Question 1:

How have the other sites included non-DOE offsite transportation accidents in their EALs? DOE O 151 mandates these as Operational Emergencies w/out further classification. Ok, but what kind of rigor did you apply in your consequence assessment? Example: Did you analyze a railcar release to determine a bounding distance that affects your site?

Response:

We have not completed the offsite transportation analysis.--Richard Hickman

Question 2:

Would like to see some examples of "Discretionary EALs".

Reponses:

1. I agree with question 2.--Richard Hickman

2. Discretionary EAL for a Hydrogen Fluoride (HF) Release

   EAL Statement: Atmospheric Release of HF

   Initiating Condition: Breach in valve, manifold, cylinder, or process system resulting in an atmospheric release of a single cylinder of hydrogen fluoride Operational Emergency: Alert; Site Area; General Emergency

   AS INDICATED BY Direct observation AND Confined within 100 ft from the release point

   AS INDICATED BY Direct observation AND Visible plume and/or odor observed 100 ft from release point but confined to the facility

   OR
   Plume/odor extending 100 ft but not =300 ft from the release point

   AS INDICATED BY Direct observation AND Visible plume and/or odor observed at adjacent facilities

   OR

Plume/odor extending to or beyond 300 ft from release point

AS INDICATED BY Direct observation AND Visible plume and/or odor observed beyond the site boundary

Protective Actions

- Initial Isolation Zone:
  - Evacuate personnel within a 200 ft radius

- Onsite Protective Actions
  - Shelter-in-place personnel downwind beyond 200 ft to site boundary

- Offsite Protective Action Recommendation
  - Not required - Initial Isolation Zone:
  - Evacuate personnel within a 500 ft radius

- Onsite Protective Actions
  - Shelter-in-place personnel downwind beyond 500 ft to site boundary

- Offsite Protective Action
  - Shelter-in-place personnel in Sector Y

Notes:

· Facility boundary and site boundary considered at 100-meters (300 ft) and 600-meters (1800 ft), respectively.

· Classification based on ERPG-2 value (20 ppm).

· Chemical properties of HF: molecular weight = 20; boiling point = 67°F; vapor pressure = 930 mm Hg @ 78°F

· RQ = 100 lbs/12.13 gal -- Submitter Unknown

3. Good example of a discretionary EAL- thanks! Could you re-send it as an attachment in your original word processor format? As you can see it got jumbled a little.

Larry/Rob: Notice the TSR-like statements that tell exactly which indicators must be satisfied. Although I don't think it's required by the Order or the Guide, it does seem like that's what OA likes to see. -- Kyle Brack

4. Under physical and chemical properties, you may want to add odor threshold since you use that as one of your prime indicators. The odor threshold listed in my Genium MSDS is 0.03 to 0.11 mg/m3. It would be good to also list the code (i.e., EPIcode or ALOHA or ???) you used to calculate concentrations versus distance. With the code, you should also provide all the input parameters so that others may do check calculations and see if they agree with the parameters you thought were appropriate. Finally, it is not clear to me why there are two different "shelter-in-place" distances (i.e., 200 ft and 500 ft) for onsite protective actions. OK? And thanks for sharing this.-- Richard Hickman

5. Rob/Larry: Are you both getting these? This looks suspiciously like Rocky Flats' EAL in the Transportation H.A. Chris, could you double-check to make sure these guys are on the list-serve? -- Kyle Brack

6. Chris, I believe the vapor pressure you used is for the gas. Liquid HF has a vapor pressure according to the Genium MSDS of about 130 mm of Hg. OK?
Thanks! -- Richard Hickman.

7. Just FYI- if I'm not mistaken, Chris Hanson is not the one who authored this- she only forwarded it as the administrator of the list-serve discussion group. This EAL looks like a Rocky Flats document I saw at the EMI-SIG. Somebody speak up if I'm in error. -- Kyle Brack

Question 3:

Want to make sure am using SCAPA's TEEL list correctly for converting ppm to mg/m3 and vice versa. It's not clear to me how to use their conversion factor, but then again I could mess up a dogfight. For Uranium, the TEEL-2 is already given in mg/m3, so do you divide by 9.73 rather than multiply? -- Kyle Brack

Response

1. Doug Craig at Savannah River is the person who stipulates or defines the ppm to mg/m3 conversion factors so he is the guy to address this Question. I can tell you that I take values listed in ppm and multiply them by the ppm to mg/m3 factor to get mg/m3. When the Table value is listed in mg/m3, I divide the factor number into it to get ppm.-- Richard Hickman

Question 4:
How have other sites applied DOE O 151, Ch V.3.a(1)(a)2 to their HA and EALs, where it discusses classifying an event based on exceeding a "small fraction" of the PAG or ERPG? -- Kyle Brack

Response:

We use the TEEL-2 value at 30 m, 100 m, and the site boundary distance for our determinations of Alerts, SAEs, and GEs. -- Ralph Hickman

Question 5:

Here's an idea for the Subcommittee. Since there hasn't been much (my opinion) in the way of sharing actual EAL and HA documents through the EMI SIG, could this closed list-serve somehow be used for this? Our e-mail system at Pantex uses shared folders for this kind of thing. I'd be willing to post our docs- anyone else? --Kyle Brack

Question 6:

Can anyone comment on how their site controls hazardous chemical inventories and/or administrative limits, and how you keep abreast of this information for emergency planning? Thanks -- Kyle Brack

Reponses

1. Kyle, Your question has at least three of the major elements involved in EP, but I can provide some information on what is done at LLNL regarding chemicals. The majority of chemicals are delivered onsite at one location where a barcode is attached to the bottle or jug or whatever, and then they are delivered to the user. The barcode information goes into a computer database called Chemtrack that records the facility and room and date and person and phone extension etc. Then when the barcode is returned to the Chemtrack folks, that item is deleted from that facility's database. There are some chemicals (and I believe at least one of these is arsine) that are handled differently. I can put you in touch with Steve Harris who can provide the details of the system used at LLNL, which is called Chemtrack. Steve's phone number is (925) 422-2256. OK Kyle?

   P.S. I am ccing you Steve to give you a heads up that Kyle or others may be calling you. OK? Thanks!!-- Richard Hickman

2. I have passed your request onto another set of people (Air Quality) who assist us in our "inventory quest". I believe they will contact you directly.

   As you might suspect keeping up with an active inventory is a large task. At LANL, I developed a listing of thresholds that are based on dispersion parameters. This was published in a Lab document LA=3DUR-99-260=0

   "DETERMINING THRESHOLDS FOR CHEMICALS".
   For those interested, let me know and I will get you a copy of the spreadsheet that was used to create a local (behind the firewall) web page. This listing is input as a table into an Access database and used to analyze the inventories that are
   electronic. The way the table was generated was considering the chemical in question was spilled in an open field on a hard surface under worse case met conditions to develop a plume. The dispersion equations were worked backwards to determine the amount of material that needed to be spilled to reach the ERPG/TEEL concentrations at the distances used at LANL for evaluating facilities (i.e., 30 m, 100 m, and the site boundary). In reality, amount of material for only the 30 m and 100 m distances were determined. If an organization exceeds those values, then a site boundary evaluation is also performed.

   LANL uses the automated computerized inventory system (ACIS) for the purchase, use and disposal of chemical. All chemicals that are purchased are automatically entered into the inventory. We made great strides to get contracting to code all orders for chemicals including those the organizations can order using credit cards. The system is not perfect, but we feel we are capturing 80-90% of all chemicals coming into the Lab. Most of this development was by our Air Quality personnel at the Lab. They needed the same information but for a different purpose from emergency management. The problem with the system is to get the chemists to track or indicate when they have either used the chemical or disposed of it. This usually results in a too high of an inventory number in ACIS.

   Twice a year, this ACIS data for each organization is then downloaded into an Excel spreadsheet and uploaded into the Access database. Through the query process, the data is summarized by chemical name, CAS, or other identifying indicators. Quantities are converted into common units (pounds, grams, etc.) and like commodities are summed together. Once this is accomplished, it is then run against the threshold screen outlined above.

Any materials that are in greater quantities than the thresholds, are identified along with the organization and individual responsible for the item. We then contact the organization to find out how much of the identified chemical do they really have on hand, and how much is their maximum amounts expected.

There are problems with the system: Each time a new ERPG/TEEL listing is published, a new set of thresholds needs to be developed for the changes in the listing. The amounts in ACIS may be at a "low" because the organization has just disposed of unused chemicals. There may be a new way of ordering chemicals that has not been fully explored. The threshold table may not have a threshold for the specific physical state of the chemical. An organization may "make" a new chemical for research. This works only for "pure" chemicals (not for mixtures). Does not deal with reactions of various spilled chemicals. Other problem inherit in the CAS system. For example, Hydrogen Fluoride gas as the same CAS as Hydrofluoric Acid (most acids are this way). Many times we will find the amount of material in the facility is really for the acid as opposed to the gas. The acid has a different vapor pressure and therefore is not a hazardous as the gaseous state and different thresholds apply. If it turns out that the facility has many small containers of a chemical in question, the total quantity in the facility still has to be considered for facility wide problems (e.g., fire, earthquake, etc.).

Hope this helps.--Gerald Ramsey

Question 7:

Curious to see how other sites are treating natural gas pipeline hazards in their hazards assessment. Noticed in the attached matrix from DOE HQ that ALO, KC, LANL, WIPP, and others have done this. Are you addressing it just in your hazards survey as a potential means of an Operational Emergency, or are you applying the rigor of a full blown quantitative assessment?

DOEPipelineHazardMa
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Responses

1. Here is the answer to two of the questions that deal with hazard assessments.

*Does your site hazard survey/assessment identify and examine the hazards associated with natural gas pipelines found onsite? The hazard survey for each structure identifies any instances of where natural gas will exacerbate a given scenario or cause the release of identified hazardous materials. Consideration was given to the poison nature of Methane but the TEEL-2 number is based on the explosive nature of Methane and not on the toxicity.

*Does your site hazard survey/assessment consider an emergency involving an offsite pipeline that could impact the health and safety of onsite personnel, or other DOE interest? The explosive nature of natural gas is the major issue. Methane is a lighter than air gas that will dissipate in the atmosphere. LANL has taken this into account and surveys all confined spaces for methane or other flammable gases. Monitoring for explosive levels of natural gas would be done in the event of natural gas pipeline failure. -- Gerald Ramsey

2. Thanks Gerald. So if I'm understanding correctly, LANL addressed natural gas as a potential hazard in your hazard SURVEYS, but did not include this in your quantitative hazards ASSESSMENT (i.e. dispersion modeling, etc) - right? Just trying to get a feel for various approaches. -Kyle Brack

3. I am unable to simply reply to you on the pipeline. However, we at Y12, Oak Ridge, have identified natural gas in our facility-specific hazards survey's and do plan to write an EAL or EALs to address the infrastructure of pipelines. We have looked at natural gas in our hazards assessments only from an initiator perspective (i.e., fire, explosion).


discretionary.wpd


ATT48600.txt

-- Eddie Bailiff

4. There was a scenario in the HA that had Natural Gas as a source of an explosion but this was mitigated so the scenario was removed. LANL recognizes that natural gas (as well as over 2000 TEEL/ERPG chemicals) is a potential hazard but in no case was the quantity on hand large enough to trip the screening hazard for methane so nothing tripped us into a HA. Our methodology is the same that is listed in DOE M 151.1-1 with the exception that we generated a screening table for all TEEL/ERPG chemicals because we wanted to know the quantity that would generate an alert so we have a given amount for methane. The fact that a pipeline can deliver large quantities is true. We do not have methane as scenario in the HA. -- Gerald Ramsey.