

The Australian Workers' Union

Report on the Viva Refinery Emergency Response Group



FOREWORD

The Australian Workers' Union Victorian Branch (AWU) has been representing the interests of operators at the Geelong Refinery since it first opened more than 60 years ago. Over the years since then there has been a great deal of change, including Shell's sale of the operation to Viva Energy in 2014.

The health and safety of members at the site has been this union's paramount concern from the outset. The wellbeing of adjoining and neighbouring communities is inextricably tied with the safe operation of the refinery. One is not possible without the other.

This report explores the role of Emergency Response Operators (EROs) within the refinery boundaries and beyond. It is their story, told by them, of their contribution which is an unshakable part of the life of the refinery and its community relationships. Changes to the structure and resources of the vital services they deliver were first proposed by Viva in January 2016, and met with alarm by workers and neighbours alike.

A proposed drastic reduction in the number of EROs and a corresponding dramatic increase in responsibilities for existing operators, would render any such proposal unworkable, unsafe and unacceptable for a wide range of reasons.

The lived experience of EROs exceeds narrow descriptions of their function and puts them at the very heart of the covenant Viva, and Shell before it, has with its workforce and neighbours.



BEN DAVIS

Secretary

June 2017

Geelong Refinery Proposed Restructure

The day-to-day experience of refinery operators and the Emergency Response Group (ERG) is critical to any examination of the issues around any proposed restructure.

The duties and contribution of the ERG is complex and shifts to meet incidents and changing conditions. Any job description presented to date has fallen short of the reality of what is required of them, and indeed, the service they provide.

The ERG lies at the heart of the refinery's ability to conduct its business while meeting worker health & safety, environmental and legal obligations, and at the same time maintaining community confidence in the safe operation of the refinery.

Emergency Response Officers

There are a number of competencies and formal qualifications that are basic for Emergency Response Officers (EROs), typically:

- full site induction including tetraethyl lead, hydrofluoric acid and aluminium alkyls training and awareness
- truck licence and regular driving skills maintenance
- advanced occupational first aid (skills maintenance every five weeks as part of routine duties, as well as an annual refresher using real-life scenarios)
- advanced fire training
- rope access training and skills maintenance every five weeks as part of routine duties
- oil spill response training and proficiencies
- breathing apparatus training, including search and rescue techniques
- training in the incident control system and accident and incident management system and control structures
- accredited approved gas safety tester and calibrated nose on site
- experience and training in leading fire auxiliaries at an incident

- experience and training as a HAZMAT responder
- dangerous goods handling and storage awareness
- appropriate first aid qualifications

An ERO describes his day:

“The shift starts before we even get to the refinery car park. As soon as we can see the flare when we’re coming along Refinery Road we start thinking about what is happening in the refinery. If the flare is elevated, is there black smoke or indications things are not good?

“From that point we start mentally planning and preparing for what we might be exposed to when we walk through the gate. Which direction is the wind blowing from, is there a fire, leak or hydrofluoric acid, how big is it, is it under control yet and always upmost in our minds.....is any one hurt?

“Nothing can really prepare you for a really big fire, I have seen a few, and the reaction is always the same ‘will I be going home today’ is always my first thought!

“But, today the flare is normal and it’s ‘just another day at the office’ for us. One of the things that attracted me to the ERG is the fact that not too many days are the same. Just about every day something new or different comes up. I don’t know how many times I have made the statement, ‘well I’ve been here X number of years and thought I’d seen everything, but I’ve never seen that before’.

“Safety is always the uppermost important thought, whether it’s the mundane, the routine day-to-day stuff, or a full-blown major alarm. Safety is always front and centre in how we respond.

“First task for the day is handover from the previous shift. What’s happened since I was last here that I need to know about immediately? What fire equipment is in or out of service? What is the state of the fire trucks? Are they all operational, if not , why not ? What roads are closed off preventing access to an incident? What fire mains are isolated or blown out preventing water availability at that particular point in the refinery?

“From there it’s onto the routine stuff. What gas standbys are posted for the day? What maintenance is planned on being carried out for the day, any fire systems, deluges etc. need to be tested etc. etc?”

“Then, it’s quickly get changed and check that the turnout gear’s ready to go before my relief can get changed and go home. Everywhere I go during the next 12 hours and everything I do, I have to have my turnout gear bag in reach at all times. It can be a real pain in the arse always having to lug an 18kg bag around, especially if I’m changing trucks to refuel or pump test them or something like that.

“There are the radio checks and auxiliary count to be done, and then the constant confined space entry calls to be taken and logged, every time a worker enters a confined space. There are clearance certificates to be issued, hot permits too. We don’t have a good history of dedicated day liaison operators, so more often than not we are gas testing and issuing clearances. This incidentally is also for everywhere in and around the refinery that no one else wants to own.

“At this point the job splits into two roles, one ERO looks after the environmental role and the other ERO takes care of the Fire Station role. The roles are distinct.”

Environmental ERO

Environmental ERO work in pairs and carry out a patrol of the main oil-catchers, checking for oil that may come down the roadside drains or from a leaking plant heat exchanger. The officers also check for any unusual flows of water that could indicate a fire main or cooling water line leak somewhere in the refinery, and follow the trail back to the source for mitigation.

Then it’s onto the ground water oil reclamation pumps and sumps, and the separation and measurement tanks to check flows and levels, pumping out tankage as required.

Next stop is the DAF (dissolved air flotation plant), checking its operation, making sure the treated water is clear, the sludge is “on grade” and all chemicals are sufficient and dosing correctly. Then it’s over to the Geo bags to make sure they are not too full and allowing sludge to escape to the bay.

Finfans, tank 9 and slops injection pumps are all checked next. DAF 1, tank 7 and feed pumps to and from are also checked.

An external ‘odour’ patrol is required. This involves driving the external perimeter of the refinery with the ute window open and head hanging out to smell for any

offensive odours, which are then reported to the shift controller for action and follow-up .

While on this drive, there are stops at all the water outfalls to check for any oil sheens or slicks, as well as any dead fish that may or may not be a result of something the refinery had discharged to the bay. In the event of this being discovered, the EPA must be notified. The ERO generally takes photographic evidence that may be required later (a camera is carried at all times for this purpose). This task is performed three times per shift, as per EPA requirements under the licence agreement.

More often than not, dumped and burnt out cars are found at the outfalls. Night time drug deals and “shooting galleries” are popular pastimes for the locals at these sites too. Extreme caution must be taken to avoid altercations.

Any odour or noise complaints from concerned residents around the perimeter require the ERO to visit the location in question to determine if the refinery is the cause or not. If the resident has given their name and address, the ERO will call and let them know what is going on and whether the refinery is the cause of the smell, noise or other disturbance.

A check of the Lara LPG line through the streets of Corio to the Lara terminal may also be required. An average drive of 70 to 90 kilometres per shift is not uncommon.

Following the initial round, there is follow-up on maintenance tasks, delivery of chemicals, supervising the unloading of ferric and caustic from tankers. These are typical of the range of routine daily tasks for members of the ERG.

From a first-aid perspective, the ERO is frequently called upon during outside patrols. Road accident victims are often helped by an ERO. For example:

- A driver involved in a head-on collision with a truck was clinically dead when the ERO arrived on the scene. The driver was revived, breathing and had a pulse when handed over to the ambulance paramedics. Unfortunately the man died as a result of his injuries some time later in hospital.
- A car crashed through a wire fence and was hanging upside down over the salt water intake channel. The ERO removed the woman driver from the car, relatively uninjured. If she had fallen into the intake, it could have been a radically different story.

- A taxi driver went through the refinery's perimeter fence and finished up in the cooling water outfall channel. The driver could not get out of her vehicle unassisted due to the water pressure on the doors. She was saved by the ERO
- A cyclist was struck by a semi-trailer and went under the tri-axle trailer wheels, sustaining shocking injuries. He died in the arms of an ERO.

These are just a few of the incidents typical of the service of the external patrol, and the wide ranging duties and pressures faced by EROs.

Fire station

The first order of business on a day shift is to make sure the primary fire appliance is operational and ready to roll at a moment's notice. The engines are run and warmed up, air receivers pumped up so air brakes release, fuel levels are checked and tanks topped up, if required.

Breathing apparatus and other equipment is checked to make sure everything is ready to roll. More detailed inventory checks will be done later, mostly on night shift when more time is available to check equipment thoroughly.

The day proceeds with duties including: taking calls for gas standbys; checking scaffolding with operators for gas jobs; and checking confined space entries for rescue access. Incidental and recurring tasks such as jump-starting a car, truck or crane is not uncommon, even towing a vehicle out of a drain, or road loading gantry, or pipe track, are all part of a shift.

Anything out of the ordinary seems to fall to the fire station. From rescuing kangaroos from the gaol bars of the salt water intake, to performing high angle rescue and extraction of painters from a swing stage on the side of a crude oil tank, this group is called on in all manner of crises that defy any job description.

Any fire or gantry alarm, real or false, requires officers gearing up in turnout gear (which they carry everywhere in a bag), donning breathing apparatus and investigating or mitigating the event. False alarms require job cards for remediation, real alarms are complex and daunting.

In the words of one officer:

“It doesn’t matter what training you have had, and I’ve done a lot of training over the 27 years in this refinery, no training is like the real thing. There are a hundred things going through your head as you are driving to an incident. What’s the incident? Which way do I approach it? Where’s the best position to park to hook up to fire water? Is there anyone injured or missing?”

“Speed, equipment and technique are always the key to keeping a potential refinery burn-down situation to a reasonably small fire. Knowing the refinery parts and what to expect in each is a huge advantage for a quick and successful outcome.

“It would be extremely unfortunate if we became victims of our own success, in that because we have successfully negated many potentially refinery closing incidents, there is a false sense that we don’t have any big fires, and therefore don’t need a professional fire service.

“There are very real fears among the EROs of what will happen if the ERG is downgraded in any way, and what the terrible consequences could be.”

First aid

The level of first aid training for the use of breathing apparatus is very basic. It involves the standard cardiopulmonary resuscitation, expired air resuscitation, and training with defibrillator and oxygen administration components. The ability to administer Pentrox as an oral analgesic has been removed, which means increased distress for traumatised people in pain and for the EROs dealing with them.

As a matter of course, EROs show a high level of skill and initiative as they render first aid, in the words of one:

“Wound dressing is an art form, and something we were never taught, but learned over years of practice. How to fix dressings so the operator could still get a glove or boot on and off is often required.

“Splinting is taught, but not a lot of use when the casualty’s tibia and fibular are at right angles to the rest of his leg, or the entire leg is flattened by a fork lift roll over at the polypropylene unit.

“Critical Incident Stress (CIS) counselling is something the ERG has been championing for many years, with little success. I know a number of past ERG members have quite severe unresolved CIS problems.

“Personally, one of the most confronting events I have attended in my career at the refinery was an attempted self-harm incident. A contract employee tried to hang himself in the middle of a production unit at smoko time during a turnaround. We were on-scene very quickly to get him cut down and administer first aid. He tried to fight us off and re-attempt self-harm.

“Maintaining the skills is difficult as we don’t get a lot of first aid cases, however when we do they can be quite bad and potentially fatal. As we are also responsible for rescue stabilisation, sometimes there is a conflict of roles but as we are able to control the entire incident, this can be a huge advantage too.”

The ERO has provided the following sample of calls he has answered over the past eight years as a first-aider. In each instance the ERO used his judgment and skill to deal with the injured, before an ambulance could arrive:

- a recent hydrofluoric acid burn to the neck of an instrument electrician
- broken leg/ankle to contractor at turnaround village
- crushed finger by torque wrench to contractor during turnaround
- ship’s officer with chest pains, treated and escorted to jetty berth
- catalyst in eyes and covered face and neck
- distillation operator burnt on face and legs whilst taking a sample
- distillation operator with high blood pressure and chest pains
- contract delivery driver with end of finger severed/crushed
- safety coach with broken arm and abrasions
- taxi driver trapped in vehicle in the creek, removed from vehicle and treated for shock and hypothermia
- motor vehicle accident on Shell Parade – two people injured – cuts and abrasions to one and serious spinal injuries to other

- cyclist death on Wharf Road after being hit by semi-trailer – treated with oxygen until time of death.

Broad-ranging duties

Demands on the ERG are complex and varied. Its work is essential for the safe operation of the refinery. No amount of documentation can cover all the functions of the EROs as they respond to unpredictable, hazardous and challenging events. The environment is potentially volatile at all times. It would be impossible to anticipate all the potential threats to the safety and security of people, property and the environment which may arise on any shift.

The ERG provides support in many different areas. The following are some of the incidental tasks, on top of other duties, fulfilled by one ERO during March 2017:

- jump starting a Veolia vehicle with a flat battery at the diesel fill-up point in road 3
- jump starting a boom lift at the western tank farm with a flat battery
- cleaning up a coolant spill from a tanker truck on road 3, opposite the distribution gantry, with fire monitors and also hose and branch from hydrant
- setting up hydrants, pumps and hoses at the salt water pump house due to problems with the electric fire pump
- inspecting excavations at the western tank farm rail line and assisting in rescue plans
- assisting a painting contractor with rescue plans for confined space entry at dissolved air flotation #1 vessel
- attending Worksafe meeting post regarding hyrdofluoric acid burn to an instrument electrician

Hazards

The ERG provides the first line of assistance in traumatic incidents, and is an essential element in Viva's safety responsibilities to its workforce and the community.

It is dangerous to assume that operators who elected under a new structure to take on the duties currently carried out by EROs, would necessarily be able to fill the roles previously carried out by a dedicated workforce.

Any operator taking on the extra responsibility of emergency response would be exposed to a number of hazards, additional to those which they already manage in the refinery. Some examples are:

- heightened risk of musculo-skeletal injuries from heavy equipment handling
- exposure to hydrogen sulphide
- natural gas condensate exposure
- exposure to bitumen and bitumen derivatives during clean-up as a result of oil spills
- exposure to water with petroleum hydrocarbons
- risk associated with solvents and degreasers, including dermatitis, liver and kidney damage and peripheral neuropathy
- exposure to blood-borne viruses during emergency first aid procedures
- dealing with critical incident stress

Emergency situations

The range of emergency situations to which the ERG responds is expansive, and includes:

- fire/leak/explosion with fast, onsite and appropriate response equipment
- first aid over a whole range of scenarios from a cut finger, foreign objects in eye to amputations, spinal injuries and heart/respiratory distress
- oil to bay, response and clean up under guidance of EPA requests even outside sourced contamination
- respond to and investigate cause of all fire indicator panel and internal building alarms on-site
- response to loading gantries for 'man down' alarms

- response to Lara gas storage terminal for liaison role for emergencies onsite
- assistance to onsite medical centre staff for heavy work load times
- industrial incident response for both ropes/suspended access work, recovery of falls from heights, suspended harness/fall arrest and first aid response
- response to motor vehicle incidents onsite including mobile cranes, road tankers and bicycles
- site pollution patrols for offensive levels of noise, odor and liquid/gas particulates outside the fence
- grass and forest fire suppression and prevention measures in and around our buffer zone areas
- response to operate jetty fire towers and foam supply when required
- response to “assistance required” calls from security team
- Good Samaritan acts for public involved off site but near the refinery boundary for fire, accident, first aid etc.
- response as liaison to pipeline issues
- isolation of fire mains in the event of blow outs refinery-wide
- provide mutual aid response for external agencies (CFA/MFB/ARFF) with specialist equipment and operators
- provide damage prevention and safety expertise in situations as a result of events such as rain/storm/high winds
- wildlife rescue and recovery on-site

Safety critical tasks

There are many aspects of the ERG role that are critical to the ongoing safe operation of the refinery, such as:

- weekly checks of response equipment, firefighting equipment, breathing apparatus, first aid kits, hazmat gear, foam carts etc.
- checks/updates on all perishable (expiry dated) equipment such as calcium gluconate gel, burn aids packs etc.
- operational checks of all vehicles at start of each shift (start and run, test emergency lights, fuel levels etc.)
- weekly maintenance checks of vehicles (fluids/lights/sirens/clean glass, tyres etc.)
- clearances and gas testing for work within the area of responsibility which includes roads, outside boundary, main gate and all areas that would otherwise go unchecked
- reviews of rescue plans and confined space entry plans
- co-ordination of the confined space entry and exit calls from hole watch

- review of pre-incident plans and feedback changes etc.
- supply/set up replacement fire equipment for mitigation of failed equipment and repair work
- maintenance of Incident Control Centre resources refinery wide
- testing and issue of non-return valves for temporary connections to fire main
- the issue of road closures and restriction permits/signage
- isolation of fire/smoke detectors for maintenance
- isolation of fire mains and deluge systems for maintenance
- conduct of gas/flare jobs for maintenance
- the issue of critical safety equipment to maintenance teams – breathing apparatus, air assist gear, fire extinguishers etc.
- test/run/practice with specialized response equipment – hi-trans pump, hose bins, hose recovery, foam pods and tanks, oil spill equipment

Environmental responsibilities

It goes without saying that the refinery has a distinct set of legal and ethical responsibilities in terms of the impact of its operation on the environment. The ERG is pivotal in this respect. Duties include:

- check/monitoring and maintenance of water treatment units
- check/monitoring and maintenance of water outlets and outfalls
- bi-weekly dip of sour water tanks
- monitoring roadside drains, pipe tracks etc.
- overseeing and monitoring of maintenance of all water catchment/treatment facilities
- conducting internal and external environmental patrols

Compliance and maintenance

The ERG has particular responsibilities including:

- six-monthly fire extinguisher checks, maintenance and exchange
- annual fire hose testing exchange program
- six-monthly breathing apparatus testing exchange program
- annual foam cart testing and exchange/upgrade program
- annual fire gear cleaning

- six-monthly mobile fire appliance servicing
- test/flush fire suppression installations – fixed tank foam systems, pump and unit deluge systems
- Newport annual hose testing exchange
- set up fire equipment for replacement of gear out of service

Detecting maintenance issues

The ERG's consistent attention to detail allows the detection of maintenance failures. At the time of writing, some of the outstanding maintenance issues reported by EROs included:

- stand-by diesel firefighting foam pump to jetty was removed around five to six years ago for repair, not yet returned – means if the power failed, fire towers on jetty would have no foam capacity
- scum pumps and skimmers in creek out of service
- Pump 9957B holed in suction screen
- Dissolved air flotation #1 dosing out of service, leaking into road side drain, skimmers not working, mixer not working, scum pumps not working
- Polymer solution pump from dissolved air flotation #2 missing for maintenance 2years or so
- Skimmers on MOC #2 & 6, Not operable
- Tank 9 fin fan "B" motor failure
- Temporary caustic supply still in place but not used

Conclusion

The dedicated Emergency Response Group is an essential element in the Viva's safe operation and its commitment to protect the safety of workers, the environment and surrounding communities from the direct and indirect consequences of the refinery's activities.

Any move to disband or downgrade the Emergency Response Group would amount to a risk too great for workers, the environment or local communities to bear. Such a move would be out of step with the history of the site, and with international standards.

The presence of dedicated Emergency Response Officers allows:

- expert response to safety incidents onsite
- a system of checks and balances in relation to environmental impact as a result of incidental system failures, which are corrected before irreparable damage is caused

- for Viva to play a role as a responsible corporate citizen in providing response to incidents outside its boundaries as necessary

The Emergency Response Group, with dedicated and trained Emergency Response Officers, must remain. Any move to downgrade its operation will be resisted by workers, their unions and communities.