at an electric company.</td>
<td>There is insufficient information to draw appropriate conclusions.</td>
</tr>
<tr>
<td>Sulfur</td>
<td>Paradip, India (Fireworld, 2002)</td>
<td>March 18, 2002</td>
<td></td>
<td>A fire at a chemical plant warehouse storing about 15,000 tons of sulfur.</td>
<td>There is insufficient information to draw appropriate conclusions.</td>
</tr>
<tr>
<td>Sulfur</td>
<td>Mosul, Iraq (ENR, 2003)</td>
<td>June 25, 2003</td>
<td></td>
<td>A sulfur plant caught fire. The suspected cause is arson.</td>
<td>This is not applicable to the HECA project.</td>
</tr>
<tr>
<td>Sulfur</td>
<td>Pasco, WA (KNDO, 2008)</td>
<td>December 9, 2008</td>
<td></td>
<td>Fire broke out inside a sulfur bin at the Wilbur Ellis Fertilizer plant when a front end bucket loader scraped against a wall, creating a spark and igniting sulfur dust.</td>
<td></td>
</tr>
</tbody>
</table>
### Supplemental Table A96-1
### Hazardous Material Releases (Continued)

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<tbody>
<tr>
<td>Nitric Acid</td>
<td>Clifton, NJ (AP, 2012)</td>
<td>May 8, 2012</td>
<td>Release</td>
<td>A construction worker fell from the roof into a tank filled with nitric acid at a metal tube manufacturing plant called Swepco Tube Company.</td>
<td>In this incident, it appears that either the project was using an open tank, or a manhole was open during the time of the incident. HECA will not employ such a design for the project.</td>
</tr>
<tr>
<td>Nitric Acid</td>
<td>Italy (FACTS Database, 1988)</td>
<td>1988</td>
<td>Release</td>
<td>An explosion occurred during the unloading of nitric acid from a road tanker. The operator accidentally emptied the nitric acid into a tank containing formic acid. A rapid exothermic reaction led to an explosion.</td>
<td>The HECA project will not have tanker loading or unloading facilities for nitric acid.</td>
</tr>
<tr>
<td>Nitric Acid</td>
<td>Baltimore, MD (OSHA, 2006)</td>
<td>May 6, 2006</td>
<td>Release</td>
<td>Back pressure built up during an unloading operation from a rail car into an over-the-road tanker truck. Nitric acid began to leak at the hose connection; a mist of nitric acid was released into the air, and was inhaled by employees.</td>
<td>The HECA project will not have tanker loading or unloading facilities for nitric acid.</td>
</tr>
</tbody>
</table>
## Supplemental Table A96-1
### Hazardous Material Releases (Continued)

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<tbody>
<tr>
<td>Nitric Acid</td>
<td>Oshkosh, WI (OSHA, 2002)</td>
<td>April 24, 2002</td>
<td>Employees accidentally unloaded liquid hydrogen chloride into nitric acid bulk storage. They noticed the mistake after delivering about 1,000 gallons. About 2 hours later, noxious fumes became noticeable from the tank vent and scrubber.</td>
<td>The HECA project will not have tanker loading or unloading facilities for nitric acid.</td>
<td></td>
</tr>
<tr>
<td>Nitric Acid</td>
<td>LG Epitaxy (OSHA, 1997)</td>
<td>April 26, 1997</td>
<td>A maintenance technician mistakenly added alcohol to a nitric acid and hydrofluoric acid mixture, resulting in the spray and release of toxic gases.</td>
<td>HECA will not be performing this task or using these chemicals.</td>
<td></td>
</tr>
</tbody>
</table>

Notes:

1 Where sulfur fires are indicated, it is not stated how the sulfur was ignited. Sulfur is normally stored at temperatures below the auto-ignition and flash-point, so that loss of containment or exposure to air would not necessarily start a fire. In some cases, stored sulfur has significant concentrations of dissolved hydrogen sulfide, and if the storage containment vapor space is a closed system, hydrogen sulfide desorbed from the sulfur would accumulate in the vapor space. In some cases, the generation of iron pyrites in the tank also can cause fires. The HECA project will mitigate the potential for sulfur fires by using a degassing process for product sulfur to remove almost all of the dissolved hydrogen sulfide, and using sweep air in the sulfur storage tank to prevent the formation of iron pyrites and the accumulation of trace residual hydrogen sulfide that could desorb from the sulfur.

HECA = Hydrogen Energy California
References


AMENDED APPLICATION FOR CERTIFICATION FOR THE HYDROGEN ENERGY CALIFORNIA PROJECT

Docket No. 08-AFC-08A
(Revised 11/20/12)

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*Indicates Change
DECLARATION OF SERVICE

I, Dale Shileikis, declare that on November 30, 2012, I served and filed a copy of the attached Supplemental Response to CEC Data Request A96, dated November 2012. This document is accompanied by the most recent Proof of Service list, located on the web page for this project at:
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OR, if filing a Petition for Reconsideration of Decision or Order pursuant to Title 20, § 1720:

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I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, that I am employed in the county where this mailing occurred, and that I am over the age of 18 years and not a party to the proceeding.

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1 This Proof of Service form is not appropriate for the use when filing a document with the Chief Counsel under Title 20, sections 1231 (Complaint and Request for Investigation) or 2506 (Petition for Inspection or Copying of Confidential Records). The Public Advisor can answer any questions related to filing under these sections.