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Canada

Operations Regulatory Compliance

Closed Report - CV1920-474 - 6 April 2020

Event Type
Emergency
Response Exercise

CV Event Number
CV1920-474

Project Companies

- Trans Mountain Pipeline ULC

Name of the Operating Company
Trans Mountain
Pipeline ULC

Rationale, Scope, and Additional Description
Trans Mountain will be holding a winter full scale exercise with on-ice work in the Kamloops District. This will also have condition compliance with the BCEAO.

Selected Province/Territory

- British Columbia

Start Date
2020-02-12

End Date
2020-02-12

Inspection Officer Number

- 2460

Selected Disciplines

- Emergency Management
- IAMC Observation

No Tool Used

This inspection was undertaken to verify compliance with the following legislative requirements:

- National Energy Board Act (NEBA)
  - National Energy Board Onshore Pipeline Regulations (OPR)
- Canadian Energy Regulator Act (CERA)
  - Canadian Energy Regulator Act (CERA)
- Canada Labour Code (CLC)
  - Canada Labour Code (CLC)

- Standards
  - CSA Z246.2 - Emergency Preparedness and Response for Petroleum and Natural Gas Industry Systems
  - CSA Z662-19 - Oil and Gas Pipeline Systems

- Plans And Procedures
  - Emergency Response Plan (ERP)
    - Emergency Response Plan - Trans Mountain Pipeline

Selected Regulatory Instrument Numbers
Not Selected

Facility Details

Facility Types

Pipeline

- Pipeline
- Terminal

Additional Information

All facilities owned or operated by company

Observations (No follow-up required)

Exercise Planning and conduct

Date
2020-02-12
Discipline
Emergency Management
Categories

- Exercise Planning and Conduct
  - Participant Package
  - Scenario Briefing
  - General Safety Briefing
  - Site-specific Hazards
  - Scope of Exercise
  - Exercise Objectives

Facility

Observations
On 11 and 12 February 2020, the Canada Energy Regulator (CER) attended a full scale emergency response exercise in Kamloops, British Columbia - at a field location on Inks Lake (approximately 20 km SW of Kamloops) and at the exercise Incident Command Post (ICP) in Kamloops. CER Inspection Officers and other CER Staff were on site at the ICP and at Inks Lake to observe, evaluate, and participate in the emergency response exercise. The exercise is a requirement under the *National Energy Board Onshore Pipeline Regulations (OPR)*. The exercise included establishment of the ICP and deployment of personnel with equipment to the exercise site, it tested the company’s ability to respond to an emergency in winter conditions and to work effectively with first responders and agencies, including federal, provincial, and municipal governments and First Nations.

An exercise participant package was distributed prior to the exercise date identifying exercise objectives which were attainable, measurable and realistic for the exercise. The exercise scenario was designed in consideration of the hazards and risks posed by the company's operations. Trans Mountain engaged potential exercise participants ahead of time, through collaborative and transparent planning

meetings conducted on 17 December 2019, 9 January 2020 and 4 February 2020. Planning meeting participants included Trans Mountain, City of Kamloops, CER and BC Ministry of Environment and Climate Change Strategy. Indigenous communities were invited to participate in the planning meetings but did not attend. An ICP organization chart (including field personnel) and an Environmental Unit organization chart were shared prior to the exercise on 4 February 2020. The simulated scenario for this exercise involved an excavator conducting earthworks movement for a local landowner inadvertently striking the Trans Mountain Pipeline at KP 825.3 resulting in a full-bore rupture and subsequent release of diluted bitumen into the environment.

The exercise occurred over a 2 day period. Day 1 known colloquially as the Training Day was a valuable source of relationship building and information sharing amongst exercise participants. Day 1 included presentations and discussion regarding roles and responsibilities in an ICS structure, dryland training for field responders, round robin training for ICP participants, Joint Information Centre Training for Information Office/JIC Participants, and winter response theory training for field responders. Presentations were also provided by the CER, City of Kamloops, and Thompson Nicola Regional District on their respective roles and responsibilities. CER Staff heard positive feedback from exercise participants regarding both the structure of the Training Day and the information shared. Day 2 included stand-up of the ICP and a transfer of command. Prior to the exercise commencing on Day 2, the facilitator went over the scenario, objectives and, rules of play (e.g. exercise duration, exercise artificialities, simulation, injects, participant roles, when to call the exercise over, how to stop the exercise in the event of a real emergency) as well as the need for external communications to stress that a real incident had not occurred. Site security and public safety were adequately considered at the ICP and the field location at Inks Lake. At the ICP, participants checked in and wore passes on lanyards. Security staff were present and actively monitoring participants and entrances at the ICP. VIP tour members and observers wore passes as well. At Inks Lake, attendance of all staff was strictly monitored and security staff was present.

A pre-exercise safety orientation was conducted at the ICP. This included how to access first aid, site emergency procedures and situations that would result in suspension of the exercise. The orientation was comprehensive and applicable to the hazards that could be encountered throughout the day. A safety briefing at Inks Lake was delivered and included topics such as slips trips and falls, proper ice monitoring techniques and weight bearing calculations, equipment use hazards, heavy lifting techniques, on ice work, the responsibilities of onshore safety spotters and the potential for falling through ice during on ice operations. The safety briefing also included information on security and public interaction, potential safety issues from the public, and identification of the point of contact for public inquiries.

Invited participants included: Canada Energy Regulator, Environment Canada and Climate Change, Public Safety Canada, Fisheries and Oceans Canada (DFO), Kamloops RCMP, RCMP Tk'emlúps Rural, Indigenous Advisory Monitoring Committee, Adams Lake Indian Band, Ashcroft Indian Band, Boston Bar First Nation, Canim Lake Band, Cold Water Indian Band, Cook's Ferry Indian Band, Kanaka Bar Indian Band, Little Shuswap Indian Band, Lower Nicola Indian Band, Lower Similkameen Indian Band, Nlaka'pamux Nation Tribal Council, Scw'exmx Tribal Council, Nicomen Indian Band, Nooaitch Indian Band, Okanagan Indian Band, Penticton Indian Band, Shackan Indian Band, Simpcw First Nation, Siska Indian Band, Upper Nicola Band, Whispering Pines/Clinton Indian Band, Shuswap Nation Tribal Council, Stk'emlúpsemc te Secwepemc Nation, Tk'emlúps te Secwe̓pemc, Skeetchestn Indian Band, BC Ministry of Environment and Climate, BC Environmental Assessment Office, Emergency Management BC, BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development, BC Ministry of Energy, Mines and Petroleum Resources, BC Parks, BC Ministry of Transportation and Infrastructure, BC Ministry of Agriculture, Interior Health Authority, Health Emergency Management BC, BC First Nations Health Authority, First Nation Emergency Services Society, City of Kamloops, Kamloops Fire Rescue, City of Merritt, Thompson-Nicola Regional District, CP Rail, CN Rail, Pembina Pipeline

The IAMC monitors working on behalf of the Indigenous Advisory and Monitoring Committee (IAMC) attended the Kamloops Exercise with CER Staff at the ICP. This partnered attendance was another excellent learning opportunity for the IAMC monitors, CER Staff and the company. The learnings from this activity will be incorporated into ongoing efforts to evolve and formalize the process for similar

activities in the future. The IAMC monitors captured independent observations and recommendations which are provided in this report under the heading of ***IAMC Indigenous Monitors Observation.***

Tool Used
No
Tool Used

RDIMS Documents

Documents

Notification and Reporting

Date
2020-02-12
Discipline
Emergency Management
Categories

- Notification and Reporting
    - Notification & Reporting as per EPM
    - Incident Classification

Facility

Observations
Notifications were conducted as per the Emergency Response Plan and were placed in an appropriate time. An incident name was established and external notifications to the CER and Transportation Safety Board (TSB) were exercised as part of the scenario as per incident reporting requirements under the OPR. The exercise was reported through the CER's Online Event Reporting System. This provided a good test of both Trans Mountain and CER's reporting processes. The report was received in a timely manner and distributed to appropriate CER Staff. The level of emergency was determined to be a Level 3 in accordance with the company's Emergency Response Plan and Incident Classification Matrix.

Tool Used
No
Tool Used

Safety

Date
2020-02-12
Discipline
Emergency Management
Categories

- Safety
    - Safety Plan
    - Personal Protective Equipment
    - Monitoring/Safety Equipment

Facility

Observations

Field Safety Observations
On Wednesday, 12 February 2020, two CER Safety Inspection Officers were present at the Trans Mountain (TM) designated field location, Inks Lake, attending the in-field training and drill practice portions of the exercise. The intention of using Inks Lake was to train for and practice on ice, and under ice, oil spill response and recovery methods - applicable to a frozen lake or frozen river response situation. Prior to attending the field location, CER personnel were provided detailed maps with directions to Inks Lake, and arrived to the site without incident. Upon arrival to Inks Lake, clear signage was setup noting to the public and company attendees that a *"Trans Mountain Training Session"* was occurring, the signage also contained a Trans Mountain contact phone number. A large portion of Inks Lake remained publicly accessible with an on ice skating area. Throughout the day, general public utilized the skating area adjacent to the TM exercise at the other end of Inks Lake.

Trans Mountain personnel had arranged and cordoned off separate designated viewing and working areas, cleared snow from the area, sanded the parking lot and working area, and erected tents to be used as warming huts for visitors and observers. Attendees were given a general site orientation upon arrival noting parking protocol, location of portable toilets, and that the exercise was occurring on public land while under permit from the Ministry of Forests, Lands, Natural Resource Operations and Rural Development (FLNRO). On site designated security personnel were utilized to ensure safety and security for both company officials, visitors, and the general public; and throughout the day there were no apparent security issues. Work areas were well separated from the observation and public areas with the use of signage, delineators, and safety flagging ribbon; and a designated smoking area was also visible. A wind indicator sock had been erected, however a formal emergency muster location was not signed or readily identifiable. TM employees had various job trailers specific to emergency response, and the trailers appeared to be clean and the contents well organized.

Participants and observers at Inks Lake included, Canada Energy Regulator, BC Ministry of Environment and Climate Change Strategy, SWAT Consulting, H2Safety Contractor, The Response Group Consulting, Department of Fisheries and Trans Mountain. In addition, various groups attended a portion of the day as local media or independent exercise observers.

Morning training exercise summary
A formal training exercise safety briefing was conducted, and was led by the on-site TM EM Coordinator, followed by a talk from the on-site TM Safety Watch, with additional comments by the on-site Medic in case of emergency. An Initial Site Health and Safety Plan was used as part of the safety meeting and was posted on a display board at the Command trailer. The safety briefing was conducted with information relevant to the training portion of the exercise, with applicable hazards and controls mentioned in preparation for working on and near an icy surface in sub-zero conditions, with both hand and powered tools. SWAT Contractors were the designated training authorities for the on ice exercise, with two trainers leading two groups through the activities of the session.

CER Safety Inspection Officers noted that while the focus of the training exercise was building competency to work safely with, and practice the use of powered mobile equipment and other hand and power tools while on a frozen lake, some relevant hazards of an oil spill was not part of the training exercise safety briefing.

CER Safety Inspection Officers noted that SWAT training consultants repeatedly mentioned that, "once spilled oil hits the snow/ice, it will reach its pour point and basically stop flowing". However, the safety data sheet for Fort Hills Diluted Bitumen, diluted with up to 40% condensate, notes the pour point to be -36oC. CER Staff suggest that the training information discuss the difference between pour point, as conducted under laboratory conditions for the SDS, and a more operational perspective of pour point as it relates to oil spilled in the natural environment under snow and ice conditions.

The training portion of the exercise was observed to have been completed incident free, noting Trans Mountain personnel were engaged and involved throughout the training and drill sessions. CER Safety Inspection Officers observed competency building applicable to the safety assessment of ice on a frozen lake, understanding and calculating safe working loads for frozen ice surfaces, rescue preparedness measures, working on ice with hand and power tools, preparing applicable spill recovery methods and working with the available equipment. Workers were attentive to wear their Personal Protective

Equipment (PPE) throughout the training and were attentive to instructions given by the SWAT trainers while each training attendee used various hand tools for the given techniques.

Afternoon practice drill exercise summary
A drill exercise safety briefing kicked off with all attendees present, and was led by the on-site Trans Mountain EM Coordinator, followed by a talk from the on-site Trans Mountain Safety Watch using the same tailgate meeting minutes form that was used in the morning.

The safety briefing was reflective of the morning safety briefing, with the Trans Mountain Safety Watch additionally mentioning he would carry a typical 4-head gas monitor and a VOC monitor. It would benefit the training if the reason for donning a 4-head gas monitor was discussed.

As workers began the drill exercise activity, it was readily apparent that training skills were being utilized and that safety practices for the activity were well established. Teams conducted activities including ice safety assessment, utilization of rescue equipment, hand and power tool use to drill or cut ice, cutting containment slots in the ice, removing ice blocks from the lake, and safely working near open lake water.

The drill exercise was completed incident free, where then all workers attended a post activity summary meeting. Workers raised safety concerns during the drill exercise debrief including:

- Eye protection safety shields fogging up and reducing visibility
- Safety lanyard lifelines not being kept taught enough and creating a snagging hazard with the powered ice augers
- Chainsaw handling and cutting of ice created several challenges

Control zones were identified and cold, warm and hot zones were delineated with signs and colored tape as well personnel observing participants moving through the zones and ensuring that proper simulation of decontamination was observed. Signs were identified at each stage of the decontamination area, chairs and containment pools for washing and vessels for clothing removal and containment were also set up. This was observed to be strictly enforced by Trans Mountain personnel.

Trans Mountain coordinated, conducted and completed an incident free training and drill exercise for on ice, and under ice, control, containment and recovery of a spilled chemical product. Throughout the activities observed, “Safety” was the first word used in many of the conversations led by in-field Trans Mountain personnel, and hired contractors. While applicable safety measures were continually mentioned and observed in practice for the specific training and drill exercise hazards, it would have benefitted the training if the overarching hazard relevant to the purpose of the emergency response activity, a release of Fort Hills Diluted Bitumen, was included in the safety briefings as per the following comments.

A review of the available TM Initial Site Safety Plan, and the TM Tailgate Meeting Minutes forms, both showed evidence that chemical hazards associated with Fort Hills Diluted Bitumen, were not a component for consideration or the scope of the exercise when either form was completed. Several applicable controls relevant to protecting workers potentially exposed or working with Fort Hills Diluted Bitumen, on both forms, were not checked off. This would appear to be an important omission of the training and drill exercise. CER Safety Inspection Officers noted that it would benefit the training if a Safety Data Sheet for Fort Hills Diluted Bitumen was available as part of the training or drill exercise.

CER Safety Inspection Officers observed the primary focus of both morning and afternoon safety debriefs, to be associated primarily to the hazards of the training exercise; working on ice, working with powered mobile equipment, material handling and cold weather exposure, for example. And throughout the day, supervisors and workers were diligent in completing all activities with safe practices in mind. CER Safety Inspection Officers note that some hazards (noted above), risks and controls associated with Fort Hills Diluted Bitumen, as may apply to an actual spill response exercise, were not observed to be discussed or simulated, and would benefit future exercises if this information was included in the safety briefings.

Tool Used
No
Tool Used

Response Management

Date
2020-02-12
Discipline
Emergency Management
Categories

- Response Management
  - Roles and Responsibilities
  - Emergency Procedures Manual
  - Command and Coordination Centers
  - Chain of Command
  - Response Priorities/Incident Objectives
  - Response Structure
  - Mobilization of Resources/Equipment
  - Operational Period
  - Meetings & Briefings
  - Incident Status Board
  - Maps and Modeling

Facility

Observations
Incident Command Post
An incident briefing was conducted by the initial Trans Mountain IC using the ICS 201 Incident Briefing form and command was transferred to the incoming Trans Mountain IC who acted as the Trans Mountain IC within UC. The five members of Unified Command (Canada Energy Regulator, BC Ministry of Environment and Climate Change Strategy, City of Kamloops, Thompson-Nicola Regional District and Trans Mountain) were identified and introduced. Appropriate objectives and priorities were developed by UC in a collaborative and consensual manner.

All members of UC stressed the need for an integrated response that includes all key players with response roles. CER Staff are of the view that this was a very positive outcome of the exercise and demonstrates the recognition amongst the players of the need for appropriate collaboration and cooperation during a response as part of the broader "EM system."

For this exercise, Trans Mountain chose to focus on development of four specific plans: Waste Management Plan, Wildlife Management Plan, Sediment/Surface Water Sampling Plan, and Historical/Cultural Resource Protection Plan. In CER Staff's view, this approach was successful in allowing for a more rigorous focus on a lesser number of plans within the exercise time frame as compared to less detailed preparation of a greater number of plans.

Trans Mountain displayed thorough knowledge of the Incident Command System and had appropriate processes and resources to allow for its full implementation. The Incident Command Post was well organized and provided an appropriate venue for management of the incident. Trans Mountain made effective use of both internal and external coaches for exercise participants. In CER Staff's view, experienced coaches provide a valuable learning resource for exercise participants.

A Unified Command (UC) was established and all four Sections (Planning, Logistics, Finance/Admin and Operations) of the ICS were staffed by Trans Mountain employees and other participating agencies and

organizations. Roles were assigned early on by the Trans Mountain Incident Commander (IC) with clear identification of priority actions for Command and General Staff. Section Chiefs and other roles were named in the ICS 207 organization chart. The Trans Mountain Incident Commander (IC) effectively tasked the respective ICS Sections with immediate tasks while UC was having its initial meetings upon transfer of command from Trans Mountain's initial IC to the incoming IC. CER Staff note that this is an important tasking decision that supports work on immediate priority response decisions while UC is discussing and establishing the initial steps in the "Planning P."

The five members of Unified Command worked cooperatively together and displayed an ability to process complex questions, jurisdictional concerns and issues in a frank and collaborative manner leading to a consensus-based decision, even when not fully agreeing on all aspects of the best approach.

Although invited, a member of the potentially affected Indigenous communities was not able to participate in Unified Command. In light of this, CER Staff observed that the members of UC placed additional focus on addressing potential impacts to, and communication with, potentially affected Indigenous communities.

In CER Staff's view, another important emphasis of the UC was deciding on critical information and issues that it wanted to be notified of immediately. This included injuries beyond first aid, oiled wildlife discovered, protests/protesters, unplanned media or VIPs and discovery of conflicting information. This decision is important as it allows the UC to immediately address these priority issues, resulting in more timely decisions and response strategies.

BC MOE's IC stressed the importance of development of an effective Waste Management Plan. CER Staff agree that this is a vital element of any oil spill response and supports emphasis on waste management.

The Simulation Cell played a valuable role in challenging exercise participants to address injects throughout the day. Of note, the Simulation Cell reported that it delivered 62 injects throughout the day and in its opinion, all 62 were addressed and the objectives were met. The injects were designed to meet CER and BC MOE criteria.

CER Staff note that overall, UC appropriately emphasized the importance of public communications during the response and the communications and liaison sections were appropriately resourced and tasked to fulfill the specific UC objective in this regard. Trans Mountain simulated contact with potentially affected Indigenous communities via its Indigenous Engagement Team. CER Staff are of the view that a dedicated team such as this would be a valuable resource in the event of a real incident.

A mock media briefing that included the members of UC and technical experts was conducted. CER Staff observe that such mock briefings are important in preparation for media briefings in the event of a real incident. The addition of technical experts to the media briefing was an effective means to provide detailed information to the media beyond that provided by the members of UC.

In CER Staff's view, participation in UC and elsewhere within the incident management team by the City of Kamloops Fire Department and the Thompson Nicola Regional District was a valuable contribution to UC and the overall response to the incident. Local knowledge is critical in an effective response.

CER Staff are of the view that the scenario allowed for effective testing and use of Trans Mountain's Geographic Response Plans. GRPs are a valuable tool in spill response and Trans Mountain is commended for its ongoing commitment to their development and maintenance. The location of the spill was in an area with known heritage and cultural resources and with spiritual significance to local Indigenous communities. UC prioritized the protection of heritage and cultural resources during the response. CER Staff observed that response tactics were implemented that promoted oil containment and recovery while still protecting identified heritage resources (e.g. no ground disturbance in a known heritage resource area).

With appropriate safety measures, CER Staff support the night operations simulated as part of tactical response. Time is of essence during a spill and if able to be conducted safely, night operations allow for a more timely response.

Addressing environmental and socio-economic impacts was a priority during the response. This was evidenced by the resources allocated to the Environment Unit and the inclusion of numerous external parties including federal, provincial, municipal, and Indigenous representatives.

Field Observations
Radio channel 1 was used by field personnel for field – ICP communication. Communications on site were noted as being effective via radios and verbal discussion, though it was noted by participants that communication to anyone running equipment (notably the chainsaws) was more of a challenge. Air horns were discussed as being an addition to the OSCAR trailers for winter response.

All Oil Spill Containment and Recovery (OSCAR) trailers came from locations within the region, namely Kamloops and Blue River. This was done to ensure that local Trans Mountain personnel were able to use the local trailers, and also served to ensure that any deficiencies in the trailers, or equipment that should be added to them, could be identified and corrected for future incident response.

Trans Mountain personnel practiced using an auger to take ice-depth samples and assess the type of ice (blue or white) in order to calculate the weight bearing capacity of the ice using Gold's Formula. Trans Mountain personnel used safety lines to anchor themselves to the shore and, used a spotter system in the event of a fall through the ice. After a hole or trench had been cut by Trans Mountain personnel, it would then be marked with a pylon or snow fencing for a safety precaution for both Trans Mountain personnel and the public. Trans Mountain personnel also noted that after the exercise they would continue to have security on site to warn the public of potential openings in the ice.

On completion of an ice bore, Trans Mountain personnel on the ice then simulated a 'man down' drill (falling into the water), where the safety spotters used the safety lines to pull the workers out of the water and back to shore. This provided Trans Mountain shore personnel the opportunity to simulate rescue drills and was a benefit to the exercise.

After the training portion, Trans Mountain personnel began the exercise portion of the day. This followed a similar routine as the morning with a safety briefing and setting objectives for the field portion of the exercise. The objectives set for the field exercise were:

- Safety of responders and the public
- Control the source of the spill
- Contain/recover spilled product
- Protection of cultural/historical resources

The contractors leading the morning training did not take an active role in the exercise, or in demonstrating equipment use or tactics, and instead allowed Trans Mountain personnel to work through the scenario entirely on their own. Trans Mountain personnel performed the required tactics well and with proper safety considerations.

When each bore hole was drilled, Trans Mountain personnel would assess the thickness and quality of the ice, and then calculate the weight the ice could support, using Gold's Formula. In one of the bore sequences, the first hole measured 12 inches of ice, the second sequence showed 13 inches of ice and the third showed 12.5 inches. The final bore hole revealed the ice was composed of 8 inches of blue ice and 4 inches of white ice. This weight the ice could support was properly calculated and allows for 5,760 pounds of weight within a 30 m radius.

The 'V' trench was cut into the ice within 12 minutes near the simulated point where product was entering. The sled was then used to cut a trench into the ice and boom was placed in the trench, simulating a protection and collection strategy. Both tactics were successfully completed, though this was where it was noted communication was difficult with chainsaw operators due to the noise.

The day concluded with a '3 up, 3 down' discussion. Communication with saw operators was mentioned as the main take away for potential improvement. Trans Mountain personnel also wanted to look into alternate methods of shore safety lines, in case a loose line got entangled in the auger. CER Staff also mentioned wanting more discussion around the SDS and concerns around the product which was simulated to have spilled. The successes that were noted, both by Trans Mountain personnel and CER Staff, was the professionalism of the responders, the opportunity for Trans Mountain personnel to drill multiple times on each piece of equipment, and the strong teamwork between Trans Mountain personnel demonstrated throughout the exercise.

Overall, Trans Mountain personnel showed that they are capable of responding to releases during winter conditions and on ice. The objectives for the field exercise were fulfilled through Trans Mountain personnel efforts.

Tool Used
No
Tool Used

Response Tactics

Date
2020-02-12
Discipline
Emergency Management
Categories

- Response Tactics
  - Site Layout
  - Plans and Procedures
  - Site Security/Access Management
  - Control Points
  - Hazard Monitoring
  - Deployment of Containment Equipment
  - Protection of Environmental Receptors
  - Protection of People

Facility

Observations

Response Tactics
The Trans Mountain Pipeline Emergency Response Plan and supporting documentation guided response tactics. Strategies were discussed among Operations staff and presented to UC for comment. UC appropriately discussed objectives for the response. During this process, UC specifically emphasized the following in addition to the initial response objectives on the ICS 201 form:

- Protection of water intakes and water users
- Maximizing protection of cultural and archaeological resources in addition to environmental resources
- Keep stakeholders and Indigenous communities informed of response activities

At the ICP, gas detection records for field locations – Jacko Lake Worksite and Jacko Lake Ice Slot – for LELs, O2 levels, H2S, VOCs, benzene, CO and vapor) was completed and updated throughout the day. Ongoing air monitoring was simulated.

Meetings such as UC, tactics and planning were run efficiently; written agendas were used, roll call was taken and meeting rules were communicated. At the meetings, a clear linkage was provided between the work to be undertaken and the objectives established within an operational period. The main ICS forms were used as needed, such as the ICS 201 (Incident Briefing form), ICS 214 (Individual Log form)/ICS 214a (Unit Log) and ICS 234 (Work Analysis Matrices). Ongoing status updates were verbally communicated during briefing meetings to participants in the ICP and on the status board. The display board included:

Incident information	ICS 201 briefing	Incident status (ICS 209)	Objectives (ICS 202)	Incident Organization Chart (ICS 207)	Meeting summaries (ICS 231)
Communication List (ICS 205a)	Site and Safety Plan	Situation Maps	Radio Plan (ICS 205)	Weather reports	Trajectory Model
Divisions map	Incident Action Plan	Incident site security plan	Overflight map		

These ongoing status updates were beneficial for responders arriving on site as they did not have to wait for the next briefing meeting to obtain information on the incident. Wall charts, wall maps and a digital mapping system and posters were effectively used to help inform the response and Command/General Staff. Wall items included:

Media lines, approved information products, internal facts and community events information	Situation, incident location maps and air photo maps	Liaison and Operations Action tracker	Operational planning worksheets	Cooperating agencies	Command/general staff meeting schedule
Indigenous Communities notified	Public contact information	Gas detection records	Snow weir locations	Well and water intake locations	Injects, rumors

At the ICP, the Environmental Unit was well organized and used the prepopulated ICS forms efficiently to effectively develop many plans needed early on in the event (Waste Management Plan, Wildlife Management Plan, Sediment/Surface Water Sampling Plan, and Historical/Cultural Resource Protection Plan) which were reviewed and approved by UC.

The following topics were out of scope for the exercise:

1. Criminal Acts and/or Terrorism
2. Actual purchase of goods and services not agreed to prior to the exercise
3. Simulated or actual public evacuation
4. Actual road closures or notification of the public during the exercise
5. Development of Community Air Monitoring Plan, Sunken & Submerged Oil Plan
6. Convergent Volunteer Plan, Shoreline Clean-up & Assessment Plan

Overall, CER Staff noted that communication with the Operations and Planning Sections was good.

Tool Used
No
Tool Used

Communications

Date
2020-02-12
Discipline
Emergency Management
Categories

- Communications
  - External Comms Strategy
  - Internal Comms Strategy
  - Communications Equipment
  - Organization of Stakeholders
  - Coordination with Responders

Facility

Observations
Communications
CER Communications Staff participated in the Trans Mountain Kamloops Full Scale Exercise, within the Joint Information Centre (JIC) at the Incident Command Post (ICP).

In the afternoon of Day 1, members of the JIC underwent specialized training by a third-party coach from The Response Group (TRG). This was a helpful addition to the exercise as it allowed Trans Mountain communications personnel the opportunity to meet and understand other communications staff – including from the CER and local/regional government representatives – who would be part of the JIC. It was also made clear that once Unified Command (UC) was established, the group would speak as one. CER Staff noted that it remained unclear how and when communications representatives would be able to issue separate communications representing their own organizations, and/or when communications would come out from UC. It was also unclear if UC would have logos from all member organizations – something that would be helpful to distinguish the communications from simply being sent out from the company (This is important when it comes to social media, as UC posts were issued from a company Twitter & Facebook account).

As in previous exercises, CER staff observed that the Information Officer (IO) and Trans Mountain personnel in the JIC had pre-planned tactics, assigned roles and templates that were executed in a coordinated manner at the start of the exercise. That said, CER Staff noted that the IO and JIC Manager were well prepared to adjust to new JIC members from the CER as well as other agencies and jurisdictions. The JIC functioned well as an integrated group. A status board located behind the JIC table was instrumental in allowing all other incident staffers to be updated on communications items without having to ask questions of busy JIC members. Technical issues with printers caused delays and difficulty in having messaging printed up by JIC members throughout the day.

At the start of the exercise, both the company and CER issued brief holding statements, before Unified Command was established and the JIC became responsible for all incident-related communications. This simulated a real life scenario where communications would be coming from different sources as company, regulator and others learned of the incident and came together. Once the JIC was formed, key messages were shared and the regulator's input was often requested and considered during JIC meetings and huddles.

One aspect of frustration among all JIC members was the length of time/delay in getting key

messaging approved by the UC. Messaging was often provided quickly to the Information Officer to raise, but in some cases took 2-3 hours to be approved. The JIC social media (Twitter) account had initial information about the event but then was quiet for 2-3 hours awaiting approvals. This 'dead air' would be difficult to justify in a real life scenario when the public and the media would be using social media to discuss and disseminate truth, rumors and innuendo. Having basic information approved as soon as the UC is established would help with this as the JIC could then parse out information for social media channels. Updates from Operations would also be useful as the JIC could provide regular updates of the number of people arriving on scene, the type and numbers of machinery being deployed, etc. Regularly updated maps would also be helpful to both the JIC as well as the Liaison team, as they could be disseminated on social media quickly and help inform the public about closed areas, evacuation routes, etc.

A simulated press conference was conducted during the exercise. The JIC decided early on that representatives of the UC would have leading roles, including from the company, CER and the City of Kamloops. There would also be subject matter experts to speak to other issues such as environmental, tactical and local concerns. JIC members spent a sizeable amount of time preparing speaking notes and readying the room for the news conference, though UC members were unavailable for any 1-on-1 briefing time. Pre-press conference practice was done as a group and in a different room, so they were not as well prepared as they could/should have been. During the press conference, CER Staff observed that the subject matter experts were better prepared to answer media questions about details of the event and the response. It would benefit a response if subject matter experts played a greater role in future event press conferences, understanding that Unified Command members have neither the time to properly prepare, nor the details required to answer specific and local questions about the event.

Overall, the exercise demonstrated a developing and expanding role for the JIC during a major emergency event. A growing familiarity and understanding of how the JIC works is paying dividends for both company and regulator communications staff.

Liaison
As evidenced on the organization chart provided, and through discussion with various units, Trans Mountain along with participating agencies made good use of the opportunity for shadowing roles and providing coaches and assistants to facilitate this. The Liaison unit relied heavily on prepopulated lists. It was unclear where these lists had originated or how the information was collected. In some cases the information on the lists may have been out of date as the date stamped was from 2015.

A badging process was used in place of an ICS 211 form. This was problematic in that obtaining contact information for agencies present or agencies that would have to be notified was not completed in a timely fashion. While an ICS 211 form could have facilitated this (as it includes contact information), it could also be resolved through the posting of an Organization Chart that included contact information in each Section.

Trans Mountain did well using general message forms to communicate between units in a more formal fashion, however, some of these messages were left unanswered. Having In/Out boxes on each table could facilitate these exchanges.

The JIC had an excellent display established, clearly identifying priorities and other tasks, allowing for quick visual reference. Other sections could have benefited from having more developed displays. Members of the Liaison Section could have benefitted from use of the tools available such as the emergency response plan, geographical response plans or ICS Guides and from having fillable ICS forms available to them.

Tool Used
No
Tool Used

Documents

Environment

Date
2020-02-12
Discipline
Emergency Management
Categories

- Response Tactics
  - Protection of Environmental Receptors
  - Protection of People

Facility

Observations
The following observations focus on the Environment Unit (EU) in the Incident Command Post:

After the ICS 201 Incident Briefing, an initial EU meeting was led by the Environment Unit Leader (EUL) to discuss objectives, priorities and actions to be performed by the EU. An emphasis was placed on minimizing harm in the next operational period, considering impacts of both the incident itself and the incident response. The EU was well-staffed with a EUL and 2 coaches, a scribe, an Operations Liaison, and technical specialists (Trans Mountain personnel and contractors) organized around the major environmental plans to be developed per the exercise objectives: Waste Management Plan, Wildlife Management Plan, Surface Water and Sediment Sampling Plan, and Historical/Cultural Resource Protection Plan. Following the EU meeting, Trans Mountain organized regulatory participants into specific roles in the EU Organization Chart according to their expertise and interest, supporting the technical specialists developing the various plans. Additionally, IAMC Emergency Response Working Group participants playing in the exercise joined the Heritage Resources Technical Specialists developing the Historical/Cultural Resource Protection Plan. Two CER Environmental Protection (EP) Inspection Officers [(IOs) (CER Staff)] were present, one IO participating in the exercise (observing and supporting the EUL rather than grouped with technical specialists) and a second supporting the four IAMC Indigenous Monitors (IMs) observing the exercise.

The EU was well organized and participants understood their roles. Geographic Response Plan control points were referenced; ICS forms were used effectively; company, contractor and ECCC GIS data was leveraged as a starting point for populating the Resources at Risk Summary (ICS 232) and plans, and plan templates were used as the foundation for plans developed during the exercise. Advisories (ICS 213: General Messages) were issued to the public regarding water use and oiled wildlife, and to Operations regarding oiled wildlife, heritage chance finds and avoidance of heritage sites. The initial ICS 232 captured environmental and socio-economic resources at risk and was refined to address the predicted conditions and planned activities for the next operational period. The major plans were successfully developed and approved by UC, and were used to develop Work Analysis Matrices (ICS 234), which were in turn used to develop an Operational Planning Worksheet (ICS 215). Assignment Lists (ICS 204) were also discussed but not developed within the scope of the exercise. While a Community Air Monitoring Plan was stated to be outside the scope of the exercise, the Response (Remediation) Technical Specialist responded to an exercise inject regarding air monitoring.

The CER Staff did not review completed plans but checked in with the various groups as they developed the plans and noted that had the exercise (or real emergency) continued, that they would have reviewed the completed initial plans and adjustments could have been made going forward if there were any concerns. However, based on spot checks on the plans as they were developed, CER Staff observed that personnel with appropriate expertise appeared to be making effective use of pre-populated plan templates and developing appropriate and comprehensive plans. The initial Surface Water Sampling Plan focused on obtaining background samples upstream of the release and downstream of the leading edge of the spill, as well as a sample of the released product for characterization. Technical specialists considered relevant permitting to implement the plans.

Overall, the EU worked well together and achieved its objectives, making good use of Trans Mountain personnel, specialized consultants, regulatory stakeholders and Indigenous participants. However, with such a large EU, CER Staff noted:

- EUL was supported by 2 "coaches" and an Environment Unit Assistant position was identified but not staffed. Given the demands on the EUL - including a coinciding meeting, press conference and unit activities – the coaches became active participants in the exercise, supporting the EUL. Together, they effectively led the EU and fulfilled the EUL role. For future exercises, it would be a benefit if Trans Mountain considered formally staffing the Environment Unit Assistant or similar role(s) to whom some tasks could be delegated.
- The EU had insufficient space at the main table, therefore part of the EU moved to a separate room for much of the exercise. Providing a larger cohesive space in the main room (e.g. 2 parallel tables) would have given EU participants room to work while maintaining a more cohesive group.
- Additional EU-specific updates could benefit those in the EU (e.g. updates announced to the team throughout the day).

CER Staff noted other observations regarding areas for potential clarification or improvement:

- There was some discussion between Trans Mountain, CER and DFO Staff with regard to the Memorandum of Understanding (MOU) between CER and DFO and a lack of clarity regarding the role of the MOU in an emergency response situation and who (DFO or CER) had responsibility and authority for emergency authorizations under the Fisheries Act. CER Staff clarified that the MOU did not address emergency situations and that DFO would be responsible to issue emergency authorizations while keeping CER informed. In a subsequent discussion, FLNRO Staff identified that provincial permitting pertaining to modifying watercourses, fish collection/isolation, etc. would go through BC OGC. CER Staff suggests that roles regarding fisheries and related authorizations be clarified in company emergency response documentation so they are better understood and clearly communicated during future exercises and/or emergencies.
- IAMC Emergency Response Working Group participants suggested that Indigenous representatives with appropriate local knowledge and training should be pre-arranged along the pipeline route to provide input to EUs (particularly regarding wildlife and undocumented or confidential resources at risk) and to provide cultural monitoring in the field during emergency response activities.
- Trans Mountain personnel were instructed to use ICS 234 forms during the exercise, which were relatively unfamiliar to personnel. The forms used during the exercise were somewhat different from those reviewed during training the previous day, and personnel found these forms to be of limited use as a step between the Environmental Plans and ICS 215 forms.

Tool Used
No
Tool Used

Post Exercise

Date

2020-02-12
Discipline
Emergency Management
Categories

- Post Exercise
  - Debrief Meeting
  - Participant/Stakeholder Feedback
  - Collection/Filing/Completion of Documents
  - Evaluation Against Objectives

Facility

Observations
Following the exercise, a debrief was held at the ICP. Exercise participants provided feedback on what worked well and identified areas for improvement. The feedback was documented by Trans Mountain.

The following, but not all, general highlights were noted by CER Staff:

What worked well:

- Working relationships built amongst responding parties, Indigenous communities and agencies and those potentially affected by an incident or those with expertise to inform the response and to inform respective emergency response plans were beneficial.
- Unified Command worked very well together with open and frank conversations.
- Documentation within the Environment Unit was strong and organized. Company leadership was strong, patient and effective throughout the day.
- The ICP and field locations were well staffed.
- Participants at the exercise understood their roles and respected the ICS organizational structure and span of control. Liaising and cooperation between participants in the ICP was satisfactory and the overall flow of the exercise improved as the exercise progressed. Overall, CER Staff are of the view that the exercise was successful in achieving the exercise objectives.
- CER Staff are of the view that Trans Mountain appropriately implemented its emergency response plans and demonstrated its ability to respond to the scenario exercised and communicate with the public and other potentially affected parties for the scenario tested.
- Deployment of on ice field equipment gave field personnel experience in setting up and using the equipment.
- JIC had representation from participating agencies.
- Safety first mentality in field was excellent.
- Green forms used for injects was helpful.
- IT Infrastructure worked well for the most part.
- Subject matter experts at media scrum was helpful.
- All environmental plans were completed, high quality and approved.

Areas for improvement:

- Additional time needed for media preparation.
- Additional practice with ICS 234 forms is needed.
- Additional training related to chain saw use.
- Regular debriefs between Liaison and the JIC would be beneficial.
- Observers wanted more input into historical plans.

On 27 February 2020, Trans Mountain sent out a survey requesting feedback on the following questions:

1. How would you rate the overall execution of the exercise?
2. Was the venue adequate for exercise requirements? If no, please comment.
3. Please list positive outcomes for the exercise:

4. Please list areas for improvement for future exercise organization and execution:
5. Please list areas for improvement associated with ERP's, ICS Guides, Job Aids, etc.
6. Did you receive enough information about the event in advance?

Trans Mountain will develop a Post Exercise Report (including feedback received from the survey) providing details of the Kamloops Full Scale Exercise including an executive summary, established exercise objectives, identified successes and opportunities for improvement. Any opportunities for improvement resulting from the exercise will be assigned and progress monitored via an internal tracking system, until a resolution is achieved.

Tool Used
No
Tool Used

RDIMS Documents

Documents

IAMC Indigenous Monitors Observation

Date
2020-02-12
Discipline
Emergency Management
Categories

- Safety
  - Monitoring/Safety Equipment
- Response Tactics
  - Protection of Environmental Receptors
  - Protection of People

Facility

Observations
IAMC Indigenous Monitors Observation
Additional observations recorded by IAMC Indigenous Monitors participating in the CER compliance verification activity, are provided below verbatim. Any compliance related observations that require specific regulatory follow-up have been recorded above.

1). ***Pre-exercise Info***
- Indigenous Monitors Engagement prior to exercise was an e-mail that contained "Players Manual" as well as the expected organizational chart (Feb.05/2020). A phone Conference meeting was held the same day as well to cover exercise logistics and indigenous concerns.

Scenario Scope
- The scenario was described as an inadvertent rupture caused by local landowner with excavator at KP825.3 resulting in full bore rupture and subsequent release of diluted bitumen into the environment. The site selection for the exercise offered many opportunities for different product recovery techniques to be implemented.

Scenario Effectiveness
- The scenario offered staff the opportunity to experience the complexities of an expanded unified incident command post.

Environmental & Socioeconomics
- There were many proponents to the environmental team in the planning section that implemented mitigations from wildlife considerations to water intake impacts. Along with those

responsibilities the assistant environmental leader is also responsible for culture and heritage features and impact strategies. Cultural planning and considerations were based on electronic data and past TLU studies or archaeology data from previous AIA. All known sites were communicated to operations teams and identified on maps as soon as possible.
Site Security & Public Safety
- Security was taken seriously and professionally at both the ICP as well as multiple posts in the field to ensure exercise participants safety. There was also a name tag for visual identification of participants and service providers.

First Aid Considerations
- Site safety briefing occurred at the beginning of operational periods at the ICP and as well as in the field. A pre-exercise safety orientation was conducted at the ICP. This included how to access first aid, site emergency procedures and situations that would result in suspension of the exercise. The orientation was comprehensive and applicable to the hazards that could be encountered throughout the day. Field staff had an EMT as well as qualified first aid attendants on site.

Exercise Enactment

Exercise Facilitator Briefings and information
- The facilitator described the exercise scenario and objectives through conduct of a pre-exercise briefing. The exercise scenario and objectives were also provided prior to the exercise, in the Player's Manual. The ground rules were given and during incident telephone calls, callers confirmed that the participant at the other end of the call understood that the call was a simulation. Assumptions, artificialities and out of play variables were also explained.

Notification and Reporting
- Trans Mountain Pipeline Emergency response plan section 2.13.2 - Indigenous Communities Notification of the Indigenous Communities, including those whose traditional territories may be affected, occurs through the Indigenous Relations Coordinator as part of the incident Liaison Office. The impacted communities will be identified based on the location of the incident using the geographic information system mapping applications. Trans Mountain maintains a database of Indigenous Community contacts and will contact affected communities as soon as possible with priority to those that are geographically closest to the incident.

Safety
- During initial response the company conducted a hazard analysis that addressed hazard identification, personal protective equipment, control zones and a decontamination area. An OSCAR (Oil Spill Containment and Recovery) trailer was on site and contained safety and response equipment. A medic was on site with a Medical Treatment Vehicle. Gas monitors were available and in use with readings being taken and documented. Safety harnesses were used for personnel on ice during high risk operations.

Response management

Trans Mountain exercised a Level 3 full stand-up of an ICP and included collaboration and coordination with other interested or affected parties. Deployment of response equipment and resources to operate the equipment. Also had access to on-site coaches with expertise in the ICS. A Unified Command was established and all four Sections (Planning, Logistics, Finance/Admin and Operations) of the ICS were staffed by Trans mountain employees and other participating agencies and organizations. Roles were assigned early on by the Company's IC with clear identification of priority actions for each Officer and Chief in the Command and General Staff. Section Chiefs and other roles were also named in the ICS 207 organization chart and provided to exercise participants prior to the exercise. Initial objectives were established and revised by Unified Command (UC) as the exercise progressed. Incident objectives and priorities as well as critical information reporting were displayed for General Staff to see and were announced during Command and General Staff meetings. Personnel used ICS language, forms etc. to allow its personnel to become more familiar with the system for use in real life incidents. No Indigenous Community Liaison was present or any Indigenous representation but was planned in Unified Command section of the Organization chart along with the players manual. Hard copy and digital mapping systems were used and available to exercise participants. NEB staff noted some of the following maps: a map highlighting Geographic Response Strategies, incident location and staging areas. The Incident Status Board was at the front of the room and was updated consistently throughout the exercise. Ongoing status updates were also verbally communicated to exercise participants in ICP. Record

keeping responsibilities was led by the Documentation Unit Leader. All participants used ICS forms. Participants, Observers and media were all required to sign-in to the exercise. Activity Logs were available for use.

Tactical Response

Trans Mountain Offered a Dry land Training sessions the previous day to share tactics and strategies for winter Containment and recovery of various released products in a water, snow, ice, land scenarios. These would be implemented in the next day's field portion and require a vast number of skills to be safely conducted. Below is a small list of techniques that are outlined in the company's Emergency response plan.

- *Ice Slot ('J Slot)*
- *Ice Slot with Barricade*

4.6.4 Snow Covered Land Response in snow covered environments can be equated to response on earthen material. Use shovels or heavy equipment, such as graders, loaders, bulldozers, or track hoes, to build a berm of either soil or snow to stop the flow of free fluids. Berms should be lined to prevent cross contamination of the berm materials. Snow can be disposed of in solid form or melted and disposed of as a liquid.

Environment

Environmentally sensitive areas were identified and prioritized by the company early in the exercise and used to determine control point locations. Water intakes were considered during the identification of environmental sensitivities that activated monitoring site identification. Air monitoring was implemented for responder safety. Wildlife consultants were retained to manage impacted wildlife.

2). During the exercise oil flow trajectory plays an important role. If there is a spill or leak, everyone, including communities, needs to know where the oil flow will travel. It is important for all communities to know at any point of the pipeline, which direction the oil is being pumped and where the shut offs are. While the community would not be doing the shut off, it would be important for them to know the volume of oil left in the pipe once the shut off valve has been turned off.
During the exercise Trans Mountain would notify the local First Nations of the spill and wanted to know if there was any cultural, traditional, spiritual areas near the spill. Would the community have that information if the phone were to ring right now? Should the community be engaged now, not to share the knowledge publically but to know the where their areas are along the pipeline and what is going to be affected by a spill or leak or has that already been addressed? Protocols should be established, and drills held.

3). I work for Scw'exmx Tribal Council. We represent bands within our community, Shackan Indian Band, Nooaitch Indian Band, Coldwater Indian Band, and Upper Nicola Indian Band. I used our Traditional Land Use (TLU) database for research before participating in the exercise.

The exercise was for a spill above Jacko Lake. For the exercise, I was at the Incident Command Post (ICP) with the Canada Energy Regulator's (CER) team. I shadowed Heather Adams, CER Environmental Specialist. We were a part of the planning committee.

We started by discussing our objectives and strategies for the ICS 202. When we had a general plan, we began working on the Resources at Risk Summary (ICS 232). Within the oil spill trajectory there was a few registered archaeology sites. These sites were put at the top of our priority list.

Stk'emlupsemc te Secwepemc Nation (SSN) had shared that they have Culturally Sensitive Area's (CSA) within these registered archaeology sites. The communities that I represent did not have CSA's in the area. However, this area is used for hunting, fishing, and gathering. I felt that our opinions were in high regard with the planning committee. They put a lot of thought and discussion into the priorities of the ICS 232. Overall, their priorities and mine aligned.

In the afternoon, we sat in on the Unified Command meeting, then we sat in on the press interview practice. During this we only observed.

4). - Mock exercise idea great to see and be a part of
- Was able to sit in on a couple different groups, Logistics, Ops, and Planning
- Sitting in each group gave a better idea on each role & responsibility
- The communication observed in each group, questions and concerns that were asked and brought up
- To see the local First Nations of the area were invited.
- IAMC to be a part of the exercise
- Exercise was really smooth considering the amount of people that participated

Tool Used
No
Tool Used