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**Re: Pembina Institute and Pembina Agricultural Protection Association Comments on:  
Alberta Energy and Utilities Board Draft Directive 71-  
Emergency Preparedness and Response Requirements for the Petroleum Industry**

**Dear Mr. Neilson,**

This letter and attachment is a joint submission on behalf of the Pembina Institute and the Pembina Agricultural Protection Association (PAPA) to provide feedback and recommendations on the EUB Draft Directive 71- Emergency Preparedness and Response Requirements for the Petroleum Industry.

There are several positive changes in the draft Directive circulated for review that could improve emergency preparedness and emergency response. Specifically these include:

- No longer accepting applications for reduced Emergency Protection Zones (EPZs) (Section 1.3, table 1);
- No longer assuming that Emergency Shut-Down (ESD) valves and check valves will close instantaneously upon pipeline failure (Section 3.1.3);
- The establishment of Initial Isolation Zones (IIZs) to facilitate evacuation of proximal residents in an emergency situation (Section 3.3.1);
- The establishment of Protective Action Zones (PAZs) to facilitate evacuation of downwind residents in an emergency situation (Section 3.3.2); and
- The incorporation of more site-specific factors in the calculation of an EPZ (Section 3)



However, we are extremely concerned that the proposed Directive does not address a number of long standing public concerns about emergency response planning. Many of these concerns were previously outlined for the EUB and forwarded by PAPA and the Pembina Institute on March 4, 2005, in a letter addressed to Neil McCrank and Tom McGee. We have reiterated many of these general recommendations again in this submission along with a number of additional suggestions specific to the text of the Draft Directive.

PAPA and the Pembina Institute request a meeting with EUB senior staff to further discuss the rationale behind, and need for, the recommended adjustments prior to the completion of the EUB review of the Draft Directive. Pembina and PAPA have direct experience with both good and bad examples of ERP planning and implementation that should be given full consideration. We look forward to hearing from you, and to meeting you, at your earliest possible convenience.

Yours truly,  
(Original signed)

Ian Picketts  
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Cliff Whitelock  
President: Pembina Agricultural Protection Association

## **Pembina Institute and PAPA recommendations on Draft Directive 71**

### A. Emergency Planning Zones (EPZs)

#### *DRAFT DIRECTIVE 71: Section 3*

**1. The calculation of the EPZ perimeter must be based on an H<sub>2</sub>S end point of 10 ppm.**

The criteria for calculating the EPZ perimeter appears to continue to be based on an H<sub>2</sub>S exposure level of 100 ppm. This criteria is inadequate for the protection of public health and safety, especially of sensitive individuals (e.g. young children, seniors, pregnant women, persons with respiratory health issues, persons susceptible to heart and stroke responses upon exposure to toxic gas, people who have been previously exposed to H<sub>2</sub>S, etc.). An endpoint of 10 ppm is already very high. It is the level of the exposure limit prescribed by Occupational Health and Safety Regulations (Section 307(1)) and is meant to be applied only to trained, screened, and tested healthy workers in an occupational setting.

#### *DRAFT DIRECTIVE 71: Section 3.1.1*

**2. The EUBH<sub>2</sub>S calculation of site-specific EPZs must include site-specific topography as an input variable.**

H<sub>2</sub>S gas is heavier than air, and will follow the general contours of low-lying topography under atmospheric pressures. The EUBH<sub>2</sub>S model uses thermodynamics, fluid dynamics, and atmospheric dispersion modeling to determine possible dispersion scenarios, but does not include topography. Topography is one of the main variables that will affect dispersion, and must be included in order to provide a more accurate basis for the calculation of the EPZ boundaries. The recent behavior of a sour gas release along the Pembina River Valley on January 14<sup>th</sup> and 15<sup>th</sup>, 2007, reinforces the importance that local topography may have in affecting the routing and limit dispersion of both H<sub>2</sub>S and SO<sub>2</sub>.

#### *DRAFT DIRECTIVE 71: Section 3.3*

**3. The criteria used to determine the perimeter of the Initial Isolation Zone (IIZ) and the Protective Action Zone (PAZ) are absent from, and should be included, in the Directive.**

In the absence of specified criteria, determination of the boundaries of the IIZs and PAZs will be left to the discretion of the operator, and may not be determined until the time of an emergency situation. This may lead to confusion and delay, and could eliminate any value from the use of the concept. A minimum radius for the IIZ, and a minimum width (angle) and downwind distance for the PAZ should be specified, along with criteria to determine the size of these zones beyond the minimum prescribed dimensions.

*DRAFT DIRECTIVE 71: Section 3.1.1*

**4. The entire IIZ and PAZ area must be included in the EPZ.**

In the current draft, there is a possibility that the IIZ and PAZ may extend beyond the perimeter of the EPZ (the PAZ extends beyond the EPZ perimeter in Figure 1, page 14). However, operators are only required to consult with and plan for the evacuation of residents within the EPZ. Therefore, there is a possibility that people outside of the EPZ, who have not been consulted or notified, will need to be evacuated. In this case the operator will have had no opportunity to, or been required to, pre-plan for this operation.

*DRAFT DIRECTIVE 71: Section 3.1.1*

**5. The regulations should include a minimum radius for all EPZs.**

This is necessary to account for the risks associated with the activities that occur at the well site, and to account for anomalous meteorological conditions.

*DRAFT DIRECTIVE 71: Section 3.1, 5.9, 6.8, 7.8, 8.7 & Appendix 7*

**6. The calculation criteria, evacuation criteria, evacuation priority and reasoning for each of the IIZ, PAZ, EPZ and EAZ zones must be more clearly explained in the Directive.**

This information regarding IIZs, PAZs, EPZs and EAZs is not presented in a clear and concise manner. We suggest that more information be provided and that the information be presented and consolidated in one section of the Draft.

*DRAFT DIRECTIVE 71: Section 3*

**7. Multiple Pollutants must be quantified and considered in ERPs.**

There is clear evidence that dangerous levels of other air pollutants beyond H<sub>2</sub>S and SO<sub>2</sub> are released during emergency venting and flaring incidents. However, the Draft Directive remains focused on sour emissions, to the exclusion any other well pollutants. Directive 71 should require operators to quantify and plan for other toxic emissions (including, but not restricted to acid gases, condensates, BTEX fraction, and carbon sulphides) in their ERPs.

*DRAFT DIRECTIVE 71: Section 3*

**8. H<sub>2</sub>S and SO<sub>2</sub> exposure limits must be significantly reduced to reflect the reality that other pollutants act synergistically alongside H<sub>2</sub>S and SO<sub>2</sub> to increase health effects at lower exposure levels.**

Until accurate data is acquired to model the health effects of the other pollutants the precautionary principle needs to be employed, and the interim values for H<sub>2</sub>S and SO<sub>2</sub> must be reduced to account for the effects of these additional pollutants.

*DRAFT DIRECTIVE 71: Section 3*

**9. Volumes of condensate liquids (which convert to gas at standard pressure) must be added to sour gas for calculating release rates for drilling and well operating purposes, as well as for pipeline design, setback calculation, and EPZ calculation.**

## B. Public Notification and Consultation

### *DRAFT DIRECTIVE 71: Section 4.2*

- 1. Non-Resident Landowners that own land but do not reside within the perimeter of the EPZ, and farmers who rent land but do not reside within the EPZ, are directly affected and need to be included as full participants in the consultation process for proposed development.**

This is particularly important for farmers and ranchers who often spend a greater portion of daylight hours on their land than in their residence. Landowners who spend significant time on their land are at a higher risk than residents in the case of a sour gas release because they are more difficult to locate and evacuate. They are also less likely to be accessible by phone and they are likely to have fewer viable sheltering-in-place options.

### *DRAFT DIRECTIVE 71: Section 5.9.1*

- 2. All residents within the EPZ must be afforded at least 72 hours notice of the commencement of sour operations.**

Many residents wish to be outside of the EPZ during sour operations for health and safety reasons. To make alternate arrangements requires more than the 24 hours notice indicated in the Draft Directive.

PAPA has negotiated agreements with several operators in the Drayton Valley area to provide at least 72 hours notice of sour operations commencement to landowners. The EUB should extend this existing commitment from operators and incorporate it into Directive 71.

## C. Exercise Requirements

### *DRAFT DIRECTIVE 71: Section 7.18.4*

- 1. Full scale simulation exercises with full field mobilization must be required annually for each area system ERP.**

The Draft Directive states that a major (full-scale) exercise must be completed once every three years for each system ERP. ERPs are not tested often enough, especially considering the high rates of turnover in the industry, and in the local municipal and regulatory agencies, and that large problems in the enactment of the ERPs have been shown in actual emergency situations. There are few other examples, when public or industrial safety is concerned, where such a long lapse in practical field testing of a complex emergency system is in existence.

*DRAFT DIRECTIVE 71: Section 6.18.4*

**2. An Administrative Exercise combined with a communication exercise must be completed for every ERP.**

The draft states that an administrative exercise combined with a communication exercise must be held annually for each area ERP (except in a year when a major exercise is held). The Administrative and Communications exercise must be completed for every single ERP to ensure that the response team has a proper understanding of the ERP and that sufficient resources and capacity are in place.

*DRAFT DIRECTIVE 71: Section 6*

**3. ERPs must be ‘surprise’ tested occasionally, without warning, and with public involvement, to ensure that operator preparedness and response is adequate.**

The testing regime proposed in the Draft Directive is inadequate to ensure public safety. ERPs need to be tested in full-scale exercises without advanced warning to adequately simulate a real emergency situation. Results from the full-scale simulations and surprise tests must be carefully evaluated by the operator and the EUB to improve emergency response.

*DRAFT DIRECTIVE 71: Section 6.18.4*

**4. The EUB must not consider an operator that has experienced a Level 2 or 3 incident as having fulfilled their major exercise requirement.**

The notion of granting an exemption to an operator that has had an incident(s) occur on their site is completely unsupportable. Operators that experience major incidents at their wells or facilities need to be placed under more scrutiny, and need more practice implementing their ERPs. If an operator is responsible for a level 2 or 3 incident, the EUB should review the incident and determine if the company was in compliance in all respects during the incident. If the company was not in compliance then a major exercise should be ordered immediately

D. Accounting for Multiple Sour Well Drilling, Servicing and Operations

*DRAFT DIRECTIVE 71: Section 5*

**1. The ERPs should acknowledge and account for all other sour wells and facilities already in place, as well as potential wells planned for a reasonable period into the future.**

*DRAFT DIRECTIVE 71: Section 5*

**2. Every ERP must contain a procedure for when a release is detected by or reported to the operator, but appears to be from someone else’s operations or the cause is unknown. The procedure must contain steps to properly involve and contact other area operators, the EUB, and the public agencies, to ensure an appropriate and coordinated response to the release.**

The failure of operators, the EUB and public agencies to respond adequately to a release on Jan 14 and 15<sup>th</sup> 2007 in the Drayton Valley region indicates that this requirement needs to be included in Directive 71.

*DRAFT DIRECTIVE 71: Section 5.5*

**3. Drilling into sour zones in two overlapping EPZs should not be permitted**

The ERPs do not take into account or manage the overlapping emergency response requirements and the potential impacts of multiple sour gas and oil wells being drilled, as well as others simultaneously being serviced or in full operation. For these reasons it is unsafe to allow for drilling into sour zones in two overlapping EPZ to occur.

*DRAFT DIRECTIVE 71: Section 5*

**4. No resident should be included in the planning zone for more than three wells for notification, drilling and completions, at any one time.**

This recommendation addresses both risk issues and the hassle to landowners. There must be a maximum number of critical sour wells requiring ERPs that a single resident can be subjected to (having to live with, and participate in communication, consultation, awareness and readiness for evacuation) at one time. Allowing a single resident to be in the planning zone for more than three wells at once is highly stressful, potentially unsafe, and is an unfair disturbance to the landowners' privacy. This is particularly problematic in areas such as the Drayton Valley area, where there are plans to drill hundreds of sour wells in the next few years.

*DRAFT DIRECTIVE 71: Section 5*

**5. The EUB needs to establish an easily accessible public clearing-house and information centre where residents can access information about sour operations in their area.**

Information regarding the status of notification, approvals, site construction, pre-sour drilling, sour zone drilling, completions and active operations must be included; as this information affects the various EPZs a resident may be in at any point in time. This could be accomplished by maintaining a website with this information, and having a telephone number that people who do not have internet access can call to receive information.

E. Public Information Packages:

*DRAFT DIRECTIVE 71: Section 4.2.2*

**1. More information must be included in Public Information Packages to ensure that residents are aware of their rights as landowners, and about the project that is being proposed. PAPA and Pembina recommend that the following information be required in all Public Information Packages:**

- a) **An overview of the potential wells and facilities planned in the area for a reasonable period into the future.**
- b) **A description of the EUB consultation and notification process explaining the landowner rights to objection and representation.**
- c) **A description of the materials that the landowner has a right to request from the company (ERP, drilling plan etc.)**

#### F. Quality, Continuity, and Coordination of Emergency Response Planning

##### *DRAFT DIRECTIVE 71: Section 5.1*

- 1. All ERPs must be drafted in a consistent logical format that ensures a high standard of quality. All required items in the ERP must be included in a specific order in a standard format, and bookmarked with labeled tabs.**

The standardized format will help facilitate the use and navigation through ERPs by the EUB, public agencies, and by service personnel, as well as by members of the public who are in the middle of a large number of EPZs. In the event of an emergency, peoples' lives will depend on the ability of people to access information quickly and to implement an ERP plan effectively and efficiently.

##### *DRAFT DIRECTIVE 71: Section 5.1*

- 2. All ERPs must contain a suitable number of assigned Rover Areas inside both the EPZ and the EAZ.**

The number of Rover Areas will depend on the size of the EPZ or EAZ, the population inside the zone, locations of sensitive individuals, topography, and access and egress issues. Pre-assigned Rover Areas are crucial for assisting the involved government and safety agencies in allocating required response actions, and for enabling a timely response in the case of an emergency.

PAPA has successfully negotiated agreements with several operators in the Drayton Valley area who have volunteered to include assigned Rover Areas in their ERPs. The EUB should extend this existing commitment from operators and incorporate it into Directive 71.

##### *DRAFT DIRECTIVE 71: Section 5.15*

- 3. Real person telephone callers, and not an automated system, must be used to contact identified residents in the notification phase of any level of emergency.**

Automated telephone systems are a useful mechanism to provide notification for some planned operations, however, they are not reliable enough to provide notification to residents in an emergency, and cannot respond to questions from those contacted. Real person telephone callers should be assigned contacts in advance of sour operations, and asked to review their contact



information at ERP review meetings. An automated system may be used to initiate notification as quickly as possible, but a personal caller must follow up with each household.

PAPA has negotiated agreements with several operators in the Drayton Valley area who have volunteered to the use of real person telephone callers for notification purposes. The EUB should extend this existing commitment from operators and incorporate it into Directive 71.

*DRAFT DIRECTIVE 71: Section 5.9*

**4. Information signs regarding drilling operations must be posted at strategic access points on the perimeter of the EPZ, approximately seventy-two hours prior to commencing sour operations.**

There are no current requirements for the posting of information signs on the perimeter of EPZs for sour wells undergoing drilling operations. It is very important that these signs be present to alert people passing through an EPZ area that they are entering a sour production zone.

PAPA has negotiated agreements with several operators in the Drayton Valley area who have volunteered to post sour drilling operations signs. The EUB should extend this existing commitment from operators and incorporate it into Directive 71.

G. Early Sour Gas Detection Warning

*DRAFT DIRECTIVE 71: Section 5*

**1. Early sour gas detection networks must be established in areas where there are multiple sour gas well proposals.**

There are no current requirements for area operators to provide an early warning sour gas detection network in areas where there are multiple sour gas well proposals. These systems are necessary to mitigate risks, and should be applied on a provincial basis.

Industry operators in the Drayton Valley area have committed to provide a number of permanent monitors, and are working with a multi-stakeholder committee to establish and maintain a regional sour gas monitoring network. The EUB should extend this existing commitment from operators and incorporate it into Directive 71.