A Review of the After Action Report [AAR] 5 9 18
from Douglas County/University of Wisconsin Extension at Superior
related to the Husky Superior Refinery Fire  April 26 - 27, 2018
INTRODUCTION

The Husky Superior Refinery explosion/fires event on April 26-27 was most alarming for reluctance of Refinery managers and Superior Mayor Jim Paine to make the belated revelation that it was a near-miss toxic cloud release disaster accident. Husky was using a large storage tank of Hydrogen Fluoride [HF] that was relatively close to the explosion/fires, the shrapnel from which punctured the asphalt tank nearby but -- by luck-- missed the HF tank. HF in US refinery operations has been known for thirty years as having the potential for mass casualty releases, and only 50 of the 150 US oil refineries still use HF.

The event overall was a sobering indictment of the massive failure of Community Right to Know laws to be implemented in at-risk communities. It also was a revelation that the emergency preparedness of the Twin Ports communities at risk was sorely deficient – unsurprising, given the repeated revelations of unprepared communities by the US Chemical Safety Board in videos and Congressional testimony. But in the Husky event the feared release of HF did not occur, so like the Mayor of Mosier OR exclaimed about a lucky near-miss disaster with a crude oil train derailment on June 3 2016, citizens of the Twin Ports could say: “We dodged a bullet! [this time]”

This analysis of the brief Douglas County/U WI EXT after action review [AAR] of the Husky event is not intended to suggest that local emergency response can ever be adequate for a serious and fast-moving toxic gas cloud release such as HF, chlorine or ammonia. Instead, Twin Ports citizens are now aware because of intense media coverage and community activism that the HF disaster risk imposed by Husky refinery operations was completely unnecessary, given the existence in many US refineries of non-disaster processes in the refining of crude oil.

So the focus for safety-minded activity going forward should be not on emergency preparedness, but on prevention activities. A model example for this kind of effort can be seen in the vivid HF risk-reduction activity of the South Coast Management District in the Los Angeles area, where the ExxonMobil Torrance [CA] Refinery experienced an explosion event [similar to Husky’s recent one] that the alarmed US Chemical Safety Board investigated thoroughly and labelled a near-miss disaster.

This analysis critiques Mr. Anderson’s AAR as well as what it does not cover, especially the systematic withholding by Husky Refinery of HF disaster risk information from the Twin Ports public and even from emergency responders, which arguably put emergency responders and the public in great danger. This secrecy establishment over many decades meant that local
emergency responders had never taken seriously nor pre-planned the potential for a serious HF release, as suggested throughout the AAR document, for example when it states tentatively: “A potential mass evacuation may need to be addressed and/or reviewed; to consider where to relocate should the majority of Superior and Duluth residents need to evacuate.” [AAR DRAFT, p. 10]

The dangerous HF risk secrecy is described here mainly to underscore that vigorous citizen pressure will be needed to interject a significant role for the public in the Husky Refinery decision-making on whether it will convert to a non-disaster alternative or on how much disaster risk citizens will allow Husky to re-impose on the Twin Ports citizens. The latter choice is clearly assumed to be the most likely by local media, absent adequately vigorous pressure for conversion.


One should prudently assume that Husky is proceeding pell-mell but quietly [with employees no doubt sworn to non-disclosure of any details] to re-build the refinery – having decided not to expend the capital needed to create one of the safer alternative processes, which Husky has opined are “too new” to adopt until more other oil companies do. [Chevron Refinery in Salt Lake City has already done so.] No oversight mechanism has apparently been created by local Twin Ports local officials or WI or MN state officials to make Husky’s re-building process transparent nor to ensure a public role in Husky decision-making.

Surely if Husky were still in good faith searching for genuine non-disaster process alternatives, it would have made their ongoing safety and economic deliberations more transparent – even if a powerful oil company no doubt calculates it can afford to suffer some public relations setbacks when it defiantly rejects the strong wishes of an at-risk community for a safer, non-disaster alternative. Husky and the local Twin Ports establishment have dubiously suggested only that the two non-HF catalyst refinery alternatives, some of which in fact were developed by industry heavyweights like Honeywell and already implemented by Chevron Refinery in Salt Lake City, are “too new” for Husky to risk implanting.

The chemical release/emergency event at Husky Superior Refinery April 26-27 2018

The Husky explosion/fire event is succinctly described in the US Chemical Safety Board’s Factual Investigative Update, a four-page investigation interim report released in August 2018.
The Board’s interim update report suggests a likely cause of the explosion and quickly highlights what alarmed the Board as the most serious chemical disaster risk posed by the event: the Husky event was a near-miss Hydrogen Fluoride [HF] release disaster similar to the explosion on 2 28 2015 which the Board had recently investigated at Torrance CA’s ExxonMobil Refinery.

The CSB had even produced a video animation to illustrate the ExxonMobil explosion event, for the benefit of other petrochemical industry facilities and at-risk communities, since the Board has stated that similar equipment and safety system deficiencies and disaster risks are likely to prevail elsewhere.

The CSB highlighted the lack of an adequate “safety culture” at ExxonMobil [one of the largest oil companies] and lamented that the company had kept secret its key HF use and risk documents which the Board demanded to review. ExxonMobil successfully fought the Board in court, maintaining that since the HF tank at the Torrance Refinery had [luckily] not been punctured by the explosions nearby, the Board was not authorized to demand the HF-related documents.

Similarly, the near-miss HF disaster aspect of the analogous Husky Superior Refinery event was withheld from public disclosure as long as possible after the event by Husky management and the few local officials who might have been aware of the HF risk, until local reporters informed by outside experts persistently pressured them at press conferences to directly address the HF risk issues. Superior City Mayor Jim Paine had belatedly ordered the clueless public to rush into a 10-mile-long, unrehearsed and apparently never anticipated community evacuation South, but citing the Husky “fire” and in early media briefings never candidly citing the HF disaster risk as the reason.

He was finally forced to admit publicly that the ongoing event, could have been “catastrophic”, given the proximity of the Husky Refinery HF tank to the initial explosion and potential future shrapnel-producing explosions. By sheer luck, the original Husky event explosion had hit the asphalt tank instead of the HF tank, causing a massive fire but not the catastrophe of a serious HF toxic gas cloud release.

The AAR from Douglas County and the small University of Wisconsin Extension at Superior [one of the four staff members James Anderson was apparently the author] does not discuss that Husky management surely feared from the beginning the Worst Case Scenario that previous Superior Refinery owners had reported in their periodic federal Risk Management Plan.
documents -- but not vividly communicated to the at-risk public -- that some fire or explosion event could impinge on and cause a release of the HF storage tank. The AAR is also not clear regarding when Husky management clued the young Mayor in on that risk.

The coverup of Husky HF toxic gas risk information extends into the August 2018 AAR document reviewed here. The most important questions this raises are:

1. How many of the significant emergency response [ER] deficiencies noted in the AAR were in significant part due to the decades-long withholding from the public – a gross subversion of Community Right to Know -- of the disaster risk posed by Husky’s [unnecessary] use of HF as its alkylation catalyst? One can hardly expect to have adequately funded ER planning, training and capabilities if the tax-paying public is carefully kept in the dark about the existence of a serious chemical disaster risk.

2. And without a vigorous public airing of that withholding and its link to consequent ER deficiencies, how can the Husky corporation be trusted to make a responsible decision to convert to one of the available non-disaster alternative processes in a re-built refinery?

The nature of the 18-pp joint agency document reviewed here [“the AAR”]

[See the AAR on the Twin Ports Action Alliance website. https://www.twinportsactionalliance.org/

It is seemingly not on the Douglas County or U WI Extension websites]

This long-withheld document was finally obtained by sustained community pressure. Requests to local agencies for their individual After Action Reports from the Husky emergency were denied. Presumably information in the set of individual agencies’ AARs would shed light on these issues.

The rationale for denial was that instead James Anderson of U WI Extension would be producing a joint agency AAR report from a multi-agency meeting which was held finally on May 29, 2018, a month after the April 26 Husky Superior Refinery accident on April 26-27.

That joint document production process also was non-transparent and took weeks, and an early draft report was repeatedly withheld from requestors, which led to the filing of formal Public Records Act requests to the University of Wisconsin and to Douglas County by community members and by a national expert. Of course the value of any agency or joint After Action Report depends crucially on the willingness of participants to provide honest reports and evaluations of activities during the ER, and usually therefore a lessons learned discussion is held soon after the event so fresh memories can be tapped.
Mr. Anderson’s AAR does not discuss whether it was hoped that having a large group discussion on the 52-agency ER to the Husky event would likely result in more – or less -- candor in making public important “lessons learned” than individual responding agencies’ after-action meetings and documents would have.

The AAR cover page [See in END NOTES ] shows the extended period of time, while the AAR was being produced, during which – reportedly by mutual consent – all individual after actions reports [AARs] from any of the 52 responding federal, state or local agencies [according to the list provided by Douglas County Emergency Management Department as having assisted in the emergency] were being reportedly withheld from public scrutiny. It is not clear even how many, if any, of the agencies eventually have produced their own agency AARs, as is general professional practice after a major Emergency Response [ER] incident. This joint agency AAR report mentions no such documents. Presumably a review of these individual agency reports might shed valuable light on issues raised in this report.

Even now the AAR document is labelled only a “Working Draft”, which has been sent over to the Douglas County lawyer for some kind of vetting. This document is clearly incomplete, and reflects a failure of nerve in the ER agency community, in that while indicating some “Key observations/analysis, Strength Areas and Improvement Areas for six Core Capabilities”, it gives none of these a “performance rating” [as is provided in the template which organizes the AAR] based on the overall performance by the responding agencies, nor of any specific agency [pp. 5-13]. The AAR also tellingly provides no indication of discussion or evaluation using the template of any strengths and failures of the Husky Refinery Emergency Response Team’s [ERT] response to the event, much less of Husky’s provision of key risk information to the community before the event or afterwards during press conferences.

The AAR introduces the pinched scope of its post-event analyses, which clearly indicates an intent to extend a velvet glove approach to Husky Refinery management:

[p. 5] “This after-action report does not examine events that led up to this fire, root causes, or other issues related to the operation of the impacted business. Discussion during the after-action review meeting held on May 29th focused on the following three [sic] questions:

1. What was expected to happen? [A discussion of withheld disaster risk information could have been usefully placed within this part of the AAR.]
2. What actually happened?
3. What went well and why?
4. What can be improved and how?” [note: not “why?”]

The AAR, while making no tough calls itself in scoring either Husky or the local agency ER efforts, offers a kind of abstract “taxonomy” template that perhaps suggesting that each
responding agency might now use to evaluate its own actions, and to supply the suggested “P, S, M, or U” scores evaluating aspects of the overall local ER effort in the Husky event:

“Analysis of Exercise Core Capability Performance

Aligning exercise objectives and core capabilities provides a consistent taxonomy for evaluation that transcends individual exercises to support preparedness reporting and trend analysis. Table 1 includes the exercise core capabilities with associated overall performance ratings (P, S, M, or U) as evaluated in the exercise.” [p. 5]

The AAR’s “Improvement Plan” section, furthermore, includes no indication of any local Twin Ports agency being assigned or accepting future responsibility for implementing the many needed actions suggested in that Plan. Nor does the AAR mention any demands being made upon local or state or federal agencies or legislators for the appropriate resources that would be needed to remedy the problems indicated in the report. Most important, the AAR mentions no demands made directly by the responding agencies and officials on the Husky Superior Refinery or the corporate headquarters [“Husky”] for Refinery changes that would eliminate serious disaster risks or even to improve regional emergency response capabilities in the future.

The AAR reflects therefore mainly a disciplined effort [the origin and leadership of which is unclear] to quash any potentially troublesome “free-lancing” responses by individual ER agencies who might differ hotly about key facts or assessments. Husky management no doubt welcomes this effort which reduces the public airing of facts which might prove damaging to Husky in future liability tort lawsuits by citizens or emergency responders.

The focus instead is on producing what the entire group of ER agencies [including presumably the Husky Refinery ERT staff in attendance] could be seen as willing to make public as their consensus about accomplishments and challenges in the ER on April 26-27.

This AAR production effort was apparently produced [no budget info has been revealed yet] largely by a staffer [one of only four] at the small University of Wisconsin/Extension at Douglas County [U WI Ext], James Anderson. It is important to note that Anderson also has served on the Husky Superior Refinery’s own Community Advisory Panel [“CAP”] for some time.

The membership of Husky Refinery’s CAP [one of scores of similar facility-chosen and -directed panels which the US chemical industry has in the post-Bhopal disaster era promoted for PR purposes] had apparently been kept secret for some time by company policy. It was kept secret when post-event inquiries were first made, but community pressure eventually forced the release of the membership list.

Husky Superior Refinery itself maintained a posture of minimal information at post-accident public media events, and its PR consultants also set up, in partnership with U WI EXT which hosted the event, some community “listening sessions” at which [no doubt coached by their
new PR consultant] Husky would not make informative presentations, but merely gather intelligence about what the community’s concerns were as they vented after the April 26-27 events.

The AAR does not outline fully what roles Husky Emergency Response Team [ERT] staff played in the ER to the April 26-27 event, for example, whether they were key players in a possible “Unified Command” structure adopted for the event. Nor is it clear what role Husky played in the production of the AAR document itself [which notes that Husky staff are busy with their own internal investigations], nor whether later versions of this AAR will eventually be evaluating [with scores as the template suggests] Husky’s ER efforts along with those of the some 52 responding agencies.

One is left to presume, therefore, that the young and new Superior Mayor Jim Paine [likely shaken by learning quietly during the event what a massive tragedy could develop] and his local ER agencies were relying heavily on Husky management advice regarding what risk information to share with the public in joint media briefings, when to issue and cancel an evacuation orders, etc.. The Mayor [presumably shaken when he realized the possible disaster risk posed by the Husky even] was clearly intent on downplaying the HF risk whenever possible.

While at one point he joined Duluth Mayor Larson, with a letter similar to hers calling for Husky to convert away from HF when re-building the substantially destroyed refinery, http://www.duluthnewstribune.com/business/energy-and-mining/4439779-mayors-oppose-hydrogen-fluoride-use-superior-refinery

he has not followed up vigorously with any sustained demands for a public role in Husky’s decision-making nor with any kind of legislative or agency investigations into the issues this review [and one can hope the US CSB] will outline with the emergency response.

The AAR reveals many quite serious deficiencies in the ER to the Husky explosion/fires event, but fails vividly to address key contributing factors

The AAR report, based on topics raised in a day-long joint discussion of representatives from many agencies, throughout candidly lists or clearly suggests many often quite serious deficiencies [as well as some strengths] in the community’s multi-agency emergency response [“ER”] to the ongoing April 26-27 explosions/fires events (“April 26”) at the Refinery. These issues suggest a similarly seriously deficient pre-event emergency planning. The AAR does not similarly list issues with the Husky Refinery’s own ERT efforts, but does suggest in a few sections that the Refinery ERT staff worked well with the local agencies throughout the emergency and was more capable of coordination of ER efforts than the agencies were.

The AAR nowhere casts a critical glance at Husky Refinery [which was said to be busy with its own internal investigation of the event]:  [p. 5] “This after-action report does not examine
events that led up to this fire, root causes, or other issues related to the operation of the impacted business... “

A core failing of the AAR, therefore, is that it deliberately continues what is apparently a quiet local consensus to avoid addressing the long-standing withholding of crucial pre-emergency risk information by Husky Refinery from the at-risk community and from the relevant local emergency planning agencies -- namely, on the most serious potential chemical releases that might have occurred in the Twin Ports. Withholding of this information from the community arguably raised the disaster risks substantially, for the 52 responding agencies and for the at-risk public – especially if an actual HF release had occurred for which the community and officials would have been woefully unprepared.

If on the contrary the two long-standing federal Community Right to Know laws had worked as intended, such information would likely have enabled an informed community to respond more adequately and presumably would have fueled pressures for more substantial planning and response capabilities, the absence of which the AAR has amply indicated. But it would have also possibly fueled earlier community pressure for a safer alternative to Husky’s use of HF. See the speech to the US chemical industry by an important Congressional champion of the first Right to Know bill, Rep. Jim Florio, in END NOTES]. It was he who discovered after the 1984 Union Carbide toxic gas cloud disaster in Bhopal India that American chemical firms had done millions of dollars worth of Worst Case Accident scenario analyses but not revealed these to local communities or emergency response officials.

The AAR suggests there was no pre-event discussion among the Twin Ports ER agencies about what a major HF release could have meant for nearby communities and businesses. For example, the vigorous Cuyahoga County [Cleveland] OH LEPC had done thorough pre-planning with a consultant assisting individual district fire chiefs and high-risk facility managers in ten local Fire Districts on calculating Worst Case Scenario toxic cloud distances and speeds of cloud travel into what the LEPC dubbed blandly the “Near Zones” -- namely the areas closest to the facility within which neither evacuation nor Shelter in Place would be effective in sparing the population. When the LEPC held public meetings to discuss its findings the facility managers feared that the public would promptly label these as “Death Zones”, which in fact did occur. But LEPC members reported that the discussion was valuable in prompting some newly
informed and concerned facility managers immediately to consider converting to safer chemical
COMMUNICATING RISK:

Congress and the Promise of Right to Know
Below are excerpts from remarks made by JAMES F. FLORIO, currently Governor of New Jersey. His talk, titled The Promise of RECPA, was given at the First Annual Conference of the National Institute for Chemical Studies in Charleston, West Virginia on March 11, 1987. At the time Florio—a primary author of RECPA—was serving in the House of Representatives and was Chairman of the Subcommittee on Commerce, Consumer Protection and Competitiveness.

"As a participant in the development of the Emergency Planning and Community Right-to-Know Act of 1986, I took careful steps to assess the need for federal legislation in this area. I found many communities which expressed frustration at the unwillingness of their corporate neighbors to divulge vital information about the types of hazards that existed on the facility's property. The message I got was that any long-term solution to emergency preparedness required more openness and shared information between those handling toxic chemicals and those exposed to them.

I was also told by corporate officials who were forthwithing with information that key local officials did not take the time or effort to properly assess planning needs in order to respond to emergencies effectively. While this local reluctance to participate in the planning process does not exist everywhere, it became clear to me that any federal law had to blend an open exchange of information with a planning infrastructure that would put this new information to its best possible use.

The need for this accountability and greater state and local responsibility became the cornerstone of the federal right-to-know legislation. While this legislation travelled the rocky road through Congress, the two-part foundation remained intact from beginning to end. Congressman Bob Wise and others led the fight to toughen key provisions of the law and their accomplishments will be felt for years to come. But the essential twin goals of greater industry accountability and greater state and local responsibility are what signal the real change in the way we will prepare for toxic emergencies.

"I found many communities which expressed frustration at the unwillingness of their corporate neighbors to divulge vital information about the types of hazards that existed on the facility's property."

How does the Right-to-Know Act achieve these objectives? First, the law requires the chemical and petro-chemical industry to put all their cards on the table. The industry is no longer in a position to selectively decide what information will be turned over to the public. Nor will the industry be permitted to hide behind claims of confidential business information and trade secret protection. The Right-to-Know Act specifies what information must be made available to the public and carefully limits the scope of trade secret protection only to narrow amounts of information that must be withheld in order to protect corporate innovations. They can withhold no more and no less.

How should these toxicities be used? I believe that, as a starting point, any local planning effort should carefully focus on a thorough risk assessment of their community. Only by gaining a complete understanding of the risks faced by the community can local officials be able to develop sensible emergency response capabilities. To make well-founded risk management decisions, the local emergency response committees can use the chemical reporting information required by the Right-to-Know Act. But it must be recognized that this information, although extremely useful, should not be relied upon to the exclusion of other information.

"With the added information available under Section 303(d), the Right-to-Know Act offers local officials the opportunity to turn the spotlight on all of the activities of the local facility, not just those aspects the local plant may be willing to divulge."

In particular, I would commend each of you to read a little noticed, but critically important provision in the Right-to-Know Act — Section 303(d). It is worth citing this specific provision because of the potential breadth of its effects. Section 303(d) says that, upon request from a local emergency planning committee or operator of any facility subject to the emergency planning provisions by the Act must promptly provide information to the committee for developing and implementing the emergency plan. The U.S. EPA, the state emergency response commission and the local emergency response committee themselves are authorized to enforce this far-reaching requirement against recalcitrant facilities.

What this provision means is that the emergency response committee can obtain all the information they need in plan for emergency responses, not just the information requiring reporting under the Act. To be sure, the Act’s reporting requirements offer a tremendous amount of information to the local committee, but Section 303(d) will fill any gaps and provide supplements to the Act’s reporting requirements.

Let me give you an example of how Section 303(d) will work in practice. Suppose a local emergency committee is trying to assess and plan for the toxic risks of a complex chemical plant in its neighborhood. The committee has received a list of the toxic chemicals at the plant, the average amounts handled and the annual estimates of emissions, all required to be reported under the Act.

But, as many of you know chemical plants handle their chemicals in a variety of ways. Sometimes these substances are stored under license pressure at these temperatures. This risk can be very different depending on the manner of use and storage of these toxic substances.

Consequently, the local committee will likely want to conduct complete hazard assessment of the facility to determine in a more exact way the true risks from the plant. Using Section 303(d), the local committee can receive the facility’s own hazard assessment, if any, which would provide the company’s own projections for air releases, water releases or explosions under a variety of conditions. In addition, if one chemical is of particular concern because of its immediate toxic effects, such as MIC (methyl isocyanate), the company will be required to provide the local committee with detailed information on the precise uses, storage conditions, and likely community risk of this chemical.

With the added information available under Section 303(d) the Right-to-Know Act offers local officials the opportunity to turn the spotlight on all of the activities of the local facility, not just those aspects the local plant may be willing to divulge. Obviously, the provisions of the Right-to-Know Act signal a turning point in the way we approach toxic risks. The days of concertation and distrust between local citizens and neighborhood chemical plants must be put behind us. The federal Right-to-Know Act essentially requires full disclosure by those handling toxic chemicals. For industry representatives, this means that the path to cooperation and trust will in the long run produce greater results for plant safety and community protection. I would hope that the simple principles of the Right-to-Know Act will spur greater industry cooperation and willingness to fully engage in the planning process.

James F. Florio

The Community Plane - Spring 1984
process alternatives. As with similar toxic emissions risk reductions in communities after media coverage of the annual Toxic Release Inventory information required by EPCRA Section 313, Sections 302, 303 and 304 were intended to spur similar risk reductions in chemical accident potentials.

The most important risk information withheld from the public and media before, during and after the Husky ER event on April 26-27 concerns the Refinery’s potential for a catastrophic toxic gas release of Hydrogen Fluoride [HF]. Arguably, the predictable and most salient results of this withholding [over decades] by successive owners of Refinery-related potential disaster risk information [as suggested by the evidence commendably compiled in the AAR] were serious and dangerous deficiencies:

● deficient emergency pre-planning
● deficient training for the public and for responding agencies
● deficient capabilities for a serious emergency [e.g., interoperable communications, transportation in a substantial evacuation, coordination of efforts and of messages to the public]
● a seeming lack of credibility of local officials with the public, in that the alarmed Twin Ports public [the AAR laments] too often relied on social media for key information during the event:
  “Citizens and media should be directed where to look for reliable information rather than try to cover all social media.” P.6 “Some confusion about evacuation zones.”

● even the key local ER agencies kept in the dark, who the AAR says even weeks later still were confused about the rationale for the belated Mayoral order of a 10-mile evacuation zone:
  Questions about the reasons for the evacuation? Was it smoke, fumes, what could happen? [p. 9]

● Husky Refinery and the Mayor were able at their first press briefings on April 26 to maintain silence about the potential HF disaster risks, and only finally relented in later briefings under persistent questioning by reporters who were in touch with outside chemical safety experts.

The initial accident explosion was heard offsite at 10:00 AM on April 26 [some Husky employees had reportedly already fled to safe rooms in the refinery, according to the US CSB report]. From the beginning of the ER to the Husky event, there was an effort by on-scene Incident Command to minimize publicly the disaster risk, so that at first a public notice of “No need for sheltering or Evacuation” went out at 11:30 AM. When the event proved much more
uncontrolled than earlier expected, the early order was soon reversed, with the first 10-mile evacuation notice gong out at 12:43 PM.

Later the principal players in the media briefings, the Mayor and Husky management, fostered sustained mis-directions of public concern. The Mayor maintained that the main public safety risk was from potential toxic chemicals in the towering black smoke cloud from burning asphalt, which cloud was moving south with the then-prevailing wind. The clear message was that this cloud was the driver for the 10-mile evacuation zone he ordered. [See END NOTES for example of such evacuation messages]

The unplanned evacuation of thousands of Superior citizens unsurprisingly was problematic from the beginning. The AAR’s Incident Timeline notes that within one hour of the first post-explosion evacuation order at 12:43 PM, by 1:29 PM there was “Evacuation zone confusion noted” [p. 2] within the responding agencies. Aerial videos showed gridlocked autos headed South as ordered on two-lane roads, with fleeing drivers politely using only one lane. http://www.duluthnewstribune.com/video/8knYwePV

While citing briefly some specific ER deficiencies [interoperability in communication, transportation, exercises] the AAR has almost no explicit discussion of specific problems with, and no overall evaluation of the effectiveness, or lack thereof, of the April 26-27 evacuation which lasted 17 [12:43 PM-6 AM]. For example, the Timeline [p.3] suggests that because of inter-agency communications deficiencies, the contacts between the two evacuation centers and the EOC were not established until 2:30 PM, and then only with the help of local ham radio operators. [p.3] The locations of these centers were not cited, nor the success of the
evacuation arrangements directed by the agencies. There was virtually no citation in the AAR of conversations to gather information from community members.

The AAR tends to blame whatever failures were observed to communications problems among the agencies and on citizens who the AAR says relied on possibly inaccurate anecdotal accounts on social media for emergency evacuation information. Conceding widespread confusion about the evacuation, the AAR says the region needs in such emergencies a “unified voice, especially for issues like evacuation zones.” [p.14]

[p. 7] Social media misinterpreted the evacuation zone and led citizens and businesses to evacuate that may not have necessarily been in the evacuation zone; the Enbridge facility, where incident command was located, was beyond the one-mile radius of the evacuation zone.

The evacuation zone was deemed confusing by many agencies. Nothing north of 28th street needed to be evacuated; the actual evacuation zone was a one-mile radius around the refinery, 10 miles south and three miles east and west of the south evacuation line.

The withholding of key disaster risk information helps explain the apparent lack of specific pre-planning and needed practice by local ER agencies, suggested on the AAR, p. 8. The AAR does explicitly suggest briefly that local ER agencies had done some pre-planning with Husky management for some other non-HF varieties of refinery accidents [not explaining what kinds of accidents were drilled on], but not for the greatest potential disaster, a serious HF release. The AAR noted this effort as a “strength area” feature of the April 26-27 overall ER event [so also suggesting how valuable it would have been for local agencies to have trained with Husky Refinery specifically on an HF potential release]:

“A lot of organization done by Husky which assisted in collaboration with Fire Department and Police Department; planning, safety, logistics, operations were already set up and ready to go. Due to the nature of event (timing, location, breadth, etc.) pre-planning for each potential variable is difficult, but regular and routine practice between organizations proved beneficial.” [p. 8]

The misleading information in the belated multi-agency AAR document reproduces and continues the overall withholding of disaster risk information mentioned earlier. Further evidence of the extent of an ongoing effort to cover up the most serious [HF disaster] risk is that the AAR mentions “explosion” only as the very first word of the timeline [p. 2] of the report [and never again] “Explosion reported at Husky Refinery by Husky Security”. The rest of the 18-pp. AAR report characterizes the event as “a fire”, and neglects to mention the initial
explosion [nor explicitly any fear of ongoing explosions]. The first produced shrapnel which flew nearly 200 feet and clearly [according to the CSB preliminary report] punctured a very large asphalt tank, releasing 15,000 barrels of hot asphalt, which led to many hours of recurring fires onsite.

Given that the long-uncontrolled fires at the Husky event – as in any refinery crowded with flammable and explosive processes – could have compromised the HF tank integrity with either very nearby fire or more distant explosions, the official line that the danger was from toxics in the smoke risked downplaying the danger to the at-risk public.

The official evacuation announcements from Superior Emergency Management consistently maintained that the risk was from a “fire”, even in the midst of what WDIO-TV describes as “conflicting” information on the scope and direction of evacuations: [see example in END NOTES]

The AAR document also stoutly maintains throughout this official line that the April 26 event was simply “a fire”, which of course sounds like something local ERs have experiences in “fighting”. The overall tone and message of the document is to suggest calmly that the Twin Ports communities’ ER performance at the “fire” [citing many “community partners” who are portrayed as working successfully, despite some glitches] was able to prevent serious death or injury, so overall was in no way remarkable nor alarming:

[p. 5] “Incident Hazard or Threat:

*Industrial fire* at the Husky Superior Refinery located at 2407 Stinson Avenue in the City of Superior. The response to this industrial incident was a multi-jurisdictional response.

**Incident Summary:**

*An industrial fire* occurred at Husky Superior Refinery. This fire required assistance from multiple jurisdictions to extinguish, mobilized the Incident Command System and Douglas County Emergency Management. The event required an evacuation of a portion of the City of Superior, a 1-mile radius evacuation zone was established and extending south 10-miles (and 3-miles east and west of south evacuation line). The evacuation order was lifted the morning of Friday, April 27, 2018. This after-action process examined emergency services and emergency management response to this incident, and community partners that include schools, medical services, and others.

Local media were at first successfully diverted into focusing on the smoke issues, but soon were informed by outside experts that the HF toxic cloud risk was the actual, if hidden, rationale for the 10-mile evacuation South, as seen in this article: [http://www.duluthnewstribune.com/news/fires/4438508-smoke-plume-burning-asphalt-likely-was-toxic](http://www.duluthnewstribune.com/news/fires/4438508-smoke-plume-burning-asphalt-likely-was-toxic)
The interim Update report from the US CSB briefly suggested a mechanical cause of the explosion at Husky could have stemmed from a slide valve problem, but usefully highlighted publicly the risk posed by the near-miss disaster with HF at Husky, and local media readily concluded that this is what prompted the major evacuation:


See also Danielle Kaeding’s reporting on Wisconsin Public Radio on the Husky event, e.g., at: https://www.twinportsactionalliance.org/

The dominant misleading tone and message [apparently shaped by Husky management] of the Mayor on public appearances, in the media, and on his Facebook page was that, in effect, the system worked: the local ERs acted heroically and successfully in suppressing the onsite fires, and Husky’s safety system related to HF [e.g., the water curtain which Husky turned on] also worked successfully to prevent a potential HF release. No dead bodies to be seen, thank goodness.

The Mayor in public put on a brave face: “This community is aware we have an oil refinery. We’re prepared for this. We’ve done extensive training,” Paine said. “We’ve invested in equipment and infrastructure. We probably have the best fire department in the country to respond to an event like this.”

The AAR’s report from one of Husky’s briefings to the agencies in the Emergency Operations Center helps underscore Husky’s deflection in misleading directions away from HF disaster risk to fire [hence “water curtain” reference] and toxics in the smoke [hence focus on “Air Monitoring”]. Even the local ERs were apparently never clear about the puncture risk from HF, nor on how irrelevant water curtains and air monitoring would have been in that eventuality.

Husky reported disingenuously that its water curtain had successfully protected the HF tank from release due to nearby fires [when the real HF disaster risk concern was from a possible explosion-caused missile puncture, which a water curtain is not designed to prevent].

[p. 3] “APRIL 27, 2018

12:05 AM

- EOC Briefing-From Facility, inspections look good, they continue to examine. Minimal impact (near HF?) due to water curtain in that area. Continue to look at tank farm, all looks ok. If situation remains stable should be able to lift evac notice by 6am. Air Monitoring continues.”

In fact, the Husky tank’s water curtain may have somewhat protected the HF tank wall from being weakened by any fire that could approach nearby, but the effect of such measures in an
actual release is quite questionable. As the most prominent national expert stated pessimistically to the Minneapolis Star Tribune: “If you spray enough water, you dilute it,” said Ron Koopman, a retired scientist at Lawrence Livermore National Laboratory and a longtime researcher of toxic gas releases. “But it takes a lot of water, the water has to be applied perfectly to the cloud — and it has to be applied immediately.”


Husky’s water curtain was in no way designed to protect the HF tank from puncture. The Los Angeles regulators, who are planning a serious upgrade in mitigation technology at the Torrance CA ExxonMobil refinery which had the 2015 near-miss HF disaster as the US CSB highlighted, have vividly highlighted the kinds of new robust safety measures that they are considering mandating within two years which would protect that refinery’s HF tank from puncture from nearby refinery process explosions [in addition to various water mitigation features for an HF release which the SCAQMD consultants and its slide presentation evaluate rigorously].


The inadequacies of the Husky event emergency response highlight the systemic and dangerous undermining of Community Right to Know about chemical disaster risks

The AAR document timidly but steadfastly avoids any speculation or discussion of underlying reasons for the lack of preparedness noted in so many basic and critical areas. The facility accident’s most proximate “root causes” in terms of deficiencies in the Refinery’s facility equipment and safety management systems will be rigorously examined over several months by the non-regulatory US Chemical Safety Board, which has already issued a preliminary statement with its early estimation of the main mechanical cause of the accident as the likely failure of a slide valve, as the Board also found in the 2015 recent refinery accident in California.

But this AAR also studiously declines even to mention that the arguably un-American withholding of risk information from the local officials and the community by Husky Refinery and by local agencies. Most notably, the withholding of information on the potential for a major HF toxic cloud disaster that could have impacted both Twin Ports with one wind shift, hardly rare in the Lake region] was likely a major contributing factor to the critical inadequacies noted in the April 26-27 emergency response, and the underlying prior inadequacies in
planning, training [e.g., apparently no history of local much less regional field drills or tabletop exercises regarding a potential HF release] and capabilities [failures noted regarding interoperable communications, transportation, etc.]. How can one expect a local community to fund sufficient emergency response planning, training and capabilities if the community is never educated about the risks?

Two federal Community Right To Know [RTK] laws since 1986 [the Emergency Planning and Community Right to Know Act (EPCRA) and the Clean Air Act Amendments of 1990] have been based on the Congressional premise that if facilities can be forced to provide their own facility-specific disaster risk information to public officials [federal and local, including 4100 new Local Emergency Planning Committees created in the US], the public and media can use this information to pressure the facilities to reduce toxic risks.

In the Twin Ports area, only one article in the past many decades has highlighted the HF risk from Husky, and that was an 2011 excellent article on US communities at risk from HF disasters, from an ongoing national research project initiated and written by national public interest group-funded staff [not local reporters]. The series and its national interactive map did cite the Husky Superior Refinery for its HF use, one of those in a population area “less than 700,000”, but there was no apparent follow-up from Twin Ports local media or officials.

Communities at risk from oil refineries that use toxic chemical

By Kimberly Leonard  February 24, 2011

https://www.publicintegrity.org/2011/02/24/2118/use-toxic-acid-puts-millions-risk

https://www.publicintegrity.org/environment/health-and-safety/fueling-fears

When the editor of the Duluth News Tribune was challenged after the Husky near-miss HF disaster event to say whether even a single citizen of the Twin Ports cities had ever been informed beforehand about the Husky Refinery HF disaster risk, he cited this sole 2011 article that his paper had been persuaded to publish as proof that the Twin Ports at-risk communities “had not been kept in the dark”.

Tellingly, the AAR document has discreetly made no mention of the adequacy [or not] of the operation of the Douglas County Local Emergency Planning Committee [LEPC], most pertinently of its effectiveness [or not] in communication of chemical disaster risk information to the at-risk public and how that might have impacted citizen behavior in the problematic July 26-27 evacuation and in seeking out social media sources for risk information. As an indication of some of what a respectable LEPC should have been doing all along, the Minneapolis Star Tribune, after the Husky event put HF disaster risks into the public eye, on May 6 2018 visited the US EPA Region 5 office in Chicago and revealed the federally-required information from the
HF-using Andeavor Refinery on the 22-mile Vulnerable Zone covering 1.5 million Twin Cities residents.

Then the Duluth News Tribune belatedly published on 6 2 18 an article outlining the similar kinds of available risk information for a handful of [six] local Twin Ports chemical facilities that posed serious enough offsite chemical release risks that the federal Community Right to Know laws had required them to report their offsite risk information to US EPA and to the Douglas County LEPC, and in the Duluth area to the Regional Review Committee said disingenuously to be “serving as the LEPC” [see below].


**Husky Energy refinery description**

— **Toxic Worst-Case Scenario:** 39,540 pounds of hydrogen fluoride/hydrofluoric acid spilled and vaporized over 10 minutes  
— **Maximum Area Threatened:** 22-mile radius  
— **Maximum Residential Population Threatened:** 180,000

**The lack of seriousness in emergency planning efforts in the Twin Ports** is suggested by the facts that Douglas County’s own inadequate emergency plan is not available online or in local libraries, and is available for viewing by the public only on a very restricted basis, one hour a day, by appointment. **No analysis or recommendations in the AAR refers to the existence of this virtually hidden plan,** nor of its relevance to or coverage of the HF risks at Husky, much less to any coordination of Douglas County as pre-planning or drilling with Duluth/St Louis County for a potential cross-border emergency event from the Refinery.
In the other Twin Port, St Louis County MN officials reported that since 1989 Minnesota has abolished all of its LEPCs [which Congress said should include some 13 kinds of stakeholders] in favor of Regional Review Committees. The state law gives industry officials one-third of the seats and a mandate only to review the ER plans prepared by local agencies. This is a reversal of what the federal EPCRA law aimed to create in the LEPC mandate, a new, vigorous and informed local multi-stakeholder institution independent of the existing emergency management agencies widely seen as ineffective.

The Regional Review Committee staff for Region 6 [Duluth area] tellingly reacted to post-Husky April 26-27 event questions about the Duluth area’s disaster preparedness with an immediate and heated evasion of responsibility that indicated the deplorable although heroic effort to assert that “That Husky Refinery accident was a Wisconsin event, not a Minnesota event!” [telephone conversation]

In fact it was clear to the post-Husky event AAR meeting participants that a serious HF release could have carried a toxic gas cloud well into Duluth, depending solely on the wind. The AAR reported as a question:

“What if this event had impacted Duluth as well (e.g., a wind shift)?” [p. 12]

The fear of an explosion likewise puncturing the relatively nearby Hydrogen Fluoride [“HF”] storage tank and releasing a huge toxic gas cloud offsite was not cited in the AAR as the definite rationale for the eventual 10-mile long evacuation zone order. The only mention of HF by Husky in the April 26-27 Timeline came not until the Emergency Operation Center [EOC] briefing held after midnight on April 27. This AAR item suggests the withholding of key information from Husky to the “confused” local ERs and Husky’s apparently successful attempt to disguise the real nature of the potential HF release threat.

The AAR mentions [p. 5] the implementation of an Incident Command System [ICS] for the event, but did not discuss whether a Unified Command including Husky representatives was established. Related to this, there is no detailed discussion of Husky’s role in the ER, either in its participation alongside the Incident Command, nor regarding its provision [or not] of accurate information. Husky staff cooperation is noted briefly:

1:00 PM

• EOC briefing: ...

3:00 Update form Incident Commander:

• Husky staff will be moving and operating EOC out of Enbridge building.
• Command will operate out of the Husky Maintenance building
• Investigations continue

4:30
• Douglas County EOC is closed. Command and husky staff moving to Enbridge by Mariner Mall.” [p.4]

The AAR provides only a hint of Husky’s withholding of key potential toxic gas release risk information in the timeline [pp. 2-4]. Husky and the Mayor ignored questions on HF posed by reporters before the cameras. Later and only reluctantly under persistent reporters’ questioning did they admit that the event could have resulted in a toxic gas cloud “disaster”. The Mayor persistently deflected attention from this issue by maintaining that the greatest risk would be from toxics in the asphalt tank fire’s towering black cloud, moving south with the then-prevailing wind. So in fact the evacuation would be lifted only when inputs from US EPA air monitoring indicated minimal risk to citizens:

[p. 4] “2:00 AM
• Command/EOC briefing-Safety top priority (responders/public).
• Tank 101 some hot spots yet.
• Air Monitoring continues
• Water curtain taken off HF tank-no issues upon inspection

2:30 AM
• Weather update provided from NWS

4:00 AM
• Ramping down on Husky ERT members and Superior Fire member’s onsite.
• EPA plans to have readings back by 6 am for decision on lifting evacuation.

6:45 AM
• EPA has monitoring results, no hazards noted and Incident Command has lifted the evacuation order and residents can return to homes/businesses. Items noted on Douglas County Webpage.

Husky’s role, with assistance from U WI EXT, in shaping the main community activities after the April 26 event has been extensive, and assisted by an outside PR consultant firm, but Husky has kept mostly quiet, in effect hidden behind the skirts of local officials who have issued
scarcely a critical word as to Husky’s carelessness and responsibility for the trauma to its workers and community or for any Husky shortcomings in the ER.

- Press conferences – were held jointly with local officials. HF not mentioned until reporters pressed for information.
- The report does not indicate if at any time a Unified Command structure was established for the event, and only cites “Command” as ordering evacuations, etc. By 12:27 SM on April 27 the AAR does mention several entities “in EOC” : Husky staff, EPA, Red Cross, Douglas County Emergency Management, Superior Fire and Police, and ham radio organizations.
- Community listening sessions – Apart from limited statements at press briefings earlier, Husky mainly maintained silence, in these sessions gathering intelligence on community concerns that could guide its own further PR activities.

Where things stand currently

Despite community concerns, there have been no investigations nor hearings by state or local officials.

The original HF storage tank with thousands of gallons of HF is presumably still on the site, and still a release risk. One can guess that the real reason it has not been transferred to an off-site location is that Husky will want to challenge any potential post-event local land use legislation banning a new HF facility on the site. Husky will want to be able argue also that it will need no new permits simply to replace the destroyed portions of the HF alkylation with a new HF process because the HF remaining on site shows that it is an “existing use,” in land use terminology.

Having a storage tank with HF on the site during the major new construction instead of emptying the tank will be a high risk, as is well known from the 1987 Texas City TX HF release at Marathon Refinery, which occurred during turnaround maintenance activity involving crane lifting work the failure of which caused the release.

The local media has been mainly biased towards assuming [since there are no bodies on the ground to see from the April 26 event] that HF use will continue at Husky Superior Refinery.

In the meantime, Husky management is still quietly make major capital investment decisions based on its own consideration of alternative ways forward, regarding its continued use of HF or some substitute.
A new community group the Twin Ports Action Alliance [TPAA] has arisen, modeled on the vigorous Torrance CA citizen group Torrance Refinery Action Alliance

https://www.facebook.com/BanMHF/posts/724443971220703

TPAA has created a website https://www.twinportsactionalliance.org/ and Facebook page https://www.facebook.com/search/top/?q=husky%20superior%20refinery

expressing alarm at the unnecessary HF risk and has informed themselves and interested state and local officials about existing commercially available alternatives.

Superior WI concerned citizens may take heart by learning of new allies in Minnesota. Alarmed by the evidence of the near-miss HF disaster in the Twin Ports, some MN state legislators and a prominent Minnesota Congresswoman have begun to assert new demands for conversion away from HF in the analogous risk situation reported on by the Minneapolis Star Tribune as threatening the Twin Cities – the HF-using Andeavor Refinery [now merged with Marathon Oil] in St Paul Park MN:

**HF MN Legislators push to end St. Paul Park refinery HF 5 7 18**  
Husky Energy blast raises questions about safety of hydrogen fluoride.  
By Matt McKinney Star Tribune


California has proposed new state Refinery Safety regulations which the US Chemical Safety Board has endorsed as badly needed elsewhere as well:

https://www.dailybreeze.com/2016/01/14/how-torrance-and-other-california-refineries-can-be-made-safer/

The South Coast AQMD is also proceeding vigorously with its re-write of Rule 1410 on HF-related safety issues. [see citations earlier]

Nationally, of course, there will be no help from the Congress or the President on refinery safety issues in the foreseeable future.

Local governments in the Upper Midwest can — and must — use their authority to reduce risks, especially in light of federal weakness.  By Fred Millar  JULY 6, 2018 — 6:11PM

Some industry and government warnings on the exposure risks of HF releases:

Honeywell Corporation:
AIR Products Inc. has produced a “Safetygram 29” Treatment protocol for hydrofluoric acid burns [http://www.airproducts.com/~/media/Files/PDF/company/safetygram-29.pdf]

“Warning: Burns with concentrated hydrofluoric acid (HF) are usually very serious, with the potential for significant complications due to fluoride toxicity. Concentrated HF liquid or vapor may cause severe burns, metabolic imbalances, pulmonary edema, and life-threatening cardiac arrhythmias. Even moderate exposures to concentrated HF may rapidly progress to fatality if left untreated. Burns larger than 25 square inches (160 square cm) may result in serious systemic toxicity. Relief of pain is the only indication of effectiveness of treatment. Therefore the use of any analgesic agents is not advisable.”

Federal CDC /NIOSH warnings:
[https://www.cdc.gov/niosh/ershdb/emergencyresponsecard_29750030.html]


HF Superior Douglas Co Evacuation Messages Contained Conflicting Information WDIO TV 4 30 18
[https://www.wdio.com/news/superior-refinery-fire-evacuation-timeline/4887300/]

The April 26 fire at the Husky Refinery forced an evacuation of parts of Superior.

“The following is a timeline of official messages sent about the size of Thursday’s evacuation due to the explosion and fire at the Husky Refinery in Superior. We’ve included the time each message was sent followed by the distance to the north, east, west, and south indicated in the message.

1:02 PM - 1N 1E 1W 10S
@SuperiorPolice on Twitter
"Douglas County Emergency Management has issued an evacuation order. If you are within a one mile radius of the refinery, 10 miles to the South, please evacuate now."

Douglas County Emergency Management has issued an evacuation order. If you are within a one mile radius of the refinery, 10 miles to the South, please evacuate now.

— Superior Police (@SuperiorPolice) [April 26, 2018]

1:17 PM - 3N 3E 0W 10S
Email from an aide to the mayor sent to news organizations:
"Fire has ignited and the Douglas County Sherrif’s Office, along with the Emergency Management have ordered a mandatory evacuation for 10 miles south of the refinery, which is where the smoke is going. Also people are being asked to evacuate 3 miles north and east of the refinery."
EVACUATION NOTICE DUE TO SUPERIOR WI REFINERY FIRE - PLEASE STAY AWAY FROM THIS DANGEROUS SITUATION!

Civil Emergency Message
"DUE TO A FIRE AT THE HUSKY REFINERY IN SUPERIOR WISCONSIN, EVACUATIONS HAVE BEEN ORDERED. THE LOCATIONS AFFECTED ARE:
1 MILE RADIUS AROUND THE REFINERY. THESE AFFECTED PEOPLE SHOULD GO TO UW SUPERIOR
10 MILES SOUTH OF THE REFINERY, THESE AFFECTED PEOPLE ARE TO GO TO 4 CORNERS ELEMENTARY, AT 4465 EAST COUNTY ROAD B IN DOUGLAS COUNTY."

Email from a Superior Police Department captain to news organizations:
"Due to the fire now burning at the Husky Energy Oil Refinery in Superior, Wisconsin, the Douglas County Emergency Management office is calling for an evacuation of all people ten miles south of the Superior Refinery and 3 miles east and west. This will encompass the neighborhoods of South Superior, East End, Allouez and Itasca and south to Douglas County Highway B. Great Lakes Elementary School, the Superior Middle School, Northern Lights Elementary School will be effected."

Superior refinery fire is reminder of toxic hydrogen fluoride risk in Twin Cities

“Ten miles south of downtown St. Paul, on the banks of the Mississippi River, sits an oil refinery that is by far the largest repository of hydrogen fluoride in Minnesota. In the nearly 80 years the plant has been operating, it has never experienced a catastrophic accident involving the highly toxic chemical.
On the remote chance that it did, however, more than 1½ million people living and working within a 19-mile radius of the refinery could be exposed to a deadly gas cloud, according to a “worst-case” scenario spelled out in records tucked away in the Chicago regional office of the Environmental Protection Agency.

To be sure, major accidents involving hydrogen fluoride are rare. But the April 26 explosion and fire at the Husky Energy oil refinery in Superior, Wis., was a reminder of the potential danger.

The Husky refinery uses hydrogen fluoride, too, and the risk of an accidental release of it led to the mandatory evacuation of thousands of people in Superior that day. At the considerably larger Andeavor refinery in St. Paul Park, the population put at risk would be 10 times greater, documents show.

Toxic leak plume scenarios

A leak of highly toxic hydrogen fluoride at the refinery in St. Paul Park could endanger 1,400 to 1.7 million people, depending on the severity of the break or rupture.

The potential disaster scenario is included in records kept at the EPA’s Chicago office under restrictions that make the information difficult for the public to obtain, a defensive measure intended to protect facilities from sabotage or terrorism. The reports, which federal regulators require of oil refineries, sketch out worst-case and medium-case scenarios as required by the Clean Air Act to help local emergency-response organizations plan.

Those records show that, as of a year ago, the St. Paul Park refinery stored some 190,000 pounds of hydrogen fluoride for use as a catalyst in the production of high-octane gasoline. If the largest tank cracked open and released its contents within 10 minutes, and if the wind conditions were right, the hydrogen fluoride gas might form a ground-hugging cloud capable of traveling up to 19 miles before dispersing, putting 1.7 million people at risk, according to the worst-case scenario...

The Douglas County ER Plan from 2015 [for the then Calumet Superior Refinery] is well-informed by state and federal requirements [e.g., federal Risk Management Program regulations require the calculation of worst case scenario release Vulnerable Zones for toxic, flammable and explosive chemicals on each site], but it uses [unfortunately outmoded] federal
guidance documents. And in any case, its findings for offsite HF releases apparently have not been communicated to the at-risk public or even to the ER agencies.

A Note on offsite consequence calculation inadequacies in the Douglas County 2015 Emergency Response Plan for the [then-Calumet] Superior Refinery

The 3025 Plan relies for vulnerability analysis on the EPA’s initially useful consultant-produced Technical Guidance for Hazard Analysis, which was published thirty years ago, in 1987, [just after the first Right to Know law was enacted by Congress in 1986] using what modern gas modelers would consider the primitive methods available then. [It is true that this outmoded “Technical Guidance” can still be found on the EPA website, but that indicates mainly EPA’s historic lack of interest in implementing the right to know laws. EPA actually opposed those laws when introduced in 1986 and 1990, but then was assigned to implement them].

It is not credible that rich oil corporate headquarters for Calumet Oil and its successor refinery owners Husky have no frequent access to modern dense gas modeling consultants and have not often used these in other locations. This use in the Douglas County ER plan of a relatively antiquated model for planning therefore suggests that the local Douglas County emergency planners lack expertise and do not have in-house any of the long available simpler computer dense gas release modeling programs such as CAMEO/ALOHA, etc. much less the more sophisticated ones that have been developed subsequently. Hundreds of US fire departments use [but may struggle to maintain staff trained to use it] as well as the National Weather Service [with its own models, e.g. NWS reportedly produced plume maps for a the Husky smoke cloud], etc.

One limitation of CAMEO/ALOHA as used by Douglas County’s ER Plan is that it does not model toxic gas releases reliably beyond 10 miles. Which is why the Douglas County document says only that a major HF release can produce a toxic gas cloud for a distance up to “>10 miles” downwind. The document admits, candidly, though, [perhaps based on some informed inputs from the Refinery management] that an actual HF toxic cloud release could exceed even that sobering distance. Most Hydrogen Fluoride release distances shown by US facilities in their federally-required facility Risk Management Program reports – which Calumet filed in 2015 – show offsite downwind distances in the range of 19-25 miles.

This calculation seems to explain why, In the Husky event on April 26, Superior Mayor Paine called for an evacuation of 10 miles South, in the direction of the wind blowing the dramatically large black smoke cloud at the time. In other words, the company and elected officials were worried about a Hydrogen Fluoride release from the ongoing explosions and fires. But the community was not told this until persistent reporters forced out the information on the second day. And a 10-mile evacuation was in fact a gamble and in no way an adequate precautionary distance with a good safety margin, given what the Douglas County document suggested [“>10 miles”]. If either or both of the Twin Ports Local Emergency Planning
Committees in Superior or [the alleged equivalent] in Duluth had done their job of effectively informing the at-risk public of the Worst Case Scenarios with the Hydrogen Fluoride present at the refinery, the Mayor might have decided more prudently to evacuate a longer distance, 15 or 20 miles in all directions [given the potential for a wind shift].