9 INCIDENT AND EMERGENCY MANAGEMENT
9.2 EMERGENCY MANAGEMENT

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Verb forms "shall" and "will" are mandatory. "May" and "can" are associated with optional approaches.

9.2.1 PURPOSE

WHAT

This element addresses incidents and risks that have the potential to affect public safety or the environment and which may involve response by others not employed or contracted by ARC. It is intended to be used in unison and complimented by the other 8 ARC Integrated Management System (AIMS) Elements.

☐ The Emergency Management element is principally intended for use in situations having actual (or potential) off-site impact with Serious to Catastrophic consequences, especially when response by others is necessary or required.

☐ By contrast, the Incident & Near Miss Management procedures (AIMS Element 9.1) are principally intended for situations with on-site impact of any consequence AND which can be effectively managed with only ARC personnel and 3rd Party contractors controlled by ARC.

9.2.2 THE NEED FOR EMERGENCY MANAGEMENT

WHY

The Emergency Management Program (EMP) provides tools to implement an effective emergency management process for incidents arising from ARC Operations where ARC Resources has controlling authority. These tools address each of the four pillars of emergency management:

1. Reduction (risk mitigation, risk prevention)
2. Readiness (preparedness)
3. Response
4. Recovery
5. The EMP ensures that ARC meets its regulatory requirements at the Federal, Provincial and local level.

Governing Principles

The eight governing principles that underlie development and execution of the ARC Resources EMP are as follows. The EMP shall be:

☐ *Comprehensive* – consider and take into account all hazards, all phases, all stakeholders and all impacts from incidents that potentially have Serious or Crucial off-site consequences

☐ *Progressive* – anticipate future incidents and take preventive and preparatory measures to build incident-resistant processes and an incident-resilient work force

☐ *Risk-driven* – use sound risk management principles (hazard identification, risk analysis, and development and implementation of appropriate mitigation) to assign priority and resources

☐ *Integrated* – ensure unity of effort among all levels of the work force and all stakeholders who respond to an emergency

☐ *Collaborative* – create and sustain broad and sincere relationships among individuals and organizations to encourage trust, advocate a team atmosphere, build consensus, and facilitate communication

☐ *Coordinated* – synchronize the activities of all relevant stakeholders to achieve common purposes

☐ *Flexible – use creative and innovative approaches in solving on-site and off-site challenges*

☐ *Professional* – promote a science- and knowledge-based approach within the ARC work force and among all stakeholders; based on education, training, experience, ethical practice, public stewardship and continuous improvement

9.2.3 RESPONDING TO AN EMERGENCY

TRAINING & EXERCISES

☐ ARC conducts ERP training and validation of emergency preparedness through periodic drills and simulation exercises. Training and exercise sessions shall be conducted in accordance with industry standards and regulatory requirements to ensure that responsible personnel remain competent in emergency response procedures to:
  o Promote emergency preparedness
  o Test or evaluate emergency operations, policies, plans, procedures, facilities or communications
  o Test the effectiveness of public safety procedures
  o Train personnel in emergency duties

☐ Table top exercises will be conducted in each area annually (except in a year when a major exercise is held) and major exercises are conducted in each area every 3 years. In situations where ARC has multiple area ERPS with the same field supervisory response personnel and infrastructure, the ERPs may be tested simultaneously through one exercise. All exercises will be documented with key learnings and corrective actions identified and communicated.

☐ ARC Capital operations (Drilling, Completions, Pipelines/Facilities, etc.) will complete drills in accordance with regulatory requirements and industry best practices.

☐ ARC requires its employees to complete ICS-100 when onboarding operations personnel, OSS and to Corporate roles who could play a role in emergency response

☐ ARC's AIMS Training and Competency Element mandates responder training qualifications and competencies as well as evaluation tools to ensure effective incident response. ARC personnel who have or may have a role in emergency response should participate in a minimum of one exercise annually and one Major Exercise every 3 years.

☐ Changes in personnel through transfers or staff additions may result in some employees not being entirely compliant with ARC's training matrix standard, particularly for those who may be in lead responder roles. These responders should attend the next available training session in proximity to their workplace.

☐ Prior to participating in an ARC Resources emergency or emergency response exercise, all non-ARC Resources personnel shall be oriented to the hazard area by reviewing a site hazard assessment and work permit.

Documentation of Key Learnings

☐ Third-party training providers will document all exercise details including key learnings and provide access to ARC. Real time activations of the ARC's ERP are captured by the Documentation Lead and learnings are shared with all parties involved.

☐ Deficiencies identified during exercises or real life activations are captured on a web based program (e-Compliance) that enable responsibility and timeline for completion to be assigned and tracked to closure.

Emergency Exercise Invitations

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☐ ARC Resources emergency response exercises are an opportunity for external agencies to gain valuable continuing education with respect to ARC's emergency response plans and areas in which ARC operates. External agencies should be invited with the intent that they may also participate in the ARC exercise.

☐ ARC emergency response drills (Base operations table top and major field exercises) require "invitations to participate" sent to all potential responders (internal and external) 30 days prior to the scheduled exercise. (For major ERP exercises it is preferred to give more than 30 days' notice i.e. two or three months in advance).

☐ The following information will be provided to the exercise participants and observers: Name, date & location of ERP exercise as well as an agenda for the exercise.

☐ All invitees are required to confirm participation with the program coordinator.

☐ All emergency response drill participants are invited to provide feedback during and after drills to ensure continuous improvement of ARC's EMP.

☐ ARC's process for all internal and external communication of information that includes procedures for communication with the public, corporately, contractors, regulatory agencies and emergency response agencies can be found in AIMS Effective Communication Element.

EMERGENCY RESPONSE PLANS (ERP)

☐ ARC maintains Emergency Response Plans (ERPs) for all company operations. ERPs describe the response functions and emergency procedures that will be implemented should an emergency arise.

☐ The ERP is activated based on provincial or federal (CER) Incident Classification criteria which can be found in the Incident Classification section of each ERP. The Incident Commander activates the emergency response plan and declares the initial incident classification. In addition, the provincial regulatory authority must be contacted to confirm the Emergency Level.

☐ There are four different types of Emergency Response Plans to cover requirements for Energy Regulators:
  o Corporate Emergency Response Plan
  o Drilling and Completions Supplemental or Site-Specific Emergency Response Plans (Sour/Critical Sour for Alberta and Sweet/Sour/Special Sour for BC)
  o Sour Production Site-specific Emergency Response Plans
  o Supplemental Emergency Response Plans (New construction)

☐ ARC maintains two additional types of plans for other regulators:
  o Emergency Response Assistance Plans (ERAPs)
  o Environment Canada Environmental Emergency Plans (E2)

☐ ARC has four Site-Specific ERPs and twelve CEPA E2 Plans in place (See Appendix 9B). Additionally ARC maintains office emergency response plans for both Corporate Head office and field offices as well as an Industrial Wildfire Management Plan.

☐ ARC's ERPs define the organizational framework to effectively respond to any incident with potential to significantly threaten or adversely impact ARC Resources, its subsidiaries, employees, operations, finances or reputation. The ERPs utilize Incident Command System (ICS) concepts to help facilitate mutual aid benefits with other agencies or organizations that are also trained to Incident Command.

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☐ ARC ERPs comply with regulatory requirements and provide information and guidelines for personnel involved in ARC's response to alert or emergency situations. The plans include:

- o Description of the response organization structure
- o Notification and activation procedures
- o Clarification of emergency classification and appropriate responses
- o Duties and checklists for each response team position
- o Actions necessary to manage key stakeholder communications
- o Procedures to return incidents to normal
- o Documentation tools
- o Site-specific information & Resource listings
- o Key contacts

☐ A breakdown of ERP types and content can be found in Appendix 9.2D

Standard ERP Format

☐ ARC has a standardized format for its plans. This standardization has the following benefits:

- o Standardized training to enable corporate-wide support.
- o Efficiency in the development of ERP documents.
- o Assurance of compliance to regulatory and ARC's response requirements

☐ The scope of ARC's Emergency Response Plans addresses all hazards including the following situations:

- o Medical Emergency
- o Motor Vehicle Accident
- o Sour Gas Release
- o Fire / Explosion
- o Petroleum and / or Hazardous Materials Spill
- o CEPA Product Environment Release (i.e. LPGs, NGLs or HVPs, etc.)
- o Next-of-Kin Notification
- o Natural Hazards
- o Wildlife Encounters

EMERGENCY RESPONSE & CAPABILITY REQUIREMENTS

☐ ARC will use the Incident Command System (ICS) to direct, control and coordinate response operations

☐ Because the number of people and amount and type of equipment/services required to respond to an emergency varies, up-to-date Corporate and Field Response Team lists as well as lists of available services will be maintained for each operating area in its ERP.

☐ ARC ensures all listed Corporate and Field Response Team personnel who have a role in emergency response are trained and familiar with the role(s) they may be expected to play. This includes office staff such as Reception, Investor Relations, etc.

9.2.4 RESPONSIBILITIES & ACCOUNTABILITIES

Management:

WHO

☐ ARC's Chief Executive Officer (CEO) will appoint an Accountable Officer who has the appropriate authority to commit financial and human resources to ensure ARC meets its obligations for safety, security and protection of the environment. The Accountable Officer will sign a statement accepting the responsibilities of this position.

  o **Note:** For CER-regulated facilities, ARC will notify the CER of any changes made in the Accountable Officer within 30 days of the change.

☐ Ensure drills and exercises are conducted as required to make sure all personnel are ready to implement their ERP and respond effectively to potential emergency situations

☐ Ensure ARC Resources responders complete Emergency Response Plan (ERP) training

☐ Ensure the Incident Command Post (ICP), Calgary Emergency Operations Center (EOC) and Reception Centers have 24-hour functionality

☐ Verify ARC operators have full time access to the most current ERP for their area and they are familiar with:

  o Emergency Planning Zones (if applicable) and how to access resident information, Corporate and Site-specific ERPs & individual roles and responsibilities

  o Demographics; such as landowners, land occupants and/or land lessee, general locations of residences, land use and initial notification requirements

  o Ensure all key regional and local government agencies and mutual aid plan members, potentially engaged in the field response, are aware of ARC operational activities, roles and response expectations

☐ Ensure hazards, risks, potential emergency situations and warning systems are communicated with all on-site personnel. Ensure there are instructions regarding actions they must take if there is an emergency situation

☐ Ensure all emergency communication systems are fully operational

☐ Perform annual emergency response plan reviews and assist with update process

  o **Note:** The Production Engineer shall review technical data inputs and monitor related modelling processes to define each Emergency Planning Zone (EPZ).

All Employees

☐ Ensure familiarity with ARC's emergency response plans and how to access specific information (i.e. landowners, residence locations, services, forms, etc.)

☐ Designated employees shall ensure emergency response equipment (i.e. fire response equipment, respiratory protective equipment, roadblock kits, etc.) and warning systems(i.e. Gas / Fire detection) are routinely checked and maintained in an effective operational condition

☐ Participate in ERP training/exercises (ICS-100, role based, table top, etc.) and ensure they fully understand their roles in the event of an emergency

ARC Health & Safety

☐ ARC H&S shall assist in facilitating emergency response drills, exercise and training and maintaining current emergency response plans

Program Coordinator

☐ Ensures all Sour Production ERPs are up-to-date and in place

☐ Ensures up-to-date regulatory references and requirements in each ERP

☐ Monitors emergency response KPIs outlined in the annual review meeting and in Measures of Effectiveness

☐ Provides an analysis of ARC performance against these KPIs for each operational period at the annual review meeting. Further information can be found in the AIMS Monitoring, Reporting and Follow-up Element.

☐ Sets training standards to ensure responder competencies fully meet ARC requirements
☐ Ensure schedules are in place to prepare, maintain and update ERPs and ERPs are monitored for accuracy

☐ Completes the ERP Accountability Form and monitors the related time lines

☐ Ensures ERPs are updated annually or following a material change in risks, responders, regulatory requirements or corporate standards (i.e. verify telephone numbers, key emergency contact information, public data, etc.)

Third-Party Resources (i.e. Contractors)

☐ Complete their own Site-specific emergency response plans in coordination with ARC plans

☐ Conduct and document drills (e.g. man down) as required by legislation or as directed by the ARC supervisor as well as participate in ARC scheduled exercises as required

☐ Follow direction from ARC resources personnel when responding to an emergency

Program Accountability

☐ The Emergency Management Program accountability is driven from ARC executive management. The President appoints an Accountable Officer, who is then responsible to ensure the EMP is implemented, reviewed and that incidents and near misses are addressed with corrective actions.

☐ The ARC Program Coordinator is accountable to establish Corporate Emergency Response Planning Standards and to track legal requirements

☐ The Program Coordinator is accountable to execute Emergency Plan Audit Protocols and to report on completed training and exercises. Lessons learned and opportunities for improvement are captured in Exercise Reports. These may suggest necessary updates to Emergency Response Plans.

☐ In jurisdictions where clear regulatory guidelines for emergency planning are not available, the guidelines in Directive 071 for Alberta will apply. In general, a Sour Production Emergency Response Plan will be prepared whenever:
   o A surface development exists within an Emergency Planning Zone (EPZ) including those residing on dead-end roads beyond the EPZ where occupants are required to egress through the EPZ. Surface developments include the following:

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- Permanent and part- time residents
- Occupied businesses, industrial activities including oil and gas operators with manned facilities.
- Private and public recreational property owners, operators and occupants.
- Rural public facilities and publicly used developments such as schools, community centers, registered campgrounds, and picnic areas.

☐ The Management Engagement Accountability Form will be maintained by the Accountable Officer (Chief Operating Officer) with assistance from the Program Coordinator and the Manager, Health and Safety.

☐ Figure 9.2a outlines the flow of accountability for the various components of the ARC Emergency Management Program. The accountable person for each of the steps in the graphic is shown in "red".

Figure 9.2A ARC EMP Accountability Flow

ARC EMERGENCY MANGEMENT PROGRAM
ACCOUNTABILITY FLOW
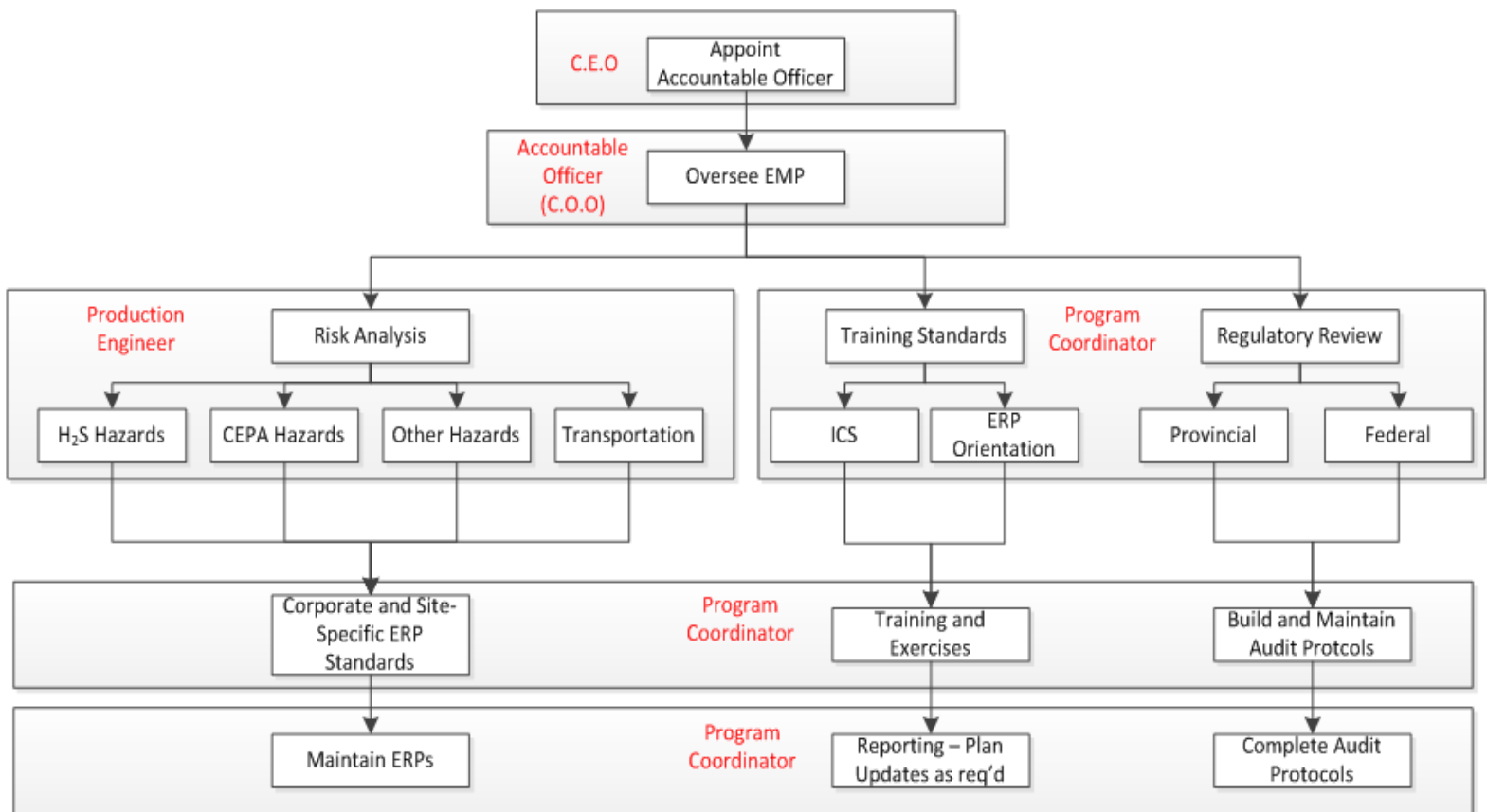
9.2.5 REGULATORY & LEGAL COMPLIANCE

HOW

MONITORING THE REGULATORY PROCESS

ARC strives to maintain 100% regulatory compliance. This element is designed to be in accordance with all federal and provincial regulations. In addition, ARC is an active member of the CAPP Emergency Management Committee and tracks Emergency Management regulations that apply to ARC's operations. ARC's EMP Program Coordinator is assigned to participate in these meetings. In addition, each of the ERP site-specific audit protocols indicates the exact regulation that applies.

☐ A check box on the first page of the audit protocol requires the auditor to confirm the protocol is structured with the most current regulatory standard.

☐ A web link to the relevant standard is shown on the Audit Protocol so that the Auditor can easily validate its current status.

☐ If the Auditor determines an out-of-date protocol, a footnote in the Audit Protocol directs the Auditor to notify the Program Coordinator so that the protocol can be brought up-to-date.

POLICIES AND GOALS

☐ AIMS Element 1 Engagement, Commitment and Accountability contains ARC's policies and goals which include the commitment to ensure activities are conducted in a manner that ensures the safety and security of the public, workers, facilities, infrastructure such as pipelines and the environment.

LEGAL REQUIREMENTS

☐ ARC maintains a "legal registry" for identifying and monitoring compliance with both regulatory and legal requirements in addition to a documented process for identifying and resolving compliance related deficiencies and updating AIMS as required. The processes for this can be found in AIMS element 5 – Monitoring, Reporting and Follow-up

☐ Legal requirements will be reviewed as a part of the management review process.

MONITORING INVESTIGATION & REPORTING

☐ AIMS Element 9.1 – Incident Management provides detailed direction and procedures for incident and near miss reporting, investigation and follow-up. These procedures shall also be used when considering the cause(s) of any incident requiring emergency response and for the development, implementation and follow-up of corrective actions to prevent reoccurrence.

HAZARD IDENTIFICATION, RISK ASSESSMENT AND CONTROL

☐ ARC is committed to planning for all hazards / risks as well as potential hazards / risks that could reasonably impact our workers, facilities and infrastructure, the public, or the environment related to normal and abnormal operating conditions. This includes but is not limited to medical incidents, fires, spills, ruptures, releases, natural hazards, security incidents and well control incidents.

☐ All hazards, potential hazards, must be reported immediately to an ARC supervisor. ARC supports and encourages all personnel to report suspected incidents of non – compliance with any applicable law or regulation.

☐ Any personnel making a report will be given immunity from disciplinary action or retaliation for the good faith (good faith reporting means an open, honest fair and reasonable report

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without motive or ulterior intent) reporting of health, safety, environmental or compliance related events.

☐ ARC's process for risk management which includes things such as hazard / risk identification, assessment (based upon severity and likelihood of occurrence), control, reporting and communication of hazards / risks can be found in the AIMS Risk Management Element.

STAKEHOLDER ENGAGEMENT

☐ ARC's framework and procedures for communication to all stakeholders are described in AIMS Element 3 - Effective Communications

☐ Identification and engagement of Stakeholders is a critical component of ARC's emergency planning process. Stakeholders of primary interest include the following:

- o Permanent residents, part-time residents, businesses, industrial operations, private and public recreational property owners, public facilities and owners of rented residences that are located inside the emergency planning zone or having to egress through the emergency planning zone.
- o Registered trappers, non-resident land users, guiders, forestry (registered rights holders), outfitters and registered grazing lease users. Landowners affected by setback restrictions.
- o Government agencies having jurisdiction of the area including:
  - ▪ Licensing agency
  - ▪ RCMP, Health Authorities & First Responders
  - ▪ Local Authorities including affected First Nations Authorities
  - ▪ Transportation Authorities
  - ▪ Mutual Aid Organizations

Consultation & Communication of Risk

☐ ARC will ensure that all residents, businesses, industrial operations, and recreational property owners as well as those who must egress through an Emergency Planning Zone (EPZ), are provided with a public information package and have a personal consultation conducted to explain the hazards associated with the project and response requirements if there is an incident.

☐ Notification goes to nonresident landowners, farmers renting land who do not live on property, registered trappers, guides, outfitters, registered grazing lease and allotment users, rights holders, oil and gas operators with unmanned facilities and owners of rented residences that are within the EPZ.

☐ Detailed public consultation requirements are outlined in AER Directive 71 and the OGC Consultation and Notification Manual. Information gathered from the public will be captured on a standardized form. Hard copies of information shall be kept in a secure room or locked cabinet and electronic copies of public information shall be password protected as per The Personal Information Protection Act (PIPA).

☐ ARC's public consultation standard with regard to residents calls for face-to-face consultations every two years with telephone consultations in the interim years and is carried out by an external contractor.

☐ Government agencies and mutual aid organizations that may be involved in a response will be consulted and provided informational materials outlining the project, its risks and key

contact numbers. Information gathered from the government agencies must be sufficient to establish:

- o Key contact numbers to activate a response from the agency or organization
- o Contact names and phone numbers
- o Confirm capabilities, roles and responsibilities

Issue Documentation & Resolution Process

☐ Issues arising from consultation will be properly recorded and promptly resolved. ARC's Surface Land department assesses the nature of the issue, concern or commitment and prepares a timeline for resolution and identifies the responsible person.

☐ Any issues or concerns identified by potential stakeholders, or commitments made to stakeholders, must also be recorded, filed and immediately forwarded to ARC's Program Coordinator. The Program Coordinator will track the resolution to ensure the item is closed on a timely basis.

SALE OF PROPERTY / TRANSFER OF LICENSE

☐ If a well, facility, or pipeline with an ERP has been sold, the new licensee must contact the AER within 30 days of the transfer of license to discuss a timeframe for submitting a new ERP. For BC acquisitions, the update is to be filed 'as soon as possible'. The new licensee is also expected to provide notification to the AER at EPAHelpline@aer.ca within 7 working days of the date of the transfer of license and include an itemized summary of changes, such as:

- o Corporate structure change & contact numbers,
- o Internal communication changes and signing authority changes.

☐ Residents within the EPZ and the local authority must be notified of the change in ownership and be advised that the licensee will be conducting a public involvement program as part of the development of a new ERP. The new licensee must ensure that the emergency response procedures in place will not be compromised prior to approval of the new ERP.

☐ ARC will follow the protocols noted above any time they are a "new licensee".

MANAGEMENT OF CHANGE

☐ Changes to the Emergency Management Program will be made with the Revision Request form.

☐ Review and approval of changes that relate to revisions to contact information and general wording clarifications are approved by the Program Coordinator. Changes that involve amendments to the overall processes outlined within this document must be approved by the Health and Safety Manager.

☐ ARC has also implemented a robust Management of Change program for identifying, managing and documenting changes to equipment/process, standards / procedures or organizationally that could have an impact on health and safety, environment or regulatory requirements.

☐ The process for this can be found in AIMS Element 8 - Management of Change

## 9.2.6 ESTIMATING EXTERNAL COMMUNITY EXPOSURE

HOW ARC uses a combination of processes to estimate potential exposures off-site. These include but are not limited to Technical Data Management, Risk Assessment, Modelling and Emergency Planning Zone identification.

Technical Data Management

☐ Technical data is the foundation of the Emergency Response Planning process. It determines the size of the EPZ. Technical data affects public engagement requirements and the geographic area to which an emergency response is directed. The consistency and quality in the preparation of this important data is essential in managing ARC's reputational risk.

  o Technical data will be prepared under the supervision of a qualified professional engineer or other appropriate technical designation. This step ensures new projects are appropriately modeled to define the EPZ.

  o Once an EPZ is identified and plotted, ARC will assess whether the risk is acceptable. If community impact is potentially too extensive, ARC shall reassess the project design parameters and repeat the modelling and mapping cycle.

  o Once acceptable risk is defined, the technical data and maps will be forwarded to ARC's Program Coordinator for integration into the site-specific Emergency Response Plan.

☐ The Field Manager, Field Foreman, Production Engineer, and Program Coordinator assess risk acceptability. As the project moves forward, site personnel should monitor for changes related to modifications or additions of wells or pipelines, changes in operating conditions and encroaching development. Material changes in any of these items may necessitate an update to the Emergency Response Plan or development of a new Emergency Response Plan.

Figure 9.2B - ARC Technical Data Management Process
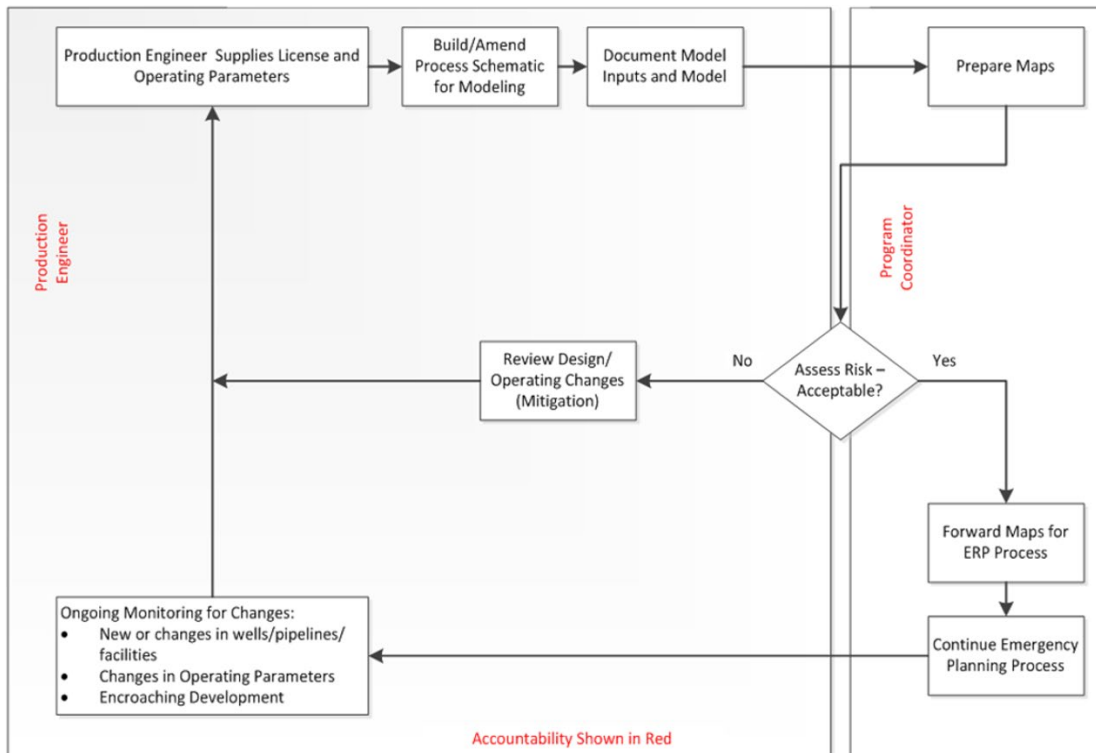
H₂S Assessment for Wells

Each of ARC's drilling and completion operations shall have an H₂S Release Rate Assessment prepared in accordance with the Canadian Association of Petroleum Producers (CAPP) H₂S Release Rate Assessment Guidelines document.

☐ *For* wells drilled in Alberta the latest version of ERCBH2S Model will be used to determine the appropriate Emergency Planning Zone size. (**Applies to Pipelines as well**)

☐ For wells in British Columbia, EPZs are determined using the nomograph formulas found in the in the BC Emergency Management Regulation (2013) – Schedule A. (**Applies to Pipelines as well**)

☐ Prior to drilling and completion, new wells must have Drilling H₂S Release Rates, Completion/Servicing H₂S Release Rates, and Suspended/Producing H₂S Release Rates prepared prior to the preparation of the well license or well authorization application. The higher of these release rates sets the category of the well for the application. The Suspended/Producing H₂S Release Rate also sets the level designation of the well for land-use setback restrictions

☐ Once wells are tested and placed on production, the actual H₂S concentration and flow capability of the well should be reviewed. The Suspended/Producing H₂S Release Rate should be updated by the Production Engineer and forwarded to the Program Coordinator to oversee the update of the technical data in the appropriate Emergency Response Plan

☐ Existing wells must have representative Suspended/Producing H₂S Release Rates based on the actual flow data of the well

☐ Prior to commencing workover operations on existing wells, the Servicing H₂S Release Rate should be reassessed if it has the potential to be materially different from the Suspended/Producing H₂S Release Rate

H₂S Assessment for Facilities and Pipelines

☐ New sour pipelines and facilities must be assessed to determine the H₂S Release Volume of the facility. The H₂S Release Volume sets the level of the facility for land-use setback restrictions

☐ Existing pipelines will be assessed annually to ensure the H₂S Release Volume calculations are based on actual operating and licensed conditions

☐ Mitigation opportunities, such as adjustment of the set pressure on the Emergency Shutdown Valve (ESD valve) or changes in license conditions, will be incorporated into the annual review

☐ Determination of the H₂S Release Volume and related Emergency Planning Zone starts with an understanding of the interconnectivity of the pipeline systems

☐ A schematic showing pipeline nodes is useful to ensure inputs into the pipeline model are correct and the model represents potential system drainage that could occur from a failure. A node is considered to be any of the following:
   o An emergency shutdown valve (ESD) or check valve (CV)
   o A junction
   o The start or endpoint of a pipeline segment, such as a well or facility
   o A change in operating condition or pipe dimension

CEPA Product Assessments

☐ Environment Canada's Environmental Emergency (E2) regulations apply to any person who owns or has the charge, management or control of a listed substance

☐ CEPA-regulated products in ARC production are primarily propane, butanes and LPG mixes

☐ A copy of the E2 Plan and related documents must be filed at the place where the products are stored

☐ E2 Plans for each facility must be tested at least once per year. An E2 plan exercise cannot be applied to more than one facility

    o **Note:** When testing a facility E2 plan, there is opportunity to explore the difference of other facilities and discuss how the response would be different, provided that the responders for the other facility are present. An independent report can then be prepared and filed at the alternate location

☐ The following guidelines apply for notices that must be submitted to Environment Canada:

    o Notice of Identification of Substance and Place if either:

        ▪ Maximum quantity equals or exceeds threshold; OR

        ▪ Largest container capacity equals or exceeds threshold

☐ The Notice of Identification of Substance and Place must be filed within 90 days if either of the two criteria are met

☐ Notice of Plan Preparation (to be filed within 6 months of the criteria being met) and Notice of Implementation and Testing (to be filed within 1 year of the criteria being met) required if both:

    o Maximum expected quantity equals or exceeds threshold; AND

    o Largest container capacity equal or exceed the threshold

☐ Notice of Closure or Decommissioning (within at least 30 days or as soon as feasible in the case of extraordinary circumstances)

☐ Amended Notice of Identification of Substance and Place must be filed within 60 days of any changes in information or increases in the maximum expected quantity greater than 10%

☐ Notify the Minister if either the amount or container capacity criterion becomes less than the threshold quantity or below maximum capacity of the largest container (each set out in column 3 of Schedule 1) for 12 consecutive months

    o ***Note:** All notices submitted must be accompanied by an authorized official's signature (Schedule 3 – Certification)

☐ A flammable mixture is reportable if it contains an E2 substance and it meets 4 criteria:

    o E2 substance has a percentage concentration in the mixture of at least 1%;

    o The flash point is less than 23°C;

    o The boiling point is less than 35°C;

    o The quantity of the flammable mixture is at least 4.5 tonnes.

☐ If all 4 criteria are met – report the mixture as the highest concentration E2 substance (flammable mixture) and the applicable notices will be filed with the appropriate planning and testing to follow.

Transportation Risks

☐ Part 7 of Transport Canada's Transportation of Dangerous Goods Act, 1992 requires that before a person offers for transport or imports certain dangerous goods, the person must have an approved Emergency Response Assistance Plan (ERAP)

☐ Column 7 of Schedule 1 as well as Part 7.1(2) - Emergency Response Assistance Plan of the Transportation of Dangerous Goods Regulations (TDGR) prescribe the dangerous goods and the concentration or quantity for which an ERAP is required

☐ Propane, butane, their isomers and LPG mixtures are listed in Column 7 of Schedule 1 and they require an ERAP

☐ Crude Oil and Condensate are not listed in Column 7 of Schedule 1 and therefore do not require ERAPs for transportation by tank truck

    o **Note:** Transportation of Dangerous Goods Regulations requires a person importing or offering for transport dangerous goods (listed in SOR/2015-100) that include Crude Oil and Condensate by rail in a tank car must have an approved ERAP if the quantity of the dangerous goods in the tank car exceeds 10000 L

☐ ARC is a member of Emergency Response Assistance Canada (ERAC) (formally known as LPGERC) and through this membership have the benefits of a standby team to provide the expertise and resources to assist with any incident

☐ ARC will file the ERAP for approval with Transport Canada. The length of the approval will range from five to seven years for final approvals and one to three years for interim approvals.

☐ Currently ARC has ERAPs for LPG/Propane. ARC will require leadership on location of an incident involving the transportation of these products.

☐ ARC's ERAP number and 24 hour emergency number are listed on all ARC TDG shipping documents.

Pipeline Incident Risks

☐ CAPP's Companion Planning Guide to AER Directive 071 provides guidance for emergency planning of HVP pipelines. Appendix 10 of the document provides Emergency Planning Zone sizes. However, facilities that are located in populated areas should be modelled using the specific operating parameters of the pipeline with hazard assessment software.

9.2.7 MONITORING AND REVIEW

HOW

Audits / Inspections

☐ ARC will use an external Third Party agency for auditing of the Emergency Management Program including plans on an annual basis to ensure they meet all regulatory requirements.

☐ Protocols utilized will include CER, OGC, AER, CSA and CEPA. If deficiencies are identified, action items and timelines for completion are assigned to a responsible party

☐ ARC has an established process for conducting and documenting internal inspections conducted on activities and facilities. Each of the tools used allows for documentation of deficiencies as well as assignment and communication of responsibility and time lines for completion of required corrective actions to responsible parties.

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☐ Further information on ARC auditing / inspection requirements is located in AIMS Element 5 - Monitoring, Reporting and Follow-up.

Management Review Process

☐ An annual meeting will be held and ARC's performance against the annual targets for the KPIs will be reviewed. Missed targets will be reviewed in detail and strategies will be outlined so that the targets can be achieved.

☐ The management review process ensures that ARC's EMP is being implemented accordingly, ARC's performance is reviewed and opportunities are identified and documented for continual improvement.

☐ Updated performance indicators will be outlined, with the primary objectives being for continual improvement and ensuring the policy and objectives are being met

9.2.8 DOCUMENT CONTROL

☐ AIMS Element 4 – Document Control outlines the framework and procedures for managing the preparation, review, revision / approval process, retention and control of ARC documents which includes documents pertaining to Emergency Management

ERP Document Control

☐ The front of each plan (Section 0) includes a distribution list. Plan holders are responsible to apply updates to the physical binders when they are distributed. When a plan is updated, the revision log is also updated, including a description of the changes as well at the impacted page numbers.

☐ Each of the plans are numbered and assigned to a specific individual. The plans are marked as either Full or None. Full copies are confidential and contain public information that is not intended for general distribution and is provided only to those responders who will require the information to effectively complete their tasks.

☐ Confidential copies are also secured so that they are available only in an emergency by responders. Non-confidential electronic copies of the Emergency Response Plans and associated maps are available on ARC's internal website.

☐ A revision request form, also in the front of each ERP, enables plan holders, who identify an error or a need for an update, to forward the revision request to ARC's Calgary office.

9.2.9 MEASURE OF EFFECTIVENESS

☐ Key performance indicators (KPIs) will be established at ARC's annual Emergency Management Program Review meetings. The indicators will follow the SMART rules as follows:

- o **S**pecific: The KPI must have a clear specific indication of what is being measured.
- o **M**easurable: The KPI must be measurable against a target objective.
- o **A**chievable: The defined target for the KPI must be reasonably achievable.
- o **R**elevant: The KPI must relate to ARC's policies and strategies.
- o **T**ime – Phase: The KPI must relate to a time base, such as incidents/year.

☐ Independent of the KPIs set at the annual Emergency Management Program Review meeting, ARC will maintain the following KPIs:

- o 90% or greater score on any regulatory audit performed. Deficiencies that are found will be addressed during the annual management review and actions to close the deficiency will be in place prior to the next management review cycle.

- o All drilling and completion operations have a proper H_2S release rate assessment prepared prior to the licensing process. Regional reports or area studies may be referenced to support single well or pad well operations. Any licenses submitted without a supporting report will be recorded as a missed target.

- o An H_2S Hazard Assessment and a CEPA Product Hazard Assessment has been conducted on all sites. The assessment will monitor for change from the previous operational period and updates to the plan will be made accordingly.

- o All of ARC operations are covered by an appropriate emergency response plan and that each plan is current. Facility plans will be reviewed and updated a minimum of once per year and will incorporate new hazards identified in the hazard assessment process.

☐ Annual review of program, legal and regulatory requirements by program coordinator and management.

Appendix 9.2A - References

☐ AER Directive 071, 2009 11 24 – Emergency Preparedness and Response Requirements for the Petroleum Industry

☐ AER Directive 056, 2014 05 01 – Energy Development Applications and Schedules

☐ AER Bulletin 2009-32 – New Versions of ERCBH2S Available for Testing and Feedback and Implementation Plan for Directive 071

☐ BC OGC Emergency Management Manual – July 2015

☐ BC Consultation and Notification Regulation 279-2010 with 2013 09 26 Amendments

☐ BC Emergency Management Regulation 204/2013

☐ CSA Z246.1-13 – Security Management for Petroleum and Natural Gas Industry Systems

☐ CSA Z1600-14 – Emergency and Continuity Management Program

☐ CSA Z246.2-14 – Emergency Preparedness and Response for Petroleum and Natural Gas Industry Systems

☐ CSAZ662-15 – Oil and Gas Pipeline Systems

☐ Environment Canada Environmental Emergency Regulations (SOR/2003-307) – 2011

☐ Environment Canada Implementation Guidelines for the Environmental Emergency Regulations – 2011

☐ CER Onshore Pipeline Regulations SOR/99-294

☐ CER Guidance Notes for the Onshore Pipeline Regulations – Sections 32, 33, 34, 35, and Annex A

☐ CER Management System and Protection Program

☐ CER Letter - 2015 03 26 and Appendix A

☐ Transport Canada - Transportation of Dangerous Goods Regulations includes SOR/2016-95

☐ Transport Canada – Transportation of Dangerous Goods Act, 1992

☐ Personal Information Protection Act (PIPA)

Revision Date: April 2021

Appendix 9.2B - Potential Invitees to a Response Exercise

Below is a list of potential responders that should be included in the invitation:

☐ **INTERNAL**
- Area field leadership and operating staff
- Field HS Advisor
- Technical Operations Manager and direct reports (Optional for table top exercises)
- HS Manager and direct reports (Optional for table top exercises)
- ERP team
- Consultant/OSS (if necessary)

Major exercises will also include:
- Facility Engineering Manager and direct reports
- Corporate On-call team
- Calgary Reception
- Investor Relations

☐ **EXTERNAL**

British Columbia
- OGC
- Emergency Management BC
- Regional District
- Regional Health Authority
- RCMP
- Fire Department
- WorkSafeBC
- CER (if CER -regulated)

Alberta
- AER
- Local Authority
- Alberta Health Services
- RCMP
- Fire Department
- CER (if CER regulated)
- Alberta Emergency Management Agency

Appendix 9.2C - ERP Types & Content

Corporate Emergency Response Plan

☐ Site-Specific ERPs are generally prepared for **sour** operations that have members of the public working or living within the Emergency Planning Zone, all other operations are covered by the Corporate ERP.

☐ The Corporate ERP complies with Alberta and BC regulatory requirements. The Corporate ERP describes response functions and emergency procedures that would be implemented if an emergency event were to occur on company property, affects company operations; or has the potential to pose a risk to the company, contract personnel, general public or the environment. The Corporate ERP is intended to address all hazards.

Site Specific Emergency Response Plans

☐ The Alberta Energy Regulator (AER) and the BC Oil and Gas Commission (OGC) have specific requirements in regard to the development of Site-specific emergency response plans. Typically these plans cover sour, Natural Gas liquids (NGL) & High Vapor Pressure (HVP) pipeline operations where people may cluster within an emergency planning zone, such as residents, businesses or campgrounds.

☐ OH&S regulations require a written emergency response plan for responding to an emergency that may require rescue or evacuation.

☐ Sites with CEPA products that meet threshold quantities and container capacity requirements must be compliant with Environment Canada Environmental Emergency (E2) Regulations and may require an E2 Plan for these products.

☐ A Site-Specific ERP is required for any facility, well, or pipeline containing H_2S where a surface development (i.e. occupied dwelling, campground, public facility) is located within or egresses through the calculated EPZ.

Site Specific Emergency Response Plans

☐ In BC, Supplemental or Site-Specific ERPs are required for and sour well drilling and completion operations. The Supplemental ERP is an addendum to the Corporate ERP and contains details such as:
  o Contact information of the wellsite personnel & key emergency contact information
  o Affected land or lease user information as well as Rights holders
  o A map showing the directions to the location
  o Dates and timing related to the well and related H_2S release rate information.

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Figure 9.2C - OGC Regulation Summary

OGC Regulations		
Determination for Supplement, Site Specific or Special Sour ERP		
		No Supplement or Site Specific ERP is required if the Release Rate is less than 0.01 m³/s and there are no residents or named highways inside of the EPZ and a copy of the Corporate ERP is on site.
Supplement		A Supplement is required if the Release Rate is equal to or greater than 0.01 m³/s and there are no residents, including egress residents or named highways inside the EPZ. The Corporate ERP must also be on site.
Site Specific		A Site Specific ERP is required if there are residents, including egress residents or a named highway within the EPZ and the release rate is less than 2.0 m³/s or if the well is classified as a Special Sour Well.
Special Sour Well	1	Any well from which the maximum potential H_2S release rate of 0.01 m³/s or greater and less than 0.1 m³/s and which is located within 500 metres of the corporate boundaries of an urban centre.
	2	Any well from which the maximum potential H_2S release rate of 0.1 m³/s or greater and less than 0.3 m³/s and which is located within 1.5 kilometers of the corporate boundaries of an urban centre.
	3	Any well from which the maximum potential H_2S release rate of 0.3 m³/s or greater and less than 2.0 m³/s and which is located within 5 kilometers of the corporate boundaries of an urban centre.
	4	Any well from which the maximum potential H_2S release rate is 2.0 m³/s or greater.
	5	Any other well which the OGC classifies as a special sour well having regard to the maximum potential H_2S release rate, the population density, the environment, the sensitivity of the area where the well would be located, and the expected complexities during the drilling phase.

Environmental Emergency Plans (E2)

☐ Environment Canada has requirements for E2 plans to deal with the storage of certain volumes of regulated hazardous products such as NGL's/LPG's, chlorine, etc. Any operated area with an E2 registered substance must have a section in the site-specific emergency response plan outlining additional contact numbers, procedures and other special response/handling instructions as per the requirement of the E2 plan.

Emergency Response Assistance Program (ERAP)

☐ Transport Canada has requirements for emergency response plans for transportation of Dangerous Goods. Prior to anyone offering for transport any Dangerous Goods requiring an ERAP (indicated in Column 7 of Schedule 1 of TDG regulations) they must have an associated Emergency Response Assistance Plan filed with and approved by Transport Canada.

☐ ARC has an approved ERAP for Liquid Petroleum Gas (LPG)/Propane/NGL. In the event of a transportation accident or incident involving LPG/Propane/NGL being transported from the ARC site or the storage bullet, the ERAP is enacted by ARC through Emergency Response Assistance Canada (ERAC).

Office Emergency Response Plan

☐ These plans are office specific and may include (but are not limited to) things such as building set-up, head counts, evacuation procedures, security, etc. to ensure a coordinated company response to all types of emergency situations.

Industrial Wildfire Control Plans

☐ The Industrial Wildfire Fire Control Plan is a legislated requirement of the Forest Prairie Protection Act. The intent of the plan is to proactively identify assets, such as personnel, at risk and prevention strategies to reduce the negative impacts of Wildfire.

☐ The information provided by ARC will be used to enhance local knowledge and communications between Forest Protection Division (FPD) staff and the stakeholder/client, to effectively deal with strategies to reducing the negative impacts of wildfire.