

# Appendix 16: Sample SPCC Plan

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# **Spill Prevention, Control, and Countermeasure Plan**

**MIDDLE FORK WATER TREATMENT FACILITY**

**GARFIELD COUNTY, COLORADO**

Prepared for:



Encana Oil & Gas (USA) Inc.

**PARACHUTE, COLORADO**

**NOVEMBER 12, 2012 REV.1**

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## ACRONYMS

API	American Petroleum Institute
ARC	annual regulatory compliance
AST	above ground storage tank
ASTM	American Society for Testing and Materials
Bbl	barrel(s), US petroleum, 42 gallons
BLM	Bureau of Land Management, U.S. Department of the Interior
BMPs	Best Management Practices
BOP	blow out preventer
CDP	central delivery point
CDPHE	Colorado Department of Public Health and Environment
CFR	Code of Federal Regulations
COGCC	Colorado Oil and Gas Conservation Commission
DAF	dissolved air floatation
EPA	U.S. Environmental Protections Agency
FRP	Facility Response Plan
IMS	Incident Management System
MOC	Management of Change System
OSCP	Oil Spill Contingency Plan
SIC	Standard Industrial Classification
SPCC	Spill Prevention, Control, and Countermeasures
STI	Steel Tank Institute
UL	Underwriters Laboratory, Inc.
UST	underground storage tank
WTF	water treatment facility

## REGULATORY CROSS REFERENCE MATRIX

40 Code of Federal Regulations (CFR) Part	Requirement	SPCC Plan Section
112.3 (a)	Amend plan as necessary per updated regulations	1.1
112.3 (d)	Professional engineer certification	1.6
112.3 (e)	Maintain a copy of plan at facility (location of plan)	1.7
112.4(d)	Report certain discharges to EPA	7.2
112.5 (a)	Amend plan following significant changes to the facility	7.1
112.5 (b)	Review plan at least every five years and amend if appropriate	7.1
112.7	Management approval of plan	1.4
112.7	Provide a cross reference matrix to regulations	ii
112.7	Discuss needed facilities, equipment, or procedures not yet operational in separate paragraphs	9.0
112.7 (a)(1)	Discussion of facility's conformance with the regulations	9.0
112.7 (a)(2)	Equivalent environmental protection is allowed for deviations from portions of regulations. Reasons for non conformance must be stated.	9.0
112.7 (a)(3)	Describe the physical layout of the facility. Provide a facility diagram including tanks, underground tanks, storage areas for mobile containers, produced water containers, associated piping, transfer stations, connecting pipes and intra-facility gathering lines.	1.2
112.7 (a)(3)(i)	Plan must include type of oil in each container and capacity of each container	2.2
112.7 (a)(3)(ii)	Discharge prevention measures including procedures for oil handling at loading/unloading areas	4.0
112.7 (a)(3)(iii)	Drainage control around containers and other equipment	2.3
112.7 (a)(3)(iv)	Countermeasures for discharge discovery, response and cleanup.	5.0
112.7 (a)(3)(v)	Methods of disposal of recovered materials	5.0
112.7 (a)(3)(vi)	Contact list including phone numbers	1.3
112.7 (a)(4)	Discharge reporting procedures, information to be included	5.0
112.7 (a)(5)	Organize plan to make it useful in an emergency	APP B
112.7 (b)	Provide an equipment failure analysis including sources, quantity, direction, and rate of flow	2.4
112.7 (c)	General secondary containment requirement (typical failure mode and most likely quantity) for areas from which a discharge could occur by at least one of eight specified measures	2.3
112.7 (d)	If necessary provide an explanation of impracticability of secondary containment, conduct periodic integrity testing of containers and periodic integrity and leak testing of valves and piping	3.2.2
112.7 (d)(1)	For impracticability, provide an oil spill contingency plan per part 109	5.0
112.7 (d)(2)	For impracticability, provide written commitment of manpower, equipment, and materials	1.4
112.7 (e)	Written procedures for inspections and tests	3.1
112.7 (e)	Records of inspections must be signed and kept with plan for three years	8.0

<b>40 Code of Federal Regulations (CFR) Part</b>	<b>Requirement</b>	<b>SPCC Plan Section</b>
112.7 (f)(1)	Train oil handling personnel	6.0
112.7 (f)(2)	Designate an individual accountable for discharge prevention	1.4
112.7 (f)(3)	Conduct an annual discharge prevention briefing	6.0
112.7 (g)	Security	N/A
112.7 (h)	Provide sized secondary containment (largest compartment on tanker) for loading/unloading racks	4.1
112.7 (h)	Provide systems to prevent truck departure before disconnection	4.1
112.7 (h)	Inspect truck prior to filling and departure	4.1
112.7 (i)	Evaluate field constructed containers for brittle fracture failure when containers are altered or repaired	3.1.1
112.7 (j)	Compliance with State requirements	9.0
112.7 (k)	Qualified oil-filled operational equipment – alternative to general secondary containment requirements	2.7
112.7 (k)	If no secondary containment -Prepare inspection procedures or monitoring program	2.7
112.7 (k)(2)(ii)	If no secondary containment –Provide an oil spill contingency plan per part 109	APP B
112.7 (k)(2)(ii)	If no secondary containment provide written commitment of resources	1.4
112.9 (b)(1)	Oil production facility drains of dikes must be kept closed. Inspect diked areas before draining water and remove accumulated oil.	4.4
112.9 (b)(2)	Inspect field drainage systems, oil traps, sumps or skimmers for oil. Remove accumulated oil	3.1.7
112.9 (c)(1)	Material and construction of containers must be compatible with stored material and conditions of storage	2.2
112.9 (c)(2)	Provide sized secondary containment (capacity of largest container plus precipitation) for tank battery, separation, and treating facility installations	2.3
112.9 (c)(2)	Confine drainage from undiked areas to catchment basin or holding pond	4.4
112.9 (c)(3)	Visually inspect containers, foundations, and supports periodically and on a regular schedule	3.1
112.9 (c)(4)	Engineer tank batteries to prevent discharges	3.2.2
112.9 (c)(5)	Alternative to sized secondary containment for some flow through process vessels	3.1.3
112.9 (c)(5)(ii), (iii)	Take corrective action as indicated by inspections, tests or evidence of oil, remove or stabilize and remediate any accumulation of oil	5.0
112.9 (c)(6)	Alternative to sized secondary containment for some produced water containers	3.1.4
112.9 (d)(1)	Periodically and regularly inspect aboveground valves, piping, drip pans, supports, and pumps associated with transfer operations	3.1.6
112.9 (d)(2)	Inspect salt water disposal facilities	3.1.4
112.9 (d)(3)	For flowlines and intra-facility gathering lines without secondary containment provide:	2.6
112.9 (d)(3)(i)	Oil spill contingency per Part 109 and	APP B

<b>40 Code of Federal Regulations (CFR) Part</b>	<b>Requirement</b>	<b>SPCC Plan Section</b>
112.9 (d)(3)(ii)	Written commitment of resources	1.4
112.9(d)(4)	Prepare and implement a flowline maintenance program including:	3.2.1
112.9(d)(4)(i)	Ensure materials are compatible with fluids	3.2.1
112.9(d)(4)(ii)	Visually inspect or test flowlines and intra-facility gathering lines on a regular and periodic schedule. For lines not having secondary containment the frequency and type of testing must allow for prompt implementation of the contingency plan.	3.1.6
112.9(d)(4)(iii)	Take corrective action as a result of inspections, tests, or evidence of a discharge	3.2.1
112.9(d)(4)(iv)	Promptly remove or stabilize and remediate oil discharges	APP B
112.20 (e) 112.20(f)(1)	Certification of the applicability of substantial harm criteria	1.5

## **1.0 GENERAL INFORMATION**

### **1.1 INTRODUCTION**

Encana Oil & Gas (USA) Inc.'s (Encana's) Middle Fork Water Treatment Facility (WTF) is a facility which collects, treats, and stores produced water from a series of natural gas wells in the North Parachute Ranch and North Parachute Mountain areas of Garfield County. As a by-product of the produced water, natural gas condensate is also collected and stored at the Middle Fork WTF. The WTF is comprised of the liquid lines from the North Parachute Ranch and Mountain areas to the WTF, the dissolved air flotation (DAF) building, the associated pipelines between the Middle Fork Storage Tanks, and the produced water delivery system (including 24 bulk storage tanks). The Middle Fork Pond was formerly used as a produced water storage pond but is now a fresh water impoundment.

The Oil Pollution Prevention Regulations (40 CFR 112) require preparation of a Spill Prevention, Control and Countermeasure (SPCC) plan for facilities that have discharged or could reasonably be expected to discharge oil into or on navigable waters of the United States or adjoining shorelines. A SPCC plan is required to be prepared if greater than 42,000 gallons of oil are stored in buried tanks or greater than 1,320 gallons of oil is stored in aboveground tanks. For the purposes of this Plan, the term "oil" refers to oil-containing liquid (which could include but not limited to produced water, condensate, hydraulic fluids, compressor oil, etc.). Produced water remains subject to this Plan until it is re-injected into the ground or shipped off-site. Because the Middle Fork facility falls within the scope of one of the thresholds listed above, a SPCC plan is required to be prepared and implemented.

The purpose of this SPCC Plan (referred to herein as the Plan) is to describe engineering and administrative controls employed at or by a facility to comply with requirements set forth under 40 CFR 112 to prevent the discharge of oil to navigable waters as well as state-specific rules, regulations and guidelines pertaining to oil spill prevention, control and countermeasure. The contents of this Plan include all applicable requirements listed in 40 CFR 112 as noted in the cross-referencing table located in the Plan preface.

This Plan has been prepared in accordance with those regulations as amended by the Environmental Protection Agency's (EPA) November 13, 2009 final regulatory action and any more stringent state-specific requirements regarding the prevention, control or countermeasures associated with releases of oil to the environment.

## **1.2 LOCATION AND DEFINITION OF PLAN AREA**

This plan covers the Middle Fork Water Treatment Facility. The Middle Fork WTF includes the associated piping connecting the WTF and the operations of the North Parachute Ranch and Mountain areas, the associated pipelines which facilitate produced water transport between the bulk storage tanks, produced water ponds, onloading/offloading areas, the DAF unit, and the bulk storage tanks. Produced water is collected from various drilling and production locations within the North Parachute and Mountain areas, treated by separation through the bulk storage tanks and the DAF unit, and stored for reuse or disposal. The amount of produced water/condensate processed at the Middle Fork WTF makes these operations subject to 40 CFR 112 and, specifically, section 40 CFR 112.9 for onshore oil production facilities. The facility is located at SWSW, Section 30, T5S, R95W, 6<sup>th</sup> PM in Garfield County, Colorado. Figure 1 depicts the geographic extent of the facility for which this Plan has been developed and implemented.

This property is owned by Encana Oil & Gas (USA) Inc. located at 2717 County Road 215, Suite 100, Parachute, Colorado 81635.

## **1.3 CONTACT INFORMATION**

Contact information specific to the Encana Oil & Gas (USA), Inc. facility for which this Plan has been drafted and implemented is provided in Table 1 - Contact Information, located in the Tables section of this Plan. Emergency notification procedures (including contact information and phone numbers for the National Response Center, state, local entities, and cleanup contractors) are described in detail in the Oil Spill Contingency Plan (OSCP) located in Appendix B.

## **1.4 MANAGEMENT APPROVAL AND COMMITMENT OF RESOURCES**

Encana is committed to the prevention of discharges of oil to navigable waters and the environment through the implementation of spill prevention measures. This SPCC Plan is one part of that effort.

I approve this plan and the commitment of resources to implement the Plan at this facility. This resource commitment includes the manpower, equipment, and materials required to expeditiously control and remove any quantity of oil discharged that may be harmful.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Printed Name: \_\_\_\_\_ Title: \_\_\_\_\_

The designated responsible person for spill prevention and cleanup at the facility is directly responsible for implementing this Plan and communicating the Plan to appropriate Encana personnel. This individual reports directly to Encana management and is identified below.

Facility: MIDDLE FORK WATER TREATMENT FACILITY

Name: STEVE ROBINSON

Title: MIDDLE FORK WATER TREATMENT OPERATIONS SUPERVISOR

Contact Information: 970-366-2860 (CELL)

### **1.5 SUBSTANTIAL HARM CERTIFICATION**

A facility that could, because of its location, be expected to cause substantial harm to the environment by discharging oil into or on the navigable waters or adjoining shorelines is required to prepare and submit to the EPA Regional administrator a Facility Response Plan (FRP) in accordance with 40 CFR 112.20. The form certifying the applicability of the substantial harm criteria for this facility covered by this Plan is included in Appendix A. As noted on the completed form, the Middle Fork WTF meets the criteria for substantial harm and (Appendix C to the Part 112) thus a Facility Response Plan is required for this facility.

### **1.6 PROFESSIONAL ENGINEER CERTIFICATION**

I hereby certify that I am familiar with the provisions of 40 CFR 112, that I have reviewed this Middle Fork WTF SPCC Plan and additional information provided by Encana Oil & Gas (USA) Inc., and that I or my agent have visited and examined the facility that falls within the scope of this Plan. I attest that this Spill Prevention Control and Countermeasures Plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards, and with the requirements of 40 CFR 112, that procedures for required inspections and testing have been established, and that the plan is adequate for the facility. I attest that for produced water containers subject to 40 CFR 112.9(c)(6), any procedure to minimize the amount of free-phase oil is designed to reduce the accumulation of free-phase oil and the procedures and

frequency for required inspections, maintenance, and testing have been established and are described in this Plan.

This certification constitutes an expression of professional opinion and does not constitute a warranty or guarantee, either expressed or implied.



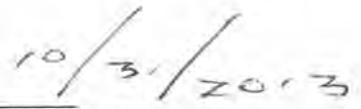
Signature of Registered Professional Engineer



Date



Printed Name of Registered Engineer



Registration Expiration Date

SEAL



Encana acknowledges that the above certification in no way relieves the company of its duty to prepare and fully implement this Plan in accordance with 40 CFR 112.

### 1.7 PLAN LOCATION

A complete copy of this plan is maintained at Middle Fork WTF Office/DAF unit building. The Plan must be maintained at the facility if the facility is normally attended at least 4 hours per day. If not so attended, the Plan must be maintained at the nearest field office at 2717 County Road 215, Suite 100, Parachute, Colorado 81635. This Plan is available for on-site review during normal working hours at this location.

## **2.0 FACILITY DESCRIPTION**

This section provides detailed information regarding oil storage at the Middle Fork WTF. Figure 1 depicts the geographic extent of the scope of this Plan and Figure 2 show facility layout (Facility Site Diagram).

### **2.1 PHYSICAL LAYOUT, OPERATIONS, AND FACILITY DEFINITION**

The Middle Fork WTF collects, treats, and stores produced water from area natural gas production wells.

The Middle Fork WTF is the location of one fresh water pond, three loadout/offload areas, housing for transfer pumps, 24 bulk storage containers, a DAF unit, and designated areas for portable/temporary containers. The bulk storage tanks are placed within synthetic lined metal walls serving as secondary containment (see section 2.2). The DAF unit is located within a building near the northeast corner of the facility. The DAF unit is designed to treat produced water before it is stored in the bulk storage tanks. The treatment unit operates at an approximate rate of 15,000 bbl per day and removes suspended solids and petroleum hydrocarbons from the water. Overfill protection for the DAF unit is provided electronically with high level alarms. In addition, the DAF unit has an emergency shut-down level switch that will shut down the DAF unit if triggered. A facility diagram for this facility is provided as Figure 2.

### **2.2 BULK STORAGE CONTAINER DATA**

Bulk storage containers used at this facility for the storage of oil are compatible with the material stored and the conditions of storage. Fourteen (14) primary bulk storage tanks are single-walled shop built steel tanks and hold 500 bbls of produced water/condensate, bottom solids, or oil. Three primary bulk storage tanks, which are exempt from this plan, are single-walled shop built steel tanks and hold 500 bbls of fresh water/guar. Secondary containment for the primary bulk storage tanks consists of a synthetic liner inside steel containment walls sized to allow for a spill, of the largest tank and precipitation (24-hour, 25-year storm event). The primary bulk storage tanks have overfill protection alarms and periodic visual inspections. The overfill protection alarms has two high level switches and one low level switch. Water level data is reported through PLC logic and Cygnet which Encana Gas Control monitors around the clock. Two of the bulk storage tanks are field constructed and hold 2,310 bbl and 15,000 bbl of produced water/condensate. These tanks are located on the Upper Level area of the Middle Fork WTF. Secondary containment for these tanks consists of a 4-foot high earthen berm around the entire

area of the Upper Level operation. Three of the bulk storage tanks are field constructed and hold 80,000 bbl each of produced water/condensate. Secondary containment for these tanks consists of a concrete containment combined with interstitial monitoring below the containment wall and floor. The Table 2, Bulk Storage Containers, provides specific information regarding the containers in service at this facility and includes the type of oil in each fixed container and its storage capacity. All tables referenced in section 2.0 are located at the end of the Plan.

### **2.3 SECONDARY CONTAINMENT AND DRAINAGE CONTROL**

General secondary containment is required, at a minimum, to contain the most likely quantity of oil discharged by the typical failure mode from areas storing or handling oil at the facility with the potential to discharge, such as bulk storage containers, tank batteries, treatment and separation installations, portable containers, oil-filled operational equipment, truck loading/unloading areas, and piping. The general secondary containment for the Middle Fork WTF is achieved by the compacted earthen berm(s), retention basin(s), and other best management practices (BMPs).

The bulk storage containers are located within the synthetically lined steel walls, earthen berms and concrete impoundments. Sumps and drip pans are used at the truck loading/offloading areas. The secondary containment calculations for these containments are provided in Appendix F. Sorbent material and a drum spill kits are stored on the facility to mitigate spills of oil from portable sources.

The Middle Fork WTF has perimeter control BMPs that restrict the flow of water (precipitation) onto the facility from the surrounding environment, and eliminate the discharge of sediment and other pollutants. The BMPs include compacted earthen berms, dikes, and retention (sediment) basins. If a discharge of accumulated precipitation on a location is required, Encana environmental personnel visually inspect and conduct water quality analysis before approving discharge of the water. In the event of accumulation of oil or other water quality issue, liquids are removed using a vacuum truck and offloaded into the Middle Fork WTF for treatment and disposal. All authorized discharges from a location are documented in accordance with applicable regulations and kept on file under customary business practice. The containment systems and procedures utilized are designed to be capable of containing oil and have been constructed so that any discharge from a container, such as a tank, will not escape the containment system before cleanup occurs.

Table 3, Secondary Containment, provides information regarding the types and capacities of secondary containment structures in place at the facility. Figure 2 shows the locations of all secondary containment structures and the general flow of surface drainage. Drainage from undiked areas within any tank battery, separation, and/or treating facility installations is confined in a catchment basement or holding pond until inspected and managed.

## **2.4 ANALYSIS OF EQUIPMENT FAILURE**

Where experience has indicated a reasonable potential for equipment failure, an analysis of the typical modes of each type of major equipment failure has been performed. The results of the analysis have been recorded Table 4, Analysis of Equipment Failure. Although spills that occur within diked or bermed areas would likely be contained, predictions in the following table discount the presence of containment structures, per EPA guidance. In determining the method, design, and capacity of secondary containment structures, typical failure modes and the anticipated quantity of oil that may potentially be released were considered.

## **2.5 TEMPORARY, MOBILE, AND PORTABLE CONTAINERS**

Mobile, portable, or temporary containers such as frac tanks and drums may be utilized throughout the facility for storage of oil-containing liquids. During standard facility operations, a various number of frac tanks may be present in any given area. The anticipated capacities of these containers are estimated at 500 bbl each and typically contain produced water. General secondary containment is provided for portable and temporary containers as required by 112.8(c)(11). The facility diagram provided as Figure 2 mark the storage areas where mobile, portable, and temporary containers are generally positioned when needed.

## **2.6 FLOWLINES, INTRA-FACILITY GATHERING LINES, AND PIPELINES**

This facility utilizes flowlines, intra-facility gathering lines, and pipelines. Pipelines included in this facility are extensive (geographically). The pipelines include various piping between the DAF unit and bulk storage tanks and the Middle Fork Pond, and the piping at the truck loadout/offloading areas.

The installation of secondary containment is not practicable at this facility for some of the pipelines due to the extent of pipelines covering a large geographical area. As equivalent environmental protection, the lines are routinely inspected, and procedures have been implemented to closely monitor transfer operations. Sections 3.0 and 4.0 of this Plan describe

the inspections and monitoring program in greater detail. In addition, an Oil Spill Contingency Plan (OSCP) has been implemented for this facility.

## **2.7 OIL-FILLED OPERATIONAL EQUIPMENT**

There are two oil-filled electrical transformers located on the Middle Fork WTF. General secondary containment for the oil in this transformer is provided by concrete catch basins beneath the transformers, and by the site drainage controls and retention basins. The electrical transformers are owned and maintained by Encana.

## **3.0 INSPECTIONS, TESTING, AND MAINTENANCE**

### **3.1 INSPECTIONS**

All inspections conducted to fulfill the requirements of this Plan are performed in accordance with the equipment-specific procedures outlined in the following sections. Encana's Standards, Engineering & Technology Group has implemented an Integrity Management Program which manages the risk associated with loss of containment by limiting the inherent exposure of assets to the following threats:

- Metal loss, including external and internal corrosion and erosion
- Cracking
- Manufacturing and Construction Defects
- Third Party damage
- Operational (including human error)
- Geotechnical

Encana's inspection and maintenance goals focus on constructing, operating, and maintaining assets using benchmark practices for integrity in the oil and gas sector. This focus is also to protect the public, employees, environment, and communities in which we operate. A copy of the Integrity Management Program is available at Encana's Parachute office.

All inspections are performed by personnel who are knowledgeable in facility operations, the equipment being inspected, and the characteristics of the materials being processed, stored, or transferred. The following sections describe the periodic inspections to be conducted.

#### **3.1.1 Field-Constructed Aboveground Containers**

Field-constructed aboveground containers (i.e., tanks erected onsite) are utilized at this facility. For the Middle Fork WTF, the 2,130 bbl and 15,000 bbl tanks on the Upper Level and the three 80,000 bbl tanks on the Lower Level are field-constructed. These tanks are subject to the requirements of the American Petroleum Institute (API) Standard 653. Informal visual

inspections of the tanks are conducted per the standard by onsite personnel on a weekly, monthly, and annual basis. Inspection forms will be included in Appendix C. In addition, a formal visual external inspection of each field-constructed tank subject to the requirements of this Plan shall be conducted by a certified inspector in accordance with Encana's Integrity Management Program.

### **3.1.2 Shop-Built Containers**

This facility utilizes shop-built containers that store 55 gallons or more of an oil-containing product or material. Shop-fabricated containers in use at the facility will have routine visual inspections performed at least once per month per the Steel Tank Institute (STI) Standard SP001, Standard for Inspection of In-Service Shop-Fabricated Aboveground Storage Tanks for Storage of Combustible and Flammable Liquids. Once annually, a visual inspection will be performed on each shop-fabricated container subject to the requirements of this Plan. Shop-fabricated containers with over 5,000 gallons capacity shall also have a formal external inspection by a certified inspector at least once every 20 years.

The monthly inspections will be documented utilizing the Monthly Visual Inspection Form included in Appendix C. These inspections shall be performed by personnel who are knowledgeable in facility operations, the tanks and associated components, and the characteristics of the liquids stored. The annual inspections are conducted by an interdisciplinary team trained to identify site-specific compliance concerns related to company policy and pertinent regulatory requirements. This form is also included in Appendix C.

The EPA issued is a SPCC Guidance for Regional Inspectors in November 2005. A section of that document (page 7-21, Section 7.3.4) states that for certain shop-built containers with a capacity of 30,000 gallons or less, the EPA considers visual inspection to be equivalent environmental protection to integrity testing. The containers must not be in contact with the soil; the containers may be elevated to make all sides, including the bottom, visible during inspection or be placed on adequately designed, maintained, and inspected barrier which would insure that a leak would be detected immediately.

### **3.1.3 Pressure Vessels**

Pressure vessels and/or flow-through process vessels such as separators or slug catchers are utilized at this facility. The slug catchers at the Middle Fork WTF (Upper Level) are visually inspected on a monthly and annual basis. In addition, formal internal and external inspections

will be performed according to API 510, Pressure Vessel Inspection Code, by a certified inspector in accordance with Encana's Integrity Management Program.

### **3.1.4 Produced Water Ponds/Fresh Water Pond**

A fresh water pond is utilized at this facility and was formally used as a produced water impoundment. The Middle Fork Pond is inspected visually multiple times per day.

As applicable, the interstitial space between the liners of double-lined pond will be checked for leakage on a weekly basis. Such routine liner inspections will be documented and inspection records retained as described in Section 3.1.8. On an annual basis, a visual inspection of the pond will be performed and documented.

### **3.1.5 Portable Containers**

This facility utilizes portable containers that have the capacity to store 55 gallons or more of an oil-containing product or material such as drums (for liquid storage from drip pans), diesel trailers, or produced water frac tanks. These containers may or may not be on location at any given time.

When in active use, portable containers will be visually inspected on a daily or weekly basis and, for longer-term projects, monthly basis in accordance with the inspection procedures described in Section 3.1.1 for aboveground field-constructed containers.

### **3.1.6 Pipelines**

External visual inspections of facility piping including gathering lines and produced water delivery lines will be performed on a regular basis for aboveground portions of the lines. Appurtenances associated with the lines, such as pipe supports, valves, and rod stuffing boxes, are also evaluated during the line inspections. Pipelines, both temporary and permanent, that are actively being utilized to transfer oil-containing product or material will be inspected on a routine basis. Daily inspections occur by operations personnel to observe the lines and associated structures and equipment for conditions that could lead to a discharge. Underground sections of pipelines will be visually inspected whenever exposed during excavation work.

General procedures used during the above-referenced inspections include a visual evaluation of the lines and associated structures and equipment for:

- leaks or other oil discharges

- signs of corrosion
- loose bolts or missing plugs
- accumulation in drip pans
- general physical condition of the equipment.

### **3.1.7 Field Drainage Systems**

Field drainage systems such as road ditches and drainage ditches, including any oil traps, sumps, or skimmers, will be inspected at regular intervals by operations personnel. Drainage ditches and other drainage-related structures, including catchment basins, weirs, culverts and sumps, as applicable, will be inspected for any problems that may impede drainage of storm waters and for any accumulations of oil. Accumulations of oil will be removed promptly. Facility drainage system inspections will be recorded, and the records maintained per the requirements of Section 8.0 of this Plan.

### **3.1.8 Inspection Schedule and Documentation**

Inspection schedules for individual equipment items will be maintained at the Middle Fork WTF DAF unit building/office trailer. Monthly, annual and other documented visual inspections will be recorded on the forms included in Appendix C of this Plan. The inspection forms provide an outline of the procedures to be used during each visual inspection. Completed inspection records will be maintained with a copy of this Plan in accordance with Section 8.0 and will be available for review at the Middle Fork WTF office trailer and the Encana office located in Parachute, Colorado. Corrective action will be taken when deficiencies are noted during any inspection or if evidence of a discharge is observed. All observed oil discharges will be promptly removed. Releases noted during routine inspections will be documented in Encana's Incident Management System (IMS).

## **3.2 MAINTENANCE AND TESTING**

### **3.2.1 Pipeline Maintenance and Monitoring**

To reduce the potential for discharges, Encana operates a program of pipeline monitoring and maintenance. Pipelines used by the Middle Fork WTF extend throughout the North Parachute Ranch and Mountain areas, Water Treatment (DAF unit), and associated bulk storage tanks. These lines are maintained in accordance with established facility integrity management protocols. Such management practices include standards for the selection, installation, monitoring, and maintenance of pipelines as well as associated valves, flanges, and other

equipment. All maintenance activities are performed by personnel who are knowledgeable in facility operations and the equipment being maintained.

Procedures for the maintenance of pipelines subject to the requirements of this Plan include the following:

- Prior to installing, replacing, or repairing lines, valves, or associated equipment, facility personnel must ensure compatibility with the materials to be transferred and address potential concerns involving corrosive production fluids, volumes, pressure, and other conditions expected in the operational environment.
- Pipelines are identified on facility maps and are clearly marked in the field to facilitate access and inspection by facility personnel.
- Corrosion rates for pipelines are monitored utilizing weight loss corrosion coupons or equivalent measures as described in Encana's Internal Corrosion Control Guide. At 30% corrosion of the pipe wall thickness, the line is removed from service and replaced.
- Spot ultrasonic testing is conducted on pipelines in areas where the line can be accessed. Access cans are utilized where present to evaluate sections of lines that have been identified as having a potentially high corrosion rate. Ultrasonic testing may also be scheduled based on known corrosion issues and to verify the effectiveness of corrosion inhibiting treatment.
- Smart pigging is performed on larger diameter lines on an as-needed basis. The wall thickness measurements and corrosion rates provided by data from smart pigging are used to schedule maintenance activities.
- Where practicable:
  - pipelines are provided with an external epoxy coating and welded joints are taped,
  - pipelines are protected by treatment with corrosion inhibitor with feed rates of the inhibitor adjusted in proportion to well flows,
  - cathodic protection is provided on lateral lines from metering skids down, on third party lines from master meters down, and on main trunk lines,
  - pipeline pressure is monitored during transfers by personnel having the ability to remotely close isolation valves in the event of an emergency, and

- buried flowlines may have been equipped with bolted flanges installed at set intervals along the length of the line, a dry sump is located on either side of the flange with a ½ inch valve that is manually opened on a periodic basis to check for moisture between the poly liner and the steel pipe wall.
- Where possible, electric water pumps automatically shut down when pressures reach a level that indicate a problem.
- As soon as practicable following the detection of a leak, the affected portion of the line is isolated and repaired or replaced.

The maintenance and testing procedures referenced above are performed on individual sections of lines at a frequency determined by the facility mechanical integrity department. The frequency for maintaining and testing lines located within secondary containment is based on several factors, including the age of the pipeline, known or suspected corrosion issues, materials used in construction, number of elbows, expansions, contractions, etc. The frequency and type of testing prescribed for pipelines that have not been provided with secondary containment will be executed so that the Oil Spill Contingency Plan (OSCP) (Appendix B) for the Middle Fork WTF may be effectively implemented.

In the event that an inspection or test identifies either the need for repair or evidence of a discharge, corrective action shall be implemented accordingly. For example, any oil discharges associated with pipelines or associated equipment shall be promptly removed.

### **3.2.2 Container Maintenance and Testing**

The installation of new tank batteries, or other containers subject to the requirements of this Plan, as well as updates to existing oil containers tanks must be performed in accordance with good engineering practice to prevent discharges. At least one of the following shall be provided for new containers or when updating existing containers:

- Container capacity adequate to assure that a container will not overflow if a pumper/gauger is delayed in making regularly scheduled rounds,
- Overflow equalizing lines between containers so that a full container can overflow to an adjacent container,
- Vacuum protection adequate to prevent container collapse during a pipeline run or other transfer of oil from the container, or

- High level sensors to generate and transmit an alarm signal to the computer where the facility is subject to a computer production control system.

### **3.2.3 Maintenance and Testing Schedule and Documentation**

Maintenance and testing schedules for individual equipment will be maintained at the Middle Fork WTF office trailer. Records of inspections, tests, and corrective actions will be maintained as described in Section 8.0 of this Plan. Releases resulting from the failure of containers, pipelines or other equipment will be documented in Encana's Incident Management System (IMS).

## **4.0 OIL HANDLING PROCEDURES**

The following sections describe the discharge prevention measures that have been established and implemented at this facility to aid in preventing oil releases.

### **4.1 LOADING AND UNLOADING AREAS**

This facility utilizes loading and/or unloading areas. The Facility Site Diagram (Figure 2) shows the locations.

Secondary containment for some of the loadout/offload areas consist of earthen berms and stormwater BMPs. A total of four offload areas are located within the Middle Fork WTF. The loadout/offload areas on the Upper Level are within the earthen berm for the entire Upper Level.

A system has been implemented to prevent tank trucks from departing before transfer lines have been completely disconnected. A system of physical barriers such as wheel chocks and vehicle brake interlocks are used in the area adjacent to the rack. Sign-in, sign-out protocols may also be used in conjunction with loadout procedures. In addition, prior to filling each tank truck or authorizing its release, the lowermost drain and all outlets will be inspected closely for discharges. If necessary, drains and outlets will be tightened, adjusted, or replaced to prevent liquid discharge while in transit.

### **4.2 LOADING AND UNLOADING PROCEDURES**

As required by 112.7(c), loading and unloading areas located at the side where tank trucks deliver and pick up product, produced water, and condensate will be provided with general secondary containment.

General procedures implemented at the facility(s) for the routine loading and unloading of oil products (fuel, lubricating oils, etc.) and oil-containing materials (produced water, condensate, etc.) into and out of cargo vehicles are described below:

- Park vehicle (upwind of the loading/unloading area, if possible) and set brakes
- Use wheel chocks or equivalent measures to prevent unexpected movement
- Connect ground cable to unpainted surface on vehicle frame
- Check hoses and couplings for damage

- Connect loading/unloading hose and vent line to vehicle; if vent line is absent, open all appropriate valves in storage tank and trailer
- Position spill bucket or similar drip catch
- Close valve to storage tank
- Loosen loading hose to allow enough air to drain loading hose dry
- Ensure that any drips from the hose drain into the spill bucket or drip catch
- Disconnect loading hose completely, close load valve, plug and fasten securely
- Ensure that any drips from the hose drain into the spill bucket or drip catch
- Close all valve caps, disconnect hoses, and safely manage any remaining liquids
- Replace all valve caps after pumping is finished and make sure all connections are isolated and capped, and install any required seals
- Disconnect ground cable
- Inspect lowermost drains and valves of the vehicle for discharges/leaks and ensure that they are tightened, adjusted, or replaced as needed to prevent discharges while vehicle is in transit.

#### **4.3 INTRA-FACILITY TRANSFER PROCEDURES**

General procedures implemented at the facility(s) for the routine transfer of oil products (fuel, lubricating oils, etc.) and oil-containing liquids (produced water, condensate, etc.) into and out of cargo vehicles are described below:

- Prior to transferring material from one vessel to another, check level readings to ensure there is adequate space available in the receiving tank
- Monitor all material transfer operations closely (checking lines, pumps, hoses, etc. for proper operation and signs of leakage)
- Prior to, during, and following their use, produced water delivery lines are inspected for leaks, oil discharges, corrosion, and other conditions that could lead to a discharge
- Use absorbent pads, pans, buckets, etc., as needed to prevent drips from contacting the ground.

#### **4.4 DRAINAGE CONTROL PROCEDURES**

Following a significant storm event, to ensure adequate capacity is available to contain a release where sized containment areas are present, operators overseeing the processes will work to minimize (to the maximum extent possible) the presence, extent, and duration of standing water within the structure. Procedures implemented at the facility(s) for the routine drainage of secondary containment structures and equipment includes the following:

- Prior to releasing accumulated water to the ground, field drainage system, or other location external to facility operations, visually inspect the water for signs of possible contamination (an accumulation of water containing oil, visible sheen, unusual color change, etc.). If accumulated oil is observed, remove the oil and return it to storage or disposed of it in accordance with legally approved methods (water containing oil must not be released).
- Manually control and secure secondary containment drainage valves (where present) in the closed position until a release has been authorized by a responsible member of management. Reseal bypass valves immediately following completion of drainage.
- Maintain adequate records of diked area drainage events.
- Manage material collected in portable secondary containment equipment such as drip pans and buckets appropriately and do not release to the ground.
- Facility drainage from undiked areas subject to spill events should if possible, flow into holding ponds or catchment basins designed to retain spills or return them to the facility. Catchment basins should not be located in areas subject to flooding.
- At tank batteries and separation and treating areas where there is a reasonable possibility of a discharge, maintain closed and sealed drains for dikes, ponds, sumps, and other such containment structures; except when draining non-impacted water.

## **5.0 COUNTERMEASURES AND SPILL RESPONSE**

Facility-specific procedures for discharge discovery, response, and cleanup are provided in the Oil Spill Contingency Plan (OSCP) located in Appendix B. The OSCP provides information and procedures for reporting a discharge, for taking initial actions to mitigate the effects of the discharge, to determine if evacuation is needed, and for ensuring that recovered materials are disposed of in accordance with applicable legal requirements. Finally, the OSCP also identifies the person at the facility who is accountable for discharge prevention and who reports to facility management.

In response to a discharge, facility personnel utilize Encana's Incident Management System (IMS) to document and track the event. The IMS is a web-based application for reporting and managing all incidents electronically, including injuries, spills, motor vehicle accidents, and most other types of occurrences. IMS facilitates the centralized first report, the workflow process for investigating incidents and assigning corrective actions, and generates reports for analyzing the occurrence of incidents so that risks can be analyzed and preventive measures can be put in place.

## 6.0 TRAINING

Encana field staff receives general awareness training regarding oil spill prevention, control, and countermeasure planning as part of the company’s orientation program for all new employees and contractors. In addition, facility management has identified personnel who, at the facility level, transfer or otherwise manage produced water or condensate, lubricating/compressor oils, used oil, or any other oil as part of their job function. Such employees have been designated as “oil-handling personnel” and are provided with additional training in the following:

- The operation and maintenance of equipment to prevent discharges
- Discharge procedure protocols
- Applicable pollution control laws, rules, and regulations (including local, state, and federal requirements)
- General facility operations
- The contents of this SPCC Plan.

In addition, at least once per year, oil-handling personnel are required to attend a discharge prevention briefing. The briefing must highlight and describe any known discharge that has occurred at the facility within the past year, equipment failures, malfunctioning components, and any recently developed precautionary measures. This briefing is intended to assure adequate understanding of the purpose, content, and use of the facility SPCC Plan.

Training is conducted through Encana’s training and recordkeeping system, eCademy. Training records are maintained in the eCademy system for general awareness and oil-handling personnel training, discharge prevention briefings, or any additional training events performed in accordance with the requirements of this Plan.

## **7.0 PLAN MAINTENANCE**

### **7.1 AMENDMENTS BY OWNERS OR OPERATORS**

This Plan will be amended whenever there is a change in facility design, construction, operations, or maintenance that materially affects the facility's potential for a discharge of oil. An amendment to this Plan shall be prepared within six months of the change and implemented as soon as possible, but not later than six months following preparation of the amendment.

This Plan shall be reviewed and evaluated at least once every five years and amended to include more effective prevention and control technology, if such technology will significantly reduce the likelihood of a discharge event and has been proven in the field. Any amendment made for the reasons described in the prior sentence must be implemented as soon as possible, but not later than six months following preparation of the amendment.

The completion of all reviews and evaluations must be documented with a signed statement. The amendment log located in Appendix E shall include a statement that the reviewer has completed a review and evaluation of the SPCC Plan for the given facility on a specific date and that the Plan will or will not be amended as a result. All technical amendments made to this Plan shall be certified by a registered Professional Engineer.

Changes in facility equipment, operation, or arrangement are documented using Encana's Management of Change (MOC) system. Encana personnel responsible for the maintenance of the SPCC plan will be notified through the MOC system. Plan reviews and amendments to facility specific documentation will be recorded in Appendix E and scheduled and tracked using Encana's IMS.

### **7.2 AMENDMENTS BY REGIONAL ADMINISTRATOR**

If either of the following occurs:

- The facility discharges more than 1,000 gallons of oil into or upon navigable waters or adjoining shorelines in a single event

or

- The facility discharges more than 42 gallons of oil in each of two discharge events within any 12-month period,

The facility will submit within 60 days of the above event(s) the following information to the U.S. EPA Regional Administrator (EPA Region VIII) and the Colorado Department of Public Health and Environment:

- Name of facility
- Your name
- Location of facility
- Maximum storage or handling capacity of the facility and normal daily throughput
- Corrective action and countermeasures you have taken, including a description of equipment repairs and replacements
- An adequate description of the facility, including maps, flow diagrams, and topographical maps, as necessary
- The cause of such discharge, including a failure analysis of the system or subsystem in which the failure occurred
- Additional preventive measures you have taken or contemplated to minimize the possibility of recurrence
- Such other information as the Regional Administrator may reasonable require pertinent to the Plan or discharge.

This Plan shall be amended as required by the Regional Administrator as a result of review of the information submitted.

## **8.0 RECORDKEEPING**

Written procedures associated with the inspection and testing activities conducted per the requirements of this Plan will be maintained within or as an attachment to this Plan. Along with the referenced procedures, records of inspections and tests required by this Plan will be signed by the appropriate supervisor or inspector and retained for a period of three years as routine and customary business practice. Inspection records and associated information will be maintained with a copy of this Plan at the office of the Middle Fork Water Treatment Facility and the Encana offices located at 2717 County Road 215, Suite 100, Parachute, CO 81635.

Records of training events conducted in accordance with the requirements of this Plan are maintained in Encana's eCademy system.

## **9.0 CONFORMANCE WITH 40 CFR 112 AND STATE SPCC REQUIREMENTS AND NEEDED MODIFICATIONS**

This section includes a discussion of the overall conformance of the facility and Plan with the requirements of 40 CFR 112 and any state rules, regulations, and guidelines pertaining to oil spill prevention, control, and countermeasure that provide additional or more stringent requirements than the federal rules.

### **9.1 CONFORMANCE WITH RULE REQUIREMENTS AND NEEDED MODIFICATIONS**

The structures, equipment and operations associated with each facility(s) are identified in Section 2.1 of this Plan. The operations and equipment covered under this SPCC Plan comply with the requirement stated in 40 CFR 112, the Colorado Department of Public Health and Environment, and the Colorado Oil and Gas Commission, except as noted below:

- Since the facility has answered “Yes” to Question 3, Substantial Harm Criteria, Appendix A, a Facility Response Plan (FRP) is required as specified in Subpart D of 40 CFR 112.

The Oil Spill Contingency Plan for the Middle Fork WTF and BMPs put in place for surface drainage control are sufficient alternatives to address potential oil discharges and spills.

### **9.2 CONFORMANCE WITH STATE-SPECIFIC SPCC REQUIREMENTS**

Some states have established requirements applicable to SPCC that are more stringent than federal standards or require additional measures to be taken. In the State of Colorado, no state agencies govern the SPCC activities of the oil and gas industry. However, the COGCC provides specific guideline for secondary requirements for oil storage containers located in “high” density area (COGCC Series Safety Regulations 603-12). The requirement for secondary containment in high density areas is 150 percent compared to 110 percent for EPA SPCC. The Middle Fork WTF is not located in a high density area.

## **TABLES**

**Table 1 – Contact List**

<b>Contact List</b>		
<b>Encana's 24-Hr Environmental On-call Service</b>	Personnel must immediately report all spills and conditions which could lead to a spill to Encana's 24-hr Environmental On-call number.	<u>970-319-9173</u>
<b>Encana's 24-Hr Safety On-call Service</b>	Personnel must immediately report all incidents and conditions which could lead to an injury to Encana's 24-hr Safety On-call number.	<u>970-210-8755</u>
<b>Facility</b>	MIDDLE FORK WATER TREATMENT FACILITY	
<b>Facility Supervisor</b>	<u>STEVE ROBINSON</u>	<u>970-366-2860</u>

**Table 2 – Bulk Storage Containers**

<b><u>MIDDLE FORK WATER TREATMENT FACILITY</u></b>					
<b>Bulk Storage Container ID</b>	<b>Location</b>	<b>Contents</b>	<b>Volume (BBL)*</b>	<b>Construction Materials**</b>	<b>Overfill Protection</b>
<u>TANK 1 (EXEMPT)</u>	<u>W OF POND</u>	<u>FRESH WATER</u>	<u>500</u>	<u>STEEL</u>	<u>HIGH ALARM(S)</u>
<u>TANK 2 (EXEMPT)</u>	<u>W OF POND</u>	<u>GUAR</u>	<u>500</u>	<u>STEEL</u>	<u>HIGH ALARM(S)</u>
<u>TANK 3 (EXEMPT)</u>	<u>W OF POND</u>	<u>GUAR</u>	<u>500</u>	<u>STEEL</u>	<u>HIGH ALARM(S)</u>
<u>TANK 4</u>	<u>W OF POND</u>	<u>BOTTOM SOLIDS</u>	<u>500</u>	<u>STEEL</u>	<u>HIGH ALARM(S)</u>
<u>TANK 5</u>	<u>W OF POND</u>	<u>BOTTOM SOLIDS</u>	<u>500</u>	<u>STEEL</u>	<u>HIGH ALARM(S)</u>
<u>TANK 6</u>	<u>W OF POND</u>	<u>BOTTOM SOLIDS</u>	<u>500</u>	<u>STEEL</u>	<u>HIGH ALARM(S)</u>
<u>TANK 7</u>	<u>W OF POND</u>	<u>OIL RECOVERY</u>	<u>500</u>	<u>STEEL</u>	<u>HIGH ALARM(S)</u>
<u>TANK 8</u>	<u>W OF POND</u>	<u>PRODUCED WATER/CONDENSATE</u>	<u>80000</u>	<u>STEEL</u>	<u>HIGH ALARM(S)</u>
<u>TANK 9</u>	<u>W OF POND</u>	<u>PRODUCED WATER/CONDENSATE</u>	<u>80000</u>	<u>STEEL</u>	<u>HIGH ALARM(S)</u>
<u>TANK 10</u>	<u>W OF POND</u>	<u>PRODUCED WATER/CONDENSATE</u>	<u>80000</u>	<u>STEEL</u>	<u>HIGH ALARM(S)</u>
<u>TANK A</u>	<u>UPPER LEVEL</u>	<u>PRODUCED WATER/CONDENSATE</u>	<u>15000</u>	<u>STEEL</u>	<u>HIGH ALARM(S)</u>
<u>TANK B</u>	<u>UPPER LEVEL</u>	<u>PRODUCED WATER</u>	<u>2310</u>	<u>STEEL</u>	<u>HIGH ALARM(S)</u>
<u>TANK C</u>	<u>UPPER LEVEL</u>	<u>CONDENSATE</u>	<u>500</u>	<u>STEEL</u>	<u>HIGH ALARM(S)</u>
<u>TANK D</u>	<u>UPPER LEVEL</u>	<u>CONDENSATE</u>	<u>500</u>	<u>STEEL</u>	<u>HIGH ALARM(S)</u>
<u>TANK E</u>	<u>UPPER LEVEL</u>	<u>CONDENSATE</u>	<u>500</u>	<u>STEEL</u>	<u>HIGH ALARM(S)</u>
<u>TANK F</u>	<u>UPPER LEVEL</u>	<u>CONDENSATE</u>	<u>500</u>	<u>STEEL</u>	<u>HIGH ALARM(S)</u>
<u>TANK G</u>	<u>UPPER LEVEL</u>	<u>CONDENSATE</u>	<u>500</u>	<u>STEEL</u>	<u>HIGH ALARM(S)</u>
<u>TANK H</u>	<u>UPPER LEVEL</u>	<u>CONDENSATE</u>	<u>500</u>	<u>STEEL</u>	<u>HIGH ALARM(S)</u>
<u>TANK I</u>	<u>UPPER LEVEL</u>	<u>CONDENSATE</u>	<u>500</u>	<u>STEEL</u>	<u>HIGH ALARM(S)</u>
<u>TANK J</u>	<u>UPPER LEVEL</u>	<u>CONDENSATE</u>	<u>500</u>	<u>STEEL</u>	<u>HIGH ALARM(S)</u>
<u>TANK K</u>	<u>UPPER LEVEL</u>	<u>CONDENSATE</u>	<u>500</u>	<u>STEEL</u>	<u>HIGH ALARM(S)</u>
<u>TANK L</u>	<u>UPPER LEVEL</u>	<u>CONDENSATE</u>	<u>500</u>	<u>STEEL</u>	<u>HIGH ALARM(S)</u>

\* If units differ (i.e. gallons vs. barrels, specify in each individual cell, or convert all to the same unit for the facility.

\*\* Oil storage containers must be constructed appropriately and of materials that are compatible with the material stored and the conditions of storage

**Table 3 – Secondary Containment**

<b>MIDDLE FORK WATER TREATMENT FACILITY</b>			
<b>Secondary Containment Structure</b>	<b>Containers</b>	<b>Available Capacity (bbl)</b>	<b>Construction Material</b>
<u>BULK STORAGE CONTAINMENT A</u>	<u>PRODUCED WATER/CONDENSATE TANKS (TANK #1 THROUGH #7)</u>	<u>1282 BBL (RECTANGLE-SHAPED SECONDARY CONTAINMENT COVERING 2805 SQUARE FEET)</u>	<u>SYNTHETIC LINED STEEL BERM</u>
<u>BULK STORAGE CONTAINMENT B</u>	<u>PRODUCED WATER/CONDENSATE TANKS (TANK #8 THROUGH #10)</u>	<u>146710 BBL (RECTANGLE-SHAPED STRUCTURE COVERING 116959 SQUARE FEET)</u>	<u>CONCRETE LINED BERM</u>
<u>BULK STORAGE CONTAINMENT C</u>	<u>CONDENSATE TANKS (TANK #C THROUGH #L)</u>	<u>1297 BBL (RECTANGLE-SHAPED STRUCTURE COVERING 3666 SQUARE FEET)</u>	<u>SYNTHETIC LINED STEEL BERM</u>
<u>BULK STORAGE CONTAINMENT "UPPER LEVEL"</u>	<u>PRODUCED WATER/CONDENSATE TANKS (TANK #A AND #B)</u>	<u>31639 BBL (RECTANGLE-SHAPED STRUCTURE COVERING 49268 SQUARE FEET)</u>	<u>COMPACTED EARTHEN BERM</u>
<u>DAF BUILDING</u>	<u>DAF UNIT</u>	<u>591 BBL (RECTANGLE-SHAPED STRUCTURE COVERING 3317 SQUARE FEET)</u>	<u>CONCRETE AND STEEL FORM</u>

\* Available capacity must account for freeboard for 24 hour, 25 year storm event

**Secondary Containment Capacity and Calculations Data Sheets are located in Appendix F and are checked and verified by a P.E..**

**Table 4 – Analysis of Equipment Failure**

<b>MIDDLE FORK WATER TREATMENT FACILITY</b>			
<b>Potential Failure</b>	<b>Spill Direction (Cardinal Direction)</b>	<b>Potential Total Volume Released [gallons]</b>	<b>Potential Spill Rate [gallons/minute]</b>
Catastrophic failure of full tank (80000 bbl)	West	3,000,000	100,000
Partial failure of tank	West	1,000,000	50,000
Tank overfill	West	50,000	1,000
Pipe fitting failure	West	10,000	500
Leaking fitting or valve	West	1,000	100
Upper Level failure of a full tank	West	500,000	50,000
Partial failure of tank	West	100,000	10,000
Tank overfill	West	5,000	500
Pipe fitting failure	West	1,000	100
Leaking valve failure	West	500	10
Catastrophic failure of water pipeline	Southwest	8,400	500
Slow pipeline leak	Southwest	1,000	75

## **FIGURES**

Rio Blanco County

Garfield County

T004S-R096W

T004S-R095W

T006S-R096W

T006S-R095W

T006S-R097W

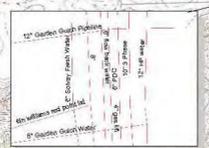
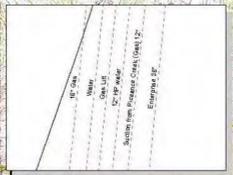
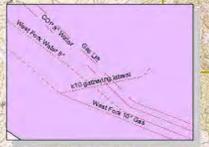
T006S-R096W

T006S-R095W

- Encana Site Boundary
- Encana Site Boundary - Proposed
- Encana Site Boundary - Former CDP Pad
- Williams Site Boundary
- Berry Site Boundary
- BLM Resource Area Boundary
- Township Boundary
- County Boundary
- Parcel Boundary
- Surface Ownership
  - BLM (transparent)
  - Encana (transparent)
- Produced Water Storage Pit
  - Active
  - Inactive / Closed
- Spill Kill Location
- Headgate Location
- Guard Station
- Gate
- Utility Line Route
- Encana Pipeline Route
- Access Road
- Water Quality Sampling Point
  - Confirmed Location
  - Uncollected Location
  - Proposed Location
  - URS Location

**encana**  
natural gas

**North Parachute Property (NPP)  
ECG Resource Map**  
December 6, 2010



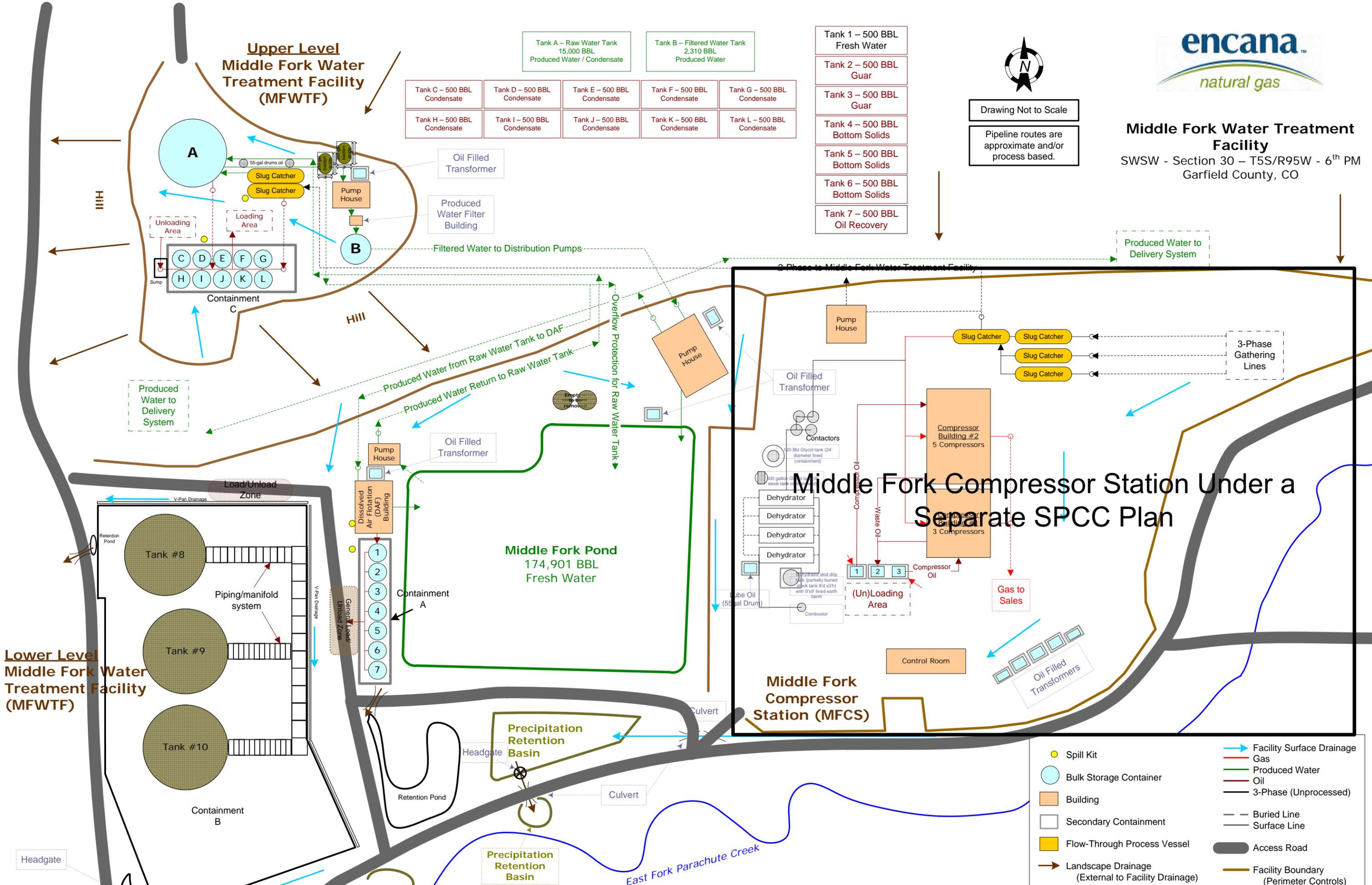
Middle Fork WFT



Drawing Not to Scale  
 Pipeline routes are approximate and/or process based.

**Middle Fork Water Treatment Facility**  
 SWSW - Section 30 - T5S/R95W - 6<sup>th</sup> PM  
 Garfield County, CO

- Tank A - Raw Water Tank  
15,000 BBL  
Produced Water / Condensate
- Tank B - Filtered Water Tank  
2,310 BBL  
Produced Water
- Tank 1 - 500 BBL  
Fresh Water
- Tank 2 - 500 BBL  
Guar
- Tank 3 - 500 BBL  
Guar
- Tank 4 - 500 BBL  
Bottom Solids
- Tank 5 - 500 BBL  
Bottom Solids
- Tank 6 - 500 BBL  
Bottom Solids
- Tank 7 - 500 BBL  
Oil Recovery
- Tank C - 500 BBL  
Condensate
- Tank D - 500 BBL  
Condensate
- Tank E - 500 BBL  
Condensate
- Tank F - 500 BBL  
Condensate
- Tank G - 500 BBL  
Condensate
- Tank H - 500 BBL  
Condensate
- Tank I - 500 BBL  
Condensate
- Tank J - 500 BBL  
Condensate
- Tank K - 500 BBL  
Condensate
- Tank L - 500 BBL  
Condensate



**Middle Fork Compressor Station Under a Separate SPCC Plan**

- Spill Kit
- Bulk Storage Container
- Building
- Secondary Containment
- Flow-Through Process Vessel
- Landscape Drainage (External to Facility Drainage)
- Facility Surface Drainage
- Gas
- Produced Water
- Oil
- 3-Phase (Unprocessed)
- Buried Line
- Surface Line
- Access Road
- Facility Boundary (Perimeter Controls)

**Lower Level Middle Fork Water Treatment Facility (MFWTF)**

**Upper Level Middle Fork Water Treatment Facility (MFWTF)**

**Middle Fork Compressor Station (MFCS)**

**Middle Fork Pond**  
174,901 BBL  
Fresh Water

**Precipitation Retention Basin**

**Precipitation Retention Basin**

Headgate

Containment B

Retention Pond

Headgate

Culvert

Culvert

Control Room

Oil Filled Transformers

(Un)Loading Area

3 Compressors

Compressor Building #2

5 Compressors

Oil Filled Transformer

3 Phase Gathering Lines

Slug Catcher

**APPENDIX A**

**CERTIFICATION OF THE APPLICABILITY  
OF SUBSTANTIAL HARM CRITERIA**

**CERTIFICATION OF THE APPLICABILITY  
OF THE SUBSTANTIAL HARM CRITERIA CHECKLIST**

FACILITY NAME: MIDDLE FORK WATER TREATMENT FACILITY

FACILITY ADDRESS: SWSW, Section 30, T5S, R95W, 6<sup>th</sup> PM

1. Does the facility transfer oil over water to or from vessels and does the facility have a total oil storage capacity greater than or equal to 42,000 gallons?  
Yes \_\_\_\_\_ No:  X
  
2. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground oil storage tank plus sufficient freeboard to allow for precipitation within any aboveground oil storage tank area?  
Yes \_\_\_\_\_ No:  X
  
3. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the formula in Attachment C-III, Appendix C, 40 CFR 112 or a comparable formula) such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments? For further description of fish and wildlife and sensitive environments, see Appendices I, II, and III to DOC/NOAA's "Guidance for Facility and Vessel Response Environments" (Section 10, Appendix E, 40 CFR 112 for availability) and the applicable Area Contingency Plan.  
Yes  X  No: \_\_\_\_\_
  
4. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula (Attachment C-III, Appendix C, 40 CFR 112 or a comparable formula) such that a discharge from the facility would shut down a public drinking water intake?  
Yes \_\_\_\_\_ No:  X
  
5. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and has the facility experienced a reportable oil spill in an amount greater than or equal to 10,000 gallons within the last 5 years?  
Yes \_\_\_\_\_ No:  X

## CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.

Name (please type or print):

Signature:

---

---

Title:

Date:

---

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From 40 CFR 112 Appendix C, Attachment C-II

Footnotes:

1. If a comparable formula is used, documentation of the reliability and analytical soundness of the comparable formula must be attached to this form.
2. For the purposes of 40 CFR Part 112, public drinking water intakes are analogous to public water systems as described at 40 CFR 143.2(c).

**APPENDIX B**

**OIL SPILL CONTINGENCY PLAN**

**Oil Spill Contingency Plan  
(Oil Pollution Prevention – 40 CFR Parts 109 and 112)**

Parachute Colorado Facilities

Rifle Surface Water Supply Area – Colorado River

Parachute Creek Surface Water Supply Area – Colorado River

DeBeque Surface Water Supply Area – Colorado River

Plateau Creek Surface Water Supply Area – Colorado River

Encana Oil & Gas (USA) Inc.  
2717 County Road 215, Suite 100  
Parachute, CO 81635

August 17, 2011

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## INTRODUCTION

**The Oil Spill Contingency Plan (OSCP) was prepared to meet the requirements of the Environmental Protection Agency's (EPA) Oil Pollution Prevention regulations codified in 40 CFR Parts 109 and 112.** The purpose of this OSCP is to define procedures and tactics for responding to unintended discharges of oil originating from bulk storage containers, oil-filled and flow-through equipment, and flowlines within Encana Oil & Gas (USA) Inc.'s (Encana) Facilities managed from Parachute, Colorado. The geographic extent for the facilities is shown on Figure 1. These procedures are implemented whenever a discharge of oil occurs. For the purposes of this Plan, the term "oil" refers to oil-containing liquid (which could include but not limited to produced water, condensate, hydraulic fluids, compressor oil, etc.).

The objective of these procedures is to protect the public, Encana personnel, and other responders during oil discharges. In addition, the procedures are intended to minimize damage to the environment, natural resources, and facility installations from a discharge of oil.

## ENCANA'S MANAGEMENT COMMITMENT

Encana is committed to promptly respond to any oil spill which may occur at any Encana facility. This commitment includes both containment and cleanup of any spilled oil with an emphasis on protection of the environment, including surface waters. As an integral part of the Spill Prevention, Control, and Countermeasure Plan (SPCC), this Oil Spill Contingency Plan is one part of that effort.

I approve this Oil Spill Contingency Plan and the commitment of resources needed to implement the plan. This resource commitment includes the properly trained personnel, equipment, and materials required to control and remove any quantity of oil discharged that may be harmful (40 CFR 112.7(d)).

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Title: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Title: \_\_\_\_\_

## **OIL SPILL RESPONSE PROCEDURES**

### **Response Management Structure**

The Environmental Compliance Group (ECG) within Encana is responsible for implementing response procedures in the event of an oil spill or environmental release. These personnel have the authority to commit the resources necessary to carry out a response, and have training and experience in coordinating and managing spill response and clean up efforts. ECG personnel are trained on the Environmental Release Response Standard Operating Procedures (SOP), and have a minimum of 2 weeks “shadowing” experienced ECG personnel responding to incidents. The Environmental Release Response SOP is available at Encana’s Parachute field office.

All oil handling personnel receive training on spill prevention, mitigation, and response, and are familiar with spill reporting and containment objectives. Training records are maintained at Encana’s Parachute field office.

For most spills the designated Spill Coordinator will be the representative from Encana’s ECG who is currently on call. If a spill falls outside the scope of a normal response (i.e. has impacted or threatens to impact waters of the state, has caused a fire, or poses an imminent threat to the safety of Encana personnel or the public); the Authorized Facility Representative may designate a senior Encana employee to act as the Incident Commander, and Encana’s Emergency Response Plan (ERP) would supersede the Oil Spill Contingency Plan (Emergency Spill Response Program). The ERP is available in Encana’s Parachute field office. Should a spill reach waters of the state, Encana’s ECG will provide initial containment and clean up efforts, and will coordinate with local, state, and federal agencies should a more extensive effort be required.

### **Spill Response Procedures**

Spills are generally discovered during normal operations, monitoring, or during the formal inspections carried out in compliance with Encana’s Annual Regulatory Compliance (ARC) Inspections. In addition to the ARC inspections, Encana’s facilities are routinely monitored as part of various tasks (stormwater inspections, maintenance, security checks, etc.). In the event of a spill, all Encana employees and contractors are required to call the Environmental 24-hour On-Call Number (970.319.9173) and their supervisor immediately. If there is an immediate threat to the safety of the public or to operating personnel, local emergency response (911) and Encana’s Safety On-Call (970.210.8755) should be notified first. When reporting a spill, personnel should be prepared to supply the information detailed in the “Environmental On-Call Reporting Requirement” portion of Table 1. This information will allow the on call representative from Encana’s Environmental Compliance Group (ECG), acting as the Spill Coordinator, to make an over-the-phone assessment of the magnitude of the spill. The Spill Coordinator, will make required notifications to the Encana management structure, and mobilize any additional

resources which may be required to respond to the spill appropriately. After required notifications have been made to Encana management, the Spill Coordinator may travel to the spill location to provide a more comprehensive assessment of the situation; mobilize additional resources if necessary; and provide guidance to clean up crews. Table 1 provides the basic steps in Encana's Oil Spill Response Procedures.

The response action taken may vary depending on the severity of the oil spill. Stopping or shutting down the source of the spill is a prime factor in gaining control and mitigating the environmental incident. Equipment must be shut down promptly (such as shutting in the well supplying oil to a flowline or tank battery). Temporary land-based containment measures include putting up berms or dikes across low areas, digging diversion ditches or trenches to intercept overland oil flow or putting barriers or weirs across stormwater ditches. Every effort will be made to keep oil from reaching surface waters. In the event that oil reaches surface water, booms or barriers can be placed to collect oil and prevent further impacts. Impounded oil can be removed by skimming with sorbent pads or by vacuum trucks. A large uncontrolled spill that has the potential to reach surface water may necessitate securing contractor resources with specialized equipment for an effective response. Table 2 references the general shut down procedures based on various sources of a spill or discharge. Equipment shut-down operations may only be carried out by personnel qualified to operate the affected equipment.

The employee or contractor who reports the spill, must, depending on circumstances, be present at the site, or available by cell phone or radio, when the Spill Coordinator arrives on scene. All operating personnel have been trained on spill containment techniques, and the deployment of spill response equipment and materials to provide initial spill response and management until the Spill Coordinator arrives.

**Table 1 – Oil Spill Response Procedures**

<b>Spill Discovery and Initial Response</b>	<ol style="list-style-type: none"> <li>1. If no immediate threat to safety is present and the source of the release is still present; stop the source of the release using the Equipment Shutdown Procedures detailed in Table 2 and call the Encana Gas Control number (970.285.2615)</li> <li>2. Contain the release using available materials and methods. Including berms, dykes, and spill kit materials.</li> <li>3. Restrict ignition sources if the material is flammable.</li> <li>4. Secure the area as off limits.</li> <li>5. In the event that the spill poses an <u>immediate threat</u> of fire, explosion, or other imminent threat to public safety; call local emergency response (911). DO NOT HANG UP after completing the report, let the dispatcher hang up first.</li> <li>6. Report the spill to the Environmental 24hr On-Call Number (970.319.9173). The on-call member of the Environmental Compliance Group is the Spill Coordinator. Be prepared to provide the following information.</li> </ol>
<b>Information to Provide During Initial Report to Environmental On-Call</b>	<ol style="list-style-type: none"> <li>7. Has the spill reached, or does it threaten to reach, waters of the state?</li> <li>8. Where is the spill (nearest pad/facility and field)? Be prepared to provide directions.</li> <li>9. Which personnel were present at the time of the spill?</li> <li>10. What activities caused the spill?</li> <li>11. When did the spill occur?</li> <li>12. What is the material spilled?</li> <li>13. What volume has spilled?</li> </ol>
<b>Spill Containment, Clean Up, and Reporting</b>	<ol style="list-style-type: none"> <li>14. The employee or contractor who reports the spill, must, depending on circumstances, be present at the site, or available by cell phone, when the Spill Coordinator arrives on scene.</li> <li>15. The Spill Coordinator will notify Encana management of the spill and may mobilize response resources based on the scope described in the initial report.</li> <li>16. The Spill Coordinator will travel to the incident location and conduct a comprehensive assessment of the spill, and coordinate clean up efforts.</li> <li>17. If necessary, a follow up report to Encana management, and verbal notification of government and municipal agencies and other appropriate entities will be made.</li> <li>18. Should additional remediation efforts be necessary, the Spill Coordinator will contact one of Encana's designated spill remediation contractors.</li> <li>19. If the spill is determined to be of a reportable quantity or character, the Spill Coordinator will complete required verbal notifications and submit appropriate written notifications and reports to appropriate agencies as outlined below in notification procedures.</li> <li>20. The Spill Coordinator will enter the incident into Encana's Incident Management System, and identify appropriate follow up activities and/or corrective actions.</li> </ol>

**Table 2 – Equipment Shutdown Procedures**

Source	Action
Manifold, transfer pumps or hose failure	Have a qualified person shut in the well supplying oil to the tank battery if appropriate. Immediately close the header/manifold or appropriate valve(s). Shut off transfer pumps.
Tank or pond overflow	Have a qualified person shut in the well supplying oil to the tank battery. Close header/manifold or appropriate valve(s).
Tank failure	Have a qualified person shut in the well supplying oil to the tank battery. Close inlet valve to the storage tanks.
Flowline rupture	Have a qualified person shut in the well supplying oil to the flowline. Close nearest valve to the rupture site to stop the flow of oil.
Flowline leak	Have a qualified person shut in the well supplying oil to the flowline. Immediately close the nearest valve to stop the flow of oil to the leaking section.
Explosion or fire	Immediately evacuate personnel from the area and secure the area from entry by the public or other personnel. Have a qualified person immediately shut in all wells if safe to do so. If possible, close all manifold valves. If the fire is small enough such that it is safe to do so, attempt to extinguish with available fire extinguishers.
Equipment failure	Have a qualified person immediately close the nearest valve to stop the flow of oil into the leaking area.

## OIL SPILL REGULATORY NOTIFICATION PROCEDURES

This section provides reportable quantities for exploration and production (E&P) waste.

In the event of a release, government agencies may need to be notified. *All verbal and written notifications are to be made by the Environmental Compliance Group or designate(s).* As a practical matter, an evaluation of the specifics of each spill and a determination of reporting requirements will be made. If there is any question about reporting, Encana will over-report rather than under-report.

Table 3 provides an overview of reporting requirements, procedures, and contact information for Encana departments and relevant government agencies.

### Verbal Notifications to Government Agencies

Encana's policy is to report all **spills on public lands** administered by the Bureau of Land Management (BLM) or US Forest Service (USFS) to the affected agency as soon as practicable.

If a release has reached, or has the potential to reach, **waters of the state**, or a municipal drain or storm sewer; verbal notifications must be made as soon as possible to Local Emergency Response (911), the National Response Center (NRC) Hotline, Colorado State Patrol, Local Emergency Planning Commission (LEPC), Colorado Oil and Gas Conservation Commission (COGCC), Colorado Department of Public Health and Environment (CDPHE) - Colorado Water Quality Control Division, and any potentially affected landowner, municipal water company, or sewer authority and wastewater treatment plant.

In the event of a spill/release which may **threaten a residence, occupied structure, livestock, or public right-of-way**; verbal notifications must be made as soon as practicable to Local Emergency Response (911), the COGCC, CDPHE, and any potentially affected landowner.

In addition, the COGCC further requires verbal notification within 24 hours for spills/releases of exploration and production (E&P) waste which exceed 20 barrels.

### *Information to Provide During Verbal Notifications*

When notifying a government agency of a release, the following information should be gathered as soon as possible and provided as necessary:

1. Name and location of the facility. Be prepared to provide directions to the scene.
2. Specific location where the discharge occurred.
3. Your name, position, and telephone number.
4. Name and address of the owner/operator
5. Date and time of the discharge.
6. Information on the discharge:
  - Type of material discharged (e.g., diesel),
  - Source of discharge (e.g., aboveground storage tank),
  - Estimated total quantity discharged, including the estimated total quantity discharged to navigable waters or adjoining shorelines,
  - Danger or threat posed by the release / discharge,
  - Weather conditions,
  - Cause of discharge,
  - Affected media (e.g., soil, surface water), and area of impact,
  - Damages or injuries caused by the discharge,
  - Response actions being used to stop, contain, mitigate, or clean-up the discharge,
  - Time to contain the discharge,
  - Whether the discharge has been stopped, and
  - Whether an evacuation may be needed.
7. Names of other individuals or agencies that were contacted.
8. Other Information that may help emergency personnel prepare for, and respond to the incident.
9. Names and titles of government agency personnel who have reported to the scene.

Record the following information when making a notification:

- Name and position of person contacted.
- Agency contacted.
- Date and time of notification.
- Information provided to agency.

## **Written Notifications to Government Agencies**

If a verbal notification has been made under any of the conditions provided above; a follow up written report will be submitted to the notified agency, following the guidelines provided in Table 3. Written reports will be made utilizing the agencies own reporting formats, when available. When a standard format is not provided by the agency being reported to; Encana will provide a report with the information mandated by the Environmental Protection Agency's (EPA) spill reporting requirements.

In addition to follow up reports to verbal notifications, the Colorado Oil and Gas Conservation Commission (COGCC) requires written reports for spilled quantities less than those mandating verbal notifications. Those reporting requirements are detailed in COGCC Rule 906, and in the following section.

### *State Agencies*

All spills and releases of E&P waste exceeding 5 barrels, including those contained within secondary containment, shall be reported in writing, within 10 days, to the COGCC using the Spill/Release Report (Form 19). Completed reports will be emailed to the appropriate COGCC regional representative or sent to the address provided in Table 3.

All spills and releases of hazardous materials which exceed the Reportable Quantity (RQ) identified by CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act) will be reported to the National Response Center (NRC) and CDPHE Hazardous Materials and Waste Management Division.

### *Federal Agencies*

In accordance with 40 CFR 112.4(a) a spill report will be submitted to the U.S. Environmental Protection Agency (EPA) Region 8 Administrator if either of the following conditions is met:

- A single discharge, into or upon navigable waters of the United States, of more than 1,000 gallons of oil, or
- A discharge, into or upon navigable waters of the United States, of more than 42 gallons of oil in each of two events within any 12 month period.

The spill report to the EPA must be submitted *within 60 days of the release* and contain the following information:

1. Name of the facility.
2. Name of the owner/operator of the facility.
3. Location of the facility.
4. Maximum storage or handling capacity of the facility and normal daily throughput.
5. Corrective actions and countermeasures taken, including a description of equipment repairs and replacements.
6. An adequate description of the facility, including maps, flow diagrams, and topographic maps, as necessary.
7. The cause of the discharge, including a failure analysis of the system or subsystem in which the failure occurred.
8. Additional preventive measures taken or contemplated to minimize the possibility of recurrence.
9. Such other information as the U.S. EPA Regional Administrator may reasonably require pertinent to the SPCC Plan or discharge.

A copy of the above information also must be submitted to the Colorado Department of Public Health and Environment (CDPHE) in accordance with 40 CFR 112.4(c). Contact information is provided in Table 3.

## CONTACT INFORMATION AND NOTIFICATION PROCEDURES

Operating personnel must immediately report all spills to Encana’s 24-Hour Environmental On-Call Phone. Encana’s Environmental Compliance Group (ECG) will determine the appropriate level of response, notify the Authorized Facility Representative, and if necessary, contact appropriate government agencies and assist in mobilizing resources.

Environmental On-Call (24 hours)	970.319.9173
Safety On-Call (24 hours)	970.210.8755
Gas Control (24 hours)	970.285.2615
Public Relations / Land Department On-Call (24 hours)	970.285.2777
David Grisso – Authorized Facility Representative	970.285.2601
Local Emergency (fire, explosion, or other hazards)	911

**Table 3 – Notification Procedures and Contact Information**

Agency / Organization	Agency Contact	Circumstances	When to Notify
<i>Federal Agencies</i>			
National Response Center (NRC)	800.424.8802	Discharge reaching waters of the state, or a municipal drain or storm sewer, or of releases of hazardous materials in excess of the Reportable Quantity (RQ)	<b>Immediately (verbal)</b>
EPA Region VIII (Hotline)	800.227.8914	Discharge reaching waters of the state, or a municipal drain or storm sewer.	<b>Immediately (verbal)</b>
EPA Region VIII Regional Administrator	999 18 <sup>th</sup> Street, Suite 500 Denver, CO 80202-2466 <a href="mailto:r8eisc@epa.gov">r8eisc@epa.gov</a>	Follow up report to verbal notification.  Discharge, into or upon navigable waters of the United States, 1,000 gallons or more; or 2 discharges of 42 gallons or more within a 12-month period.	Written notification within 60 days (see the related discussion above)
Bureau of Land Management (BLM)	970.244.3000 (Grand Junction Field Office - GJFO)  970.947.5200 (Glenwood Springs Energy Office - GSEO)  970.878.3800 (White River Field Office - WRFO)	<u>Major Undesirable Events</u> Discharges on BLM/USFS lands: <ul style="list-style-type: none"> <li>• &gt; 100 BBL of liquids,</li> <li>• &gt; 500 MCF gas, and/or</li> <li>• any release in a sensitive area (parks, rec. areas, refuges, water bodies...)</li> </ul>	<b>Immediately (verbal)</b>

Agency / Organization	Agency Contact	Circumstances	When to Notify
BLM	<p>GJFO 2815 H Road Grand Junction, CO 81506</p> <p>GSEO 2425 S. Grand Avenue, Suite 101 Glenwood Springs, CO 81601</p> <p>WRFO 220 E. Market Street Meeker, CO 81641</p>	<p><u>Major Undesirable Events</u> and <u>Other-Than-Major Undesirable Events</u></p> <ul style="list-style-type: none"> <li>• following any verbal notification, or</li> <li>• Discharges on BLM/USFS lands:                             <ul style="list-style-type: none"> <li>○ &gt; 10 BBL of liquids, or</li> <li>○ &gt; 50 MCF of gas.</li> </ul> </li> </ul>	File an "Undesirable Event Form" with appropriate personnel at the affected Field Office.
BLM	<p>GJFO 2815 H Road Grand Junction, CO 81506</p> <p>GSEO 2425 S. Grand Avenue, Suite 101 Glenwood Springs, CO 81601</p> <p>WRFO 220 E. Market Street Meeker, CO 81641</p>	Spills or discharges in nonsensitive areas involving less than 10 BBL of liquid or 50 MCF of gas.	Volume and value of losses must be reported on the "Oil and Gas Operations Report" and on the "Report of Sales and Royalty Remittance".

Agency / Organization	Agency Contact	Circumstances	When to Notify
<i>State Agencies</i>			
Colorado Oil and Gas Conservation Commission (COGCC)	<p><u>Environmental Release / Incident Report Hotline</u> 877.518.5608 and <u>Chris Canfield</u> 970.625.2497 (office) 970.216.6832 (cell) or <u>Linda Spry O'Rourke</u> 970.625.2497 (office) 970.309.3356 (cell)</p>	Discharge which reaches or threatens to reach waters of the state, a municipal drain or storm sewer, or any surface water supply area or intake (317B). Or which impacts or threatens to impact a residence/occupied structure, livestock, or public byway.	Immediately (verbal)
COGCC	<p><u>Chris Canfield</u> 970.625.2497 (office) 970.216.6832 (cell) or <u>Linda Spry O'Rourke</u> 970.625.2497 (office) 970.309.3356 (cell)</p>	Discharges of >20 bbls of Exploration and Production (E&P) waste, or >25 gallons of refined hydrocarbons.	Within 24 hours.
COGCC	<p><u>Chris Canfield</u> <a href="mailto:Chris.Canfield@state.co.us">Chris.Canfield@state.co.us</a> or <u>Linda Spry O'Rourke</u> <a href="mailto:Linda.SpryORourke@state.co.us">Linda.SpryORourke@state.co.us</a></p>	Any discharge or release of E&P waste exceeding 5 bbls	Written notification within 10 days using Spill/Release Report (Form 19)
CDPHE 24Hour Emergency Spill/Release Reporting Hotline	877.424.8802	Any discharge of hazardous materials in excess of the reportable quantity (RQ), or any amount reaching waters of US, or a municipal drain or storm sewer.	Verbal or written within 24 hours

Agency / Organization	Agency Contact	Circumstances	When to Notify
CDPHE	4300 Cherry Creek Drive South Denver, CO 80246-1530	Follow up to verbal notification. Discharge limits identified by the EPA.	Submit duplicates of any report submitted to the EPA.
Colorado State Patrol (CSP)	303.239.4501	Discharge reaching waters of the state, or a municipal drain or storm sewer, or directly affecting a public byway.	<b>Immediately (verbal)</b>
<i>Local Agencies</i>			
Emergency Response	911	Discharge reaching waters of the state, or a municipal drain or storm sewer.  If there is an immediate threat to the safety of the public or operating personnel	<b>Immediately (verbal)</b>
Mesa County Emergency Planning Committee (LEPC)	Horace Sessions 970.245.8148 <a href="mailto:horace_sessions@sartomer.com">horace_sessions@sartomer.com</a> PO Box 2242 Grand Junction, CO 81502	Discharge reaching waters of the state, or a municipal drain or storm sewer in Mesa County.	<b>Immediately (verbal)</b>  Written follow up within 7 days.
Garfield County Emergency Planning Committee (LEPC)	Chris Bornholdt 970.945.8020 <a href="mailto:cbornholdt@garfield-county.com">cbornholdt@garfield-county.com</a> 109 8 <sup>th</sup> Street, Suite 300 Glenwood Springs, CO 81601	Discharge reaching waters of the state, or a municipal drain or storm sewer in Garfield County.	<b>Immediately (verbal)</b>  Written follow up within 7 days.
Rio Blanco County Emergency Planning Committee (LEPC)	John Hutchins 970.878.5023 <a href="mailto:jhutchins@co-rio-blanco.co.us">jhutchins@co-rio-blanco.co.us</a> PO Box 647 Meeker, CO 81641	Discharge reaching waters of the state, or a municipal drain or storm sewer in Rio Blanco County.	<b>Immediately (verbal)</b>  Written follow up within 7 days.
<i>Public Water Intakes / Surface Water Supply Areas</i>			
Parachute Public Works (Parachute Creek & Colorado River)	<u>Emergency – 24 hr.</u> 970.285.7630 Mark King or 970.285.7630 Bill Rose  PO Box 100 Parachute, CO 81635	Discharge which impacts or threatens to impact any surface water supply intake (317B) in the Parachute Surface Water Supply Area.	<b>Immediately (verbal)</b>
Rifle Public Works (Beaver Creek & Colorado River)	<u>Emergency – 24 hr.</u> 970.309.8548 Charlie Stevens or 970.379.6162 John Stewart  202 Railroad Ave. Rifle, CO 81650	Discharge which impacts or threatens to impact any surface water supply intake (317B) in the Rifle Surface Water Supply Area.	<b>Immediately (verbal)</b>
Parachute Creek/ Colorado River	<u>Emergency – 24 hr.</u> 970.464.5563 Water Treatment Plant  560 25 Road Grand Junction, CO 81505	Discharge which impacts or threatens to impact any surface water supply intake (317B) in the Colorado Surface Water Supply Area.	<b>Immediately (verbal)</b>

Agency / Organization	Agency Contact	Circumstances	When to Notify
De Beque Public Water - Colorado River	<u>Emergency – 24 hr.</u> 970.250.8468 Coe Latham or 970.216.4885 Isaac Inskeep  381 Minster Ave. PO Box 60 De Beque, CO 81630	Discharge which impacts or threatens to impact any surface water supply intake (317B) in the De Beque Surface Water Supply Area.	<b>Immediately (verbal)</b>
Piceance Creek/ White River	<u>Emergency – 24 hr.</u> 970.675.2221 Water Treatment Plant  209 East Main Street Rangely, CO 81648	Discharge which impacts or threatens to impact any surface water supply intake (317B) in the White River Surface Water Supply Area.	<b>Immediately (verbal)</b>
Ute Water / Coon Creek & Parachute Creek	<u>Emergency – 24 hr.</u> 970.242.7491 Office Answering Service or 970.270.3910 Steve Ryker or 970.464.5563 Water Treatment Plant  560 25 Road Grand Junction, CO 81505	Discharge which impacts or threatens to impact any surface water supply intake (317B) in the Plateau Surface Water Supply Area.	<b>Immediately (verbal)</b>
<i>Others</i>			
In the event that a discharge requires notification of landowners. The Spill Coordinator will contact Encana's Community Relations On-Call Phone (970.285.2777) to make those notifications.			

**Table 4 – Contractor Contact Information**

<b>Contractors</b>	
<b>Water Hauler Resources – Coordinate with Pumper or Facility Operator for first available.</b>	
Knowles Enterprises, LLC	970.434.1912
Arrested Oil Field Services, Inc.	970.371.4164 970.539.5266
Arnett Trucking LLC	970.878.5015
Big H Water Service, Inc.	970.309.8162
Summit Trucking	970.361.1730
Trinity Water Services, Inc.	970.985.0510
Beaver Creek Water Hauling	970.618.9735
<b>Earth Work / Excavation Resources</b>	
Tamarrel Excavation	970.379.5780
Moody & Sons Excavation	970.379.5121

<b>Contractors</b>	
<b>Roustabout Resources</b>	
WCO	970.556.0885
Advanced Oil Field Services	970.625.9704
<b>Water Pumping Resources</b>	
Western Pump and Dredge, Inc.	970.244.9097
Rain for Rent	800.742.7246
<b>Environmental Consulting Resources</b>	
Rule Engineering	970.244.8500 (office)
LT Environmental	970.285.9985 (On-Call/Office)

**Table 5 – Additional Government Agency Contact Information**

Colorado Oil and Gas Conservation Commission (COGCC)	303.894.2100
COGCC 24-Hour Hotline	303.860.1435
Division of Oil and Public Safety (Dept. of Labor and Employment)	303.318.8547
Colorado State Patrol Hazmat Service	970.242.7283
St. Mary's Hospital – Grand Junction	970.244.2273
Grand River Medical Center - Rifle	970.625.1510
Mesa County Sheriff	970.244.3200
Garfield County Sheriff	970.945.0453

**Table 6 – Additional Encana Personnel Contact Information**

Scott Parker – Field Construction Leader	970.285.2787 (office) 970.379.9798 (cell)
Gerald Papez – Production Coordinator	970.260.8966 (cell)
Ross Deters – Automation Coordinator	970.285.2725 (office) 970.309.8580 (cell)
John Grubich – Drilling Superintendent	970.285.2631 (office) 970.379.6735 (cell)
Mark Balderston – Completions Supervisor	970.285.2692 (office) 970.629.5846 (cell)
Brant Gimmeson – Group Lead, EHS South Rockies	720.876.5030 (office) 303.819.7323 (cell)
Chris Durrant – Water Systems Engineer	720.876.5762 (office) 303.895.0748 (cell)
Todd Neels – Benzel WTF Operator	970.319.3284 (cell)
Brad Ankrum – Midstream Field Operations Leader	970.285.2630 (office) 435.260.1673 (cell)
Floyd Alvey – Field Operations Coordinator (West of Parachute)	970.285.2679 (office) 970.319.0357 (cell)
Rocky Erb – Field Operations Coordinator (East of Parachute)	970.285.2639 (office) 970.210.8571 (cell)
Greg Gohn – Field Operations Coordinator	970.319.7506 (cell)

Kathy Friesen – Environmental Field Lead	970.285.2665 (office) 970.319.2270 (cell)
Brett Middleton – EHS Field Coordinator (Spill Response)	970.285.2739 (office) 970.987.4650 (cell)
Chris Hines – EHS Field Coordinator (SPCC/Spill Response)	970.285.2653 (office) 970.261.1127 (cell)
Kathy Kiloh – Surface Management Coordinator	970.285.2626 (office) 970.456.6406 (cell)
Danny Knutson – Safety Field Lead	970.285.2709 (office) 970.309.7510 (cell)
Dan Prokop – EHS Field Coordinator (Spill Response)	970.285.2707 (office) 815.790.5907 (cell)
Charles Jensen – EHS Field Coordinator (SPCC / Spill Response)	970.285.2735 (office) 970.309.1022 (cell)

## RESOURCES, EQUIPMENT, AND SUPPLIES FOR OIL SPILL RESPONSE

As part of the OSCP, Encana has committed the necessary resources to address and mitigate any spill or discharge of oil. The resources available include the following:

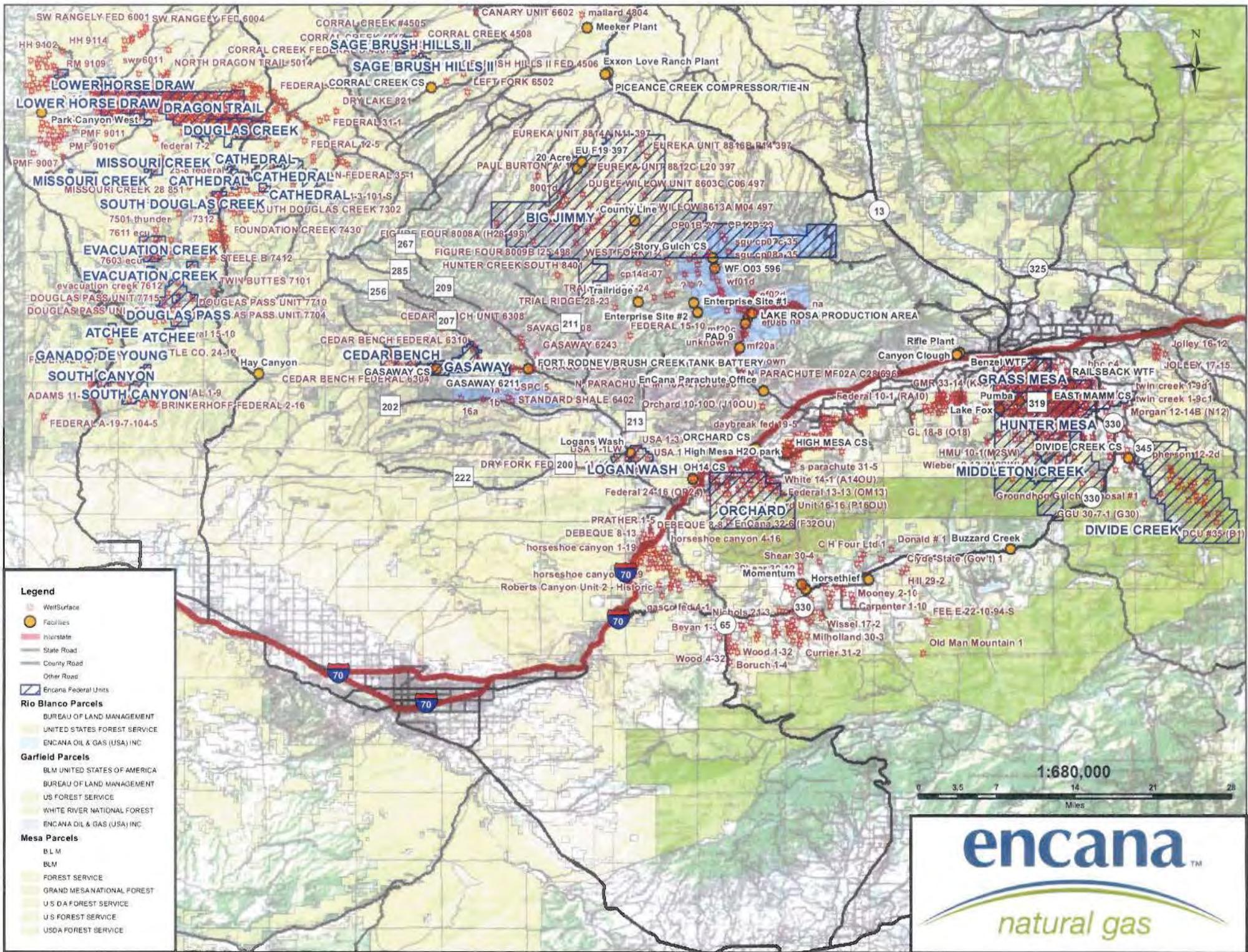
- Procedures – Encana personnel are required to immediately report all spills to the Environmental On-Call Phone (970.319.9173).
- Personnel – The Spill Coordinator is the qualified person from the Environmental Compliance Group (ECG) responsible for the Environmental On-Call Phone at the time of an incident. The Environmental On-Call Phone is a 24-hour “hotline” for receiving calls regarding any spill, or environmental incident that occurs within the South Parachute/South Piceance areas. In addition, Encana provides additional resources (other personnel, specialized contractors, etc.) necessary to mitigate any spill.
- Equipment – Personal Protective Equipment (PPE) - Encana supplies the appropriate PPE to don while in the field. The standard PPE includes a hard hat, steel toed boots, fire or flame resistant coveralls/clothing, and safety glasses. Additional PPE is provided based on the level of hazards anticipated.
- Equipment – Spill Drums and Environmental Response Trailer(s) – Encana supplies and inventories spill drums (kits) and response trailers to assist in the mitigation of a spill. The spill drums are typically 95-gallon immediate response spill kits. The trailers may have spill drum(s) and additional supplies for larger spills. Appendix B has a detail inventory list of the spill drums and trailers. Figure 1 shows the locations of the spill drums/trailer(s) for the Benzel WTF.
- Training – All Encana field personnel are required to complete environmental, health and safety training, including SPCC awareness, and spill response and reporting. Training records are kept on file in the Parachute Field Office.

## INCIDENT TERMINATION

Once a release has been contained and cleaned-up, recorded in Encana's Incident Management System (IMS), and any required verbal and written notifications have been made, the Spill Coordinator will take the following actions:

1. If the spill was a reportable release, into or upon navigable waters of the United States, prepare a spill report and file it with the SPCC Plan.
2. If necessary, verify that spill equipment has been re-stocked.
3. Verify that the spilled oil is properly containerized, labeled, and stored for disposal.

**Review the cause and response to the release with supervisors, witnesses, and contractors, if appropriate. Determine additional requirements necessary to prevent recurrence of the incident, and discuss those measures with facility personnel during regularly scheduled briefings and trainings. Amend the SPCC Plan if necessary.**



**Legend**

- Well Surface
- Facilities
- Intrastate
- State Road
- County Road
- Other Road
- Encana Federal Units

**Rio Blanco Parcels**

- BUREAU OF LAND MANAGEMENT
- UNITED STATES FOREST SERVICE
- ENCANA OIL & GAS (USA) INC

**Garfield Parcels**

- BLM UNITED STATES OF AMERICA
- BUREAU OF LAND MANAGEMENT
- US FOREST SERVICE
- WHITE RIVER NATIONAL FOREST
- ENCANA OIL & GAS (USA) INC

**Mesa Parcels**

- BLM
- BLM
- FOREST SERVICE
- GRAND MESA NATIONAL FOREST
- U.S. D.A. FOREST SERVICE
- U.S. FOREST SERVICE
- USDA FOREST SERVICE



## **Appendix A**

### **Spill Trailer Inventory Spill Drum Kit Inventory**





## **Appendix B**

### **References**

	<b>SPILL AND ENVIRONMENTAL RELEASE REPORTING PRACTICE</b>	Document No: E-005
		Revised By/Date: FGC 2/11/2010
		Reviewed By/Date: FGC 2/11/2010
		Approved By/Date: J. Thatcher/ 2/28/2010

## I. Spills Required to be Reported in IMS

EnCana Oil & Gas (USA) Inc. (EnCana) employees and non-EnCana employees who work under contract for EnCana shall report into IMS any spill or environmental release<sup>1</sup> caused for any reason (including contractor or third-party actions) at EnCana operations. Spills that meet the following description must be reported into IMS:

A **spill** is any unpermitted quantity of liquid or solid substance that is partially or wholly outside of its primary containment (e.g., tank, drum, truck, pond, pit, storage sack, rig trench), excluding beverages, food items, and potable water<sup>2</sup>.

### A. Purpose for Reporting

EnCana strives to operate our facilities in a prudent and environmentally responsible manner. Consistent spill reporting allows us to measure and minimize our impact on the environment. EnCana uses the criteria in Section I.A of this guidance for reporting of spills, in order to:

- Ensure that the environment is protected by:
  - Reducing the overall number of spills,
  - Identifying areas or trends where controls should be implemented, and
  - Encouraging controls to be established to mitigate any environmental impact of spills;
- Foster a culture of active spill mitigation;
- Standardize the reporting process across the Division; and
- Make a clear and concise definition that is easy to apply.<sup>3</sup>

### B. Applicability to Drilling and Completion Activities

Drilling and completion activities must follow the above criteria in reporting spills. Upon discovery of a spill, EnCana employees and non-employees must identify the source of the spill, act to prevent any further spillage or impacts to the environment, and immediately remediate or clean up the soil or surface impacted by the spill. These actions must be taken with consideration to safety.

### C. Applicability to Transportation

Spills that occur related to transportation activities at EnCana operations are required to be reported into IMS. If a spill occurs during the loading of the produced water, it must be reported into IMS. If the spill occurs outside of the physical EnCana operation after the material being transported has left EnCana's

<sup>1</sup>An **environmental release** is an emission or spill that is either:

- Outside (in any manner) of impervious engineered controls (e.g., drip pans, pop-up pools, lined tank ring); or
- Has an impact (e.g., air, soil, groundwater, surface water, or wildlife) to the natural environment.

Gaseous environmental releases are to be reported in IMS under the sub category of 'gaseous substance'. For IMS purposes, spills are considered an environmental release only if outside of secondary containment (with direct effect on water or land) or have an effect on wildlife or air.

<sup>2</sup> Regardless of secondary containment, some states require reporting of large quantity spills. See Appendices for specific details.

<sup>3</sup> Unpermitted gaseous releases are not required to be recorded as a spill. Data related to gaseous emissions may be recorded in other existing databases. Unpermitted gaseous releases may be required to be reported to a regulatory agency pursuant to a permit, regulation, or law.

custody, it is still required to be reported to IMS, unless the hauler is contractually obligated to take ownership of the material. Leaks generated by equipment associated with the transportation of the material during transport are not required to be reported into IMS and is the responsibility of the transporter (i.e., if there is a leak from a gas tank or radiator that is the responsibility of the transport company).

## **II. Reporting Spills to Agencies**

The requirement to report spills into IMS is equivalent to or more stringent than local, state and federal requirements. Reporting requirements to local, state and federal agencies for each jurisdiction where EnCana operates is included in Appendices A through C in this guidance.

## **III. Primary Containment**

The following are examples of equipment that are considered primary containment for purposes of this spill reporting guidance:

- Storage: tanks, drums, totes, authorized pits, and storage sacks;
- Transportation: trucks and pipelines; and
- Process Equipment: separators, dehydrators, heater treaters, gun barrels, and water treatment facilities.

## **IV. Engineered Controls**

Engineered controls must be impervious in order to prevent potential impacts to state and federal waters. The following are examples of equipment and technologies that are considered engineered controls for purposes of this spill reporting guidance:

- Steel, plastic, or fiberglass containment tubs;
- Stock tanks;
- Poly-lined metal containment dikes;
- Drip pans, bucket and basin;
- Inflatable and rubber truck containment;
- Containment pallets;
- Buildings with built in containment skirts;
- Concrete unload areas with trenching to sump;
- Pop-up pools;
- Lined tank rings; and
- A system by which a volume of liquid can be held for an indefinite amount of time without any loss of volume to the surrounding environment (excluding evaporation).

The following are examples of equipment and technology that are not considered engineered controls:

- Earthen or gravel berms; and
- Controls that are full of water or accumulated leaks such that the actual containment is compromised.

## **V. Examples of Reportable and Non-Reportable Spills**

The following are examples of spills that must be reported in IMS.

- If at a drilling operation, a spill of water-based drilling mud has occurred and is still contained within the drill pad, it must still be reported to IMS.
- If an engineered control does not adequately prevent pollutants from escaping the equipment or technology to the natural environment, then the incident must be reported as a spill. For example, a spill has occurred if an engineered control is full of rain water and polluted water overflows from the engineered control.

The following are examples of events that do not need to be reported in IMS.

- Stained soil does not need to be reported if there is not an identifiable source of the materials and it is cleaned up within 24 hours of the discovery of the stain. If a source of the stain can be identified, the employee or contractor should treat it as a spill.

## VI. Spill Reporting Procedures

Spills shall be reported and responded to consistently with EnCana's "Reporting Guide for Environment, Safety, and Security Incidents" (<http://ecn.encana.com/ehs/Corporate/docs/Reporting%20Guide.pdf>) and applicable Emergency Response Plans for the affected facility. In Appendix D are detailed procedures for different roles (EH&S coordinator, manager, pumper) of where and how to capture spill information and timeline for reporting; definitions of responsibilities and accountabilities for spill reporting; and how to manage cumulative events like repeated drips, or continuing leaks inside earthen containment.

## VII. Effective Use of Spill Information

EnCana will regularly review information reported into IMS in order to:

- Identify and examine common occurrences to determine if procedural or mechanical changes need to occur to reduce the number and size of spills;
- Trend operational performance;
- Encourage transparency and goodwill with stakeholders;
- Recognize EnCana employees and non-employees that appropriately report and respond to spills; and
- Increase EnCana's knowledge in order to improve environmental performance, reduce risks and minimize liability related to spills.

## Appendices

Appendix A	<a href="#"><u>A.1 Regulatorily Required Spill Reporting Matrices for Mid-Continent Business Unit</u></a> <a href="#"><u>A.2 MCBU Incident Reporting Matrix</u></a> <a href="#"><u>A.3 MCBU Regulatory Links</u></a>
Appendix B	<a href="#"><u>B.1 Regulatorily Required Spill Reporting Matrices for North Rockies Business Unit</u></a> <a href="#"><u>B.2 NRBU Spill Reporting Guideline and Table</u></a> <a href="#"><u>B.3 NRBU Regulatory Links</u></a> <a href="#"><u>B.4 NRBU Definition and Notification of Spill or Leak</u></a>
Appendix C	<a href="#"><u>C.1 Regulatorily Required Spill Reporting Matrices for South Rockies Business Unit</u></a> <a href="#"><u>C.2 Spill Reporting Flow Chart – DJ Basin, Piceance, Paradox, Colorado</u></a> <a href="#"><u>C.3 Spill Reporting Flow Chart – Paradox-Utah</u></a> <a href="#"><u>C.4 Spill Reporting Flow Chart – South and West Texas</u></a> <a href="#"><u>C.5 SRBU Regulatory Links</u></a>
Appendix D	<a href="#"><u>Roles and Responsibilities in Spill Incidents</u></a>
Appendix E	<a href="#"><u>Frequently Asked Questions</u></a>
Appendix F	<a href="#"><u>Calculations for 40 CFR 302.4 Reportable Quantities</u></a>

## APPENDIX A.1

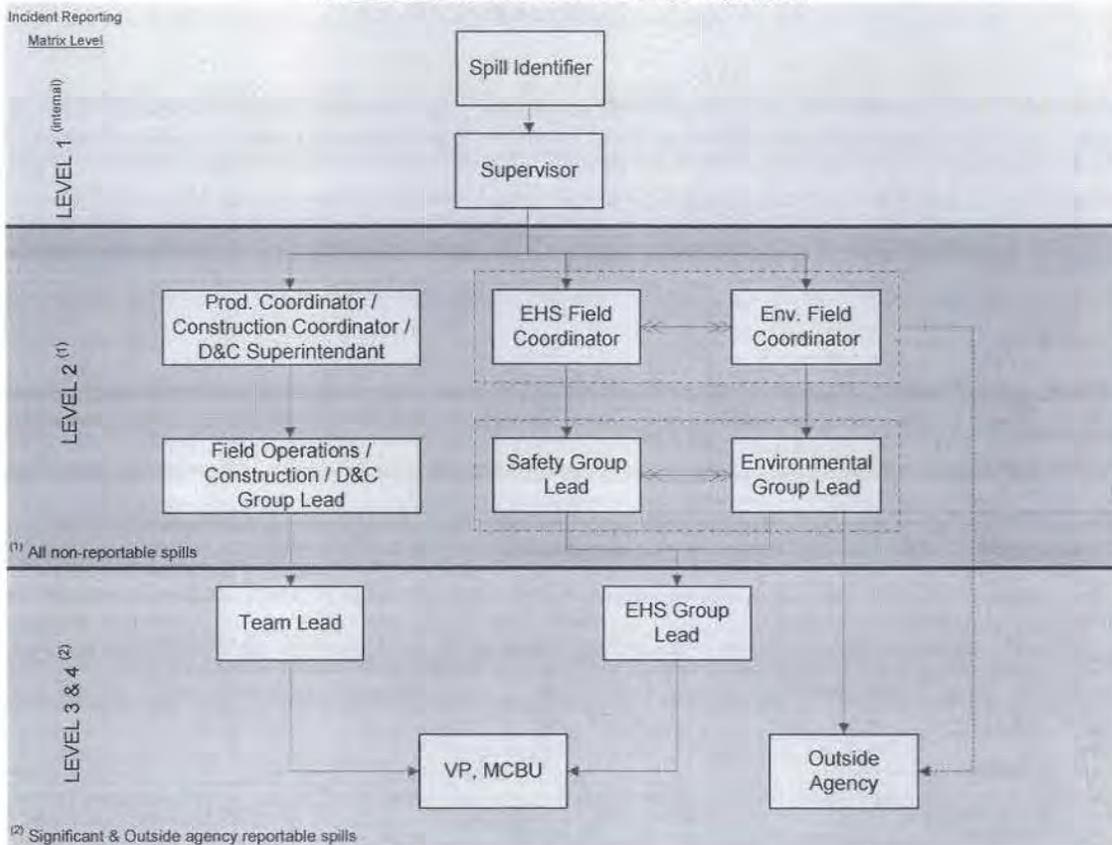
### **REGULATORILY REQUIRED SPILL REPORTING MATRICES FOR MID-CONTINENT BUSINESS UNIT**

Note: The use of these Spill Reporting Documents does not preclude the use and importance of each field's Emergency Management Plan.

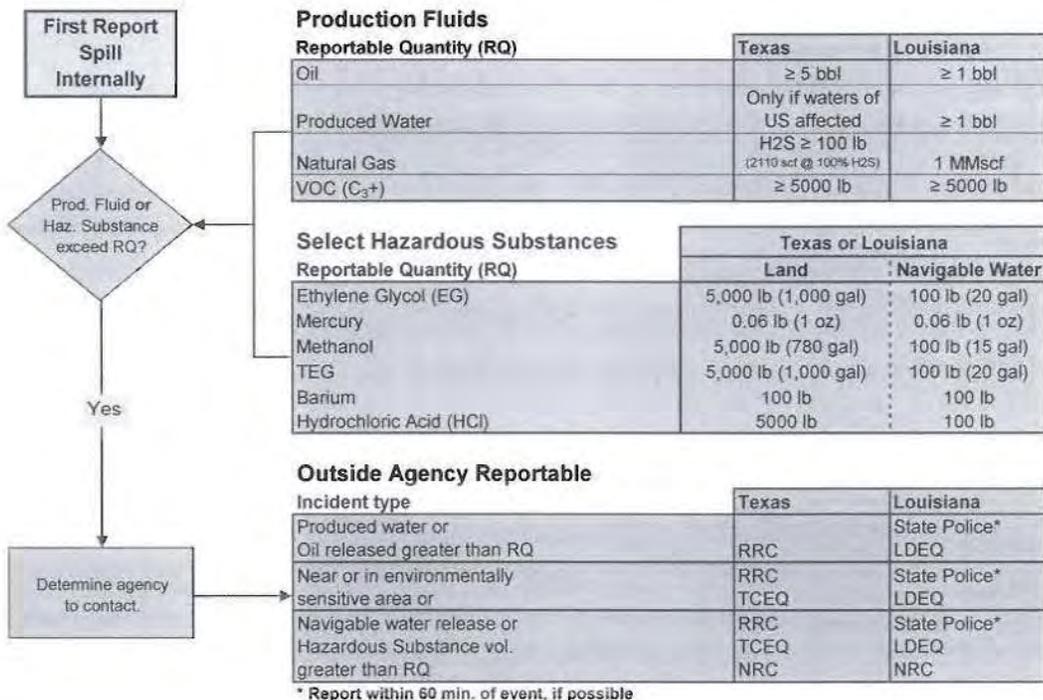
Spill Reporting Documents (matrices/flowcharts) are updated by BU EH&S personnel on a monthly basis and all potential spill response personnel and other affected personnel are notified if an actual change is made to the document or the location of the document is changed.

## APPENDIX A.2

### MCBU INCIDENT REPORTING MATIRX



### Report to an Outside Agency?



## APPENDIX A.3

### **MCBU REGULATORY LINKS**

#### **Texas Regulatory Links**

Field Guide for the Assessment and Cleanup of Soil and Groundwater Contaminated with Condensate from a Spill Incident

<http://www.rrc.state.tx.us/environmental/spills/spillcleanup.php>

Texas Railroad Commission Cleanup of Soil Contaminated by a Crude Oil Spill

[http://info.sos.state.tx.us/pls/pub/readtac\\$ext.TacPage?sl=R&app=9&p\\_dir=&p\\_rloc=&p\\_tloc=&p\\_ploc=&pg=1&p\\_tac=&ti=16&pt=1&ch=3&rl=91](http://info.sos.state.tx.us/pls/pub/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=16&pt=1&ch=3&rl=91)

Field Guide for Reportable Surface Releases of Crude Oil in Non-Sensitive Areas

<http://www.rrc.state.tx.us/environmental/spills/spillincident.php>

#### **Louisiana Regulatory Links**

Louisiana Oil Spill Coordinators Office

<http://www.losco.state.la.us/>

Louisiana Oil Spill Prevention and Response Act of 1991 (amended)

[http://www.losco.state.la.us/pdf\\_docs/OSPRA\\_2003.pdf](http://www.losco.state.la.us/pdf_docs/OSPRA_2003.pdf)

State Spill Notification Regulations

[http://www.losco.state.la.us/pdf\\_docs/State%20Spill%20Notification%20Regulations\\_Title%2033.pdf](http://www.losco.state.la.us/pdf_docs/State%20Spill%20Notification%20Regulations_Title%2033.pdf)

All Louisiana Acts, Regulations, Guidelines, and Plans

<http://www.losco.state.la.us/regulations.htm>

**APPENDIX B.1**

**REGULATORILY REQUIRED SPILL REPORTING  
MATRICES FOR NORTH ROCKIES BUSINESS UNIT**

Note: The use of these Spill Reporting Documents does not preclude the use and importance of each field's Emergency Management Plan

Spill Reporting Documents (matrices/flowcharts) are to be updated by BU EH&S personnel on a monthly basis and all potential spill response or affected personnel notified if an actual change is made to the document or its location is changed.

## APPENDIX B.2

### **NRBU SPILL REPORTING GUIDELINE AND TABLE**

The following guidance is to be used by NRBU locations for internal and external reporting of spills.

There are two general classifications of spills:

- Spills required to be reported internal to EnCana via the Incident Management System (IMS)
- Spills required to be reported to regulatory agencies

#### **Internal Reporting**

EnCana is using the IMS as a tool to track and trend spills and their causes so systemic problems can be realized and preventative measures can be determined. Tracking of spills and their causes is important not only because of environmental concerns, but also for loss prevention.

#### **External Reporting**

Individual agencies have different reporting requirements, although some spills may need to be reported to more than one agency.

Reporting requirements are summarized in the table below and the actual regulations are included later in this guidance.

For Wyoming, agencies that may need to be notified based on the criteria outlined in the table include:

- Wyoming Department of Environmental Quality (WDEQ)
- Wyoming Oil and Gas Conservation Commission (WOGCC)
- Bureau of Land Management (BLM) for spills occurring on federal leases
- United States Environmental Protection Agency (USEPA)

#### **Wyoming Department of Environmental Quality**

The Wyoming DEQ spill reporting information is available on the following web page:

<http://deq.state.wy.us/out/spills.htm>

This website also contains

- spill reporting forms that can be downloaded
- a list of contractors providing emergency response services.
- Phone number of emergency response coordinator for questions on what needs to be reported  
307-777-5885

***\*\*Interpretation from DEQ: Regardless of containment, report any spill quantity of produced water or condensate over 10 barrels or 25 gallons of other manufactured or refined material.***

#### **Wyoming Oil and Gas Conservation Commission**

***The WOGCC rules for spill reporting are currently undergoing revision and are expected to be more stringent.***

The spill reporting requirements for the Wyoming Oil and Gas Conservation Commission Rules Chapter 4 Environmental Rules, Including Underground Injection Control Program Rules For Enhanced Recovery And Disposal Projects, Section 3 Accidents, Spills and Fires

Chapter 4, Section 3 (B) states - Uncontained spills or unauthorized releases of produced fluids, drilling muds, produced water, hydrocarbons, or chemicals **which enter, or threaten to enter, waters of the state** must be verbally reported to the Commission no later than the next business day following discovery of the incident. Spills of less than ten (10) barrels (420 gallons) of crude oil, petroleum condensate, produced water, or a combination thereof which occur on a lease, unit, or communitized area and do not physically enter waters of the state and are immediately contained, removed, and disposed of properly are not required to be reported. The owner or operator shall file a written report within fifteen (15) working days. An example of the information normally required by the Commission for reporting spills is included in Appendix E. The Commission accepts copies of reports prepared to satisfy the requirements of the Department of Environmental Quality or the Bureau of Land Management.

<http://wogcc.state.wy.us/craig/spill.htm>

## APPENDIX B.2

### NRBU SPILL REPORTING GUIDELINE AND TABLE

#### **Bureau of Land Management**

The BLM spill reporting requirements are stated in Notice to Lessees document NTLA-3A, Reporting of Undesirable Events. This document can be found at:

[http://www.blm.gov/wy/st/en/programs/energy/Oil\\_and\\_Gas/docs/ntl\\_3a.html](http://www.blm.gov/wy/st/en/programs/energy/Oil_and_Gas/docs/ntl_3a.html)

Notify BLM verbally immediately on Federal leases: oil, produced water, or toxic liquid exceeding 100 bbls or any spill which occurs in a sensitive area. Written report within 15 days.

Written report to District Engineer for spills or oil, produced water, or toxic liquid that exceed 10 bbls, but less than 100 (non-sensitive) on a frequent bases (contained or uncontained).

#### **US Environmental Protection Agency**

The USEPA requires reporting for oil spills and hazardous substance releases to land, air, or water.

#### **Oil Releases**

Oils spills that require reporting are defined in 40 CFR 110.3 and reporting requirements are in 40 CFR 110.6

#### **§110.3 Discharge of oil in such quantities as "may be harmful" pursuant to section 311(b)(4) of the Act.**

For purposes of section 311(b)(4) of the Act, discharges of oil in such quantities that the Administrator has determined may be harmful to the public health or welfare or the environment of the United States include discharges of oil that:

(a) Violate applicable water quality standards; or

(b) Cause a film or sheen upon or discoloration of the surface of the water or adjoining shorelines or cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines. [61 FR 7421, Feb. 28, 1996]

<http://law.justia.com/us/cfr/title40/40-21.0.1.1.6.0.6.3.html>

#### **§110.6 Notice**

Any person in charge of a vessel or of an onshore or offshore facility shall, as soon as he or she has knowledge of any discharge of oil from such vessel or facility in violation of section 311(b)(3) of the Act, immediately notify the National Response Center (NRC) (800-424-8802).

#### **Hazardous Substances**

Hazardous Substances and their Reportable Quantities (RQs) are in 40 CFR Table 304.2. RQ's vary by chemical and the list is too extensive to provide here. Reports are made based on individual chemicals not the mixture within a certain product. Therefore, to determine if an RQ has been exceeded, it is necessary to calculate the amount of material that would have to be released to exceed the reportable quantity for any of its constituents. RQs are given in pounds so for liquids, a conversion from pounds to gallons will need to be made, taking into account the specific gravity or specific density of the material.

The calculation to determine RQ for a specific material with hazardous substance constituents is as follows:

$$\text{Amt. of material exceeding RQ (gals) = } \frac{\text{Chemical specific RQ (lbs)}}{\text{Density of material (lb/gal) x Amt of haz. constituent (wt.%)}$$

The following table lists the calculated RQs for several materials used in EnCana Wyoming operations. This list can be revised as needed to incorporate new materials. Materials of greatest concern are those with RQs of 500 gallons or less as that is a feasible quantity that may be spilled.

<http://law.justia.com/us/cfr/title40/40-21.0.1.1.6.0.6.6.html>

APPENDIX B.2

**NRBU SPILL REPORTING GUIDELINE AND TABLE**

Wyoming DEQ	Wyoming Oil and Gas Conservation Commission	BLM	USEPA
<p><b><u>**Interpretation from DEQ:</u></b>  <u>Regardless of containment, report any spill quantity of produced water or condensate over 10 barrels or 25 gallons of other manufactured or refined material.</u></p> <p>Report all spills of the following if they enter or threaten surface water (including wetlands) or groundwater:</p> <ul style="list-style-type: none"> <li>- Hazardous Substances* (any volume)</li> <li>- Greater than 10 barrels of any combination of crude oil, condensate, and/or produced water</li> <li>- 25 gallons or more of refined oil products including but not limited to motor oil, lubricating oil, used oil, gasoline, diesel</li> <li>- Suspected release from storage tank (not due to load/unload operations) due to structural or operational failure</li> </ul> <p>Immediate notification to 307-777-7781 is required</p> <p>Immediate action to stop and contain release is required</p> <p>Immediate correction of problem that caused spill is required</p> <p>Within 7 days file written report</p>	<p>Report by the next business day, all uncontained spills that enter or threaten to enter waters of the state</p> <p>Written report must be filed within 15 days</p>	<p>Notify BLM verbally immediately on Federal leases; oil, produced water, or toxic liquid exceeding 100 bbls or any spill which occurs in a sensitive area. Written report within 15 days.</p>	<p>Report all oil spills to navigable waters or shorelines that</p> <ul style="list-style-type: none"> <li>- Violate water quality standards</li> <li>- Cause a film or sheen or discoloration of the water or shoreline</li> <li>- Cause a sludge or emulsion to be deposited beneath the surface or on shoreline</li> </ul>
	<p>Spills less than 10 barrels that do not physically enter waters of the state and are immediately contained, cleaned up, and properly disposed do not need to be reported</p>		
	<p><b><u>**The WOGCC rules for spill reporting are currently undergoing revision and are expected to be more stringent.</u></b></p>	<p>Written report to District Engineer for spills or oil, produced water, or toxic liquid that exceed 10 bbls, but less than 100 (non-sensitive) on a frequent bases (contained or uncontained).</p>	<p>Immediate notification to the National Response Center 800-424-8802</p> <p>Ask if written follow up is required</p>
		<p>All reporting is to district engineer or supervisor as directed by the district office</p>	
	<p>Spills less than 10 barrels in non-sensitive areas must be included on monthly report of operations</p>		

\*Hazardous substances are described in a separate table.

## **APPENDIX B.3**

### **NRBU REGULATORY LINKS**

#### **Wyoming Regulatory Links**

WOGCC Spill Information

<http://wogcc.state.wy.us/craig/spill.htm>

WDEQ Spill Information

<http://deg.state.wy.us/out/spills.htm>

Requirements for Reporting on BLM Land

[http://www.blm.gov/wy/st/en/programs/energy/Oil\\_and\\_Gas/docs/ntl\\_3a.html](http://www.blm.gov/wy/st/en/programs/energy/Oil_and_Gas/docs/ntl_3a.html)

#### **Selected EPA Regulatory Links**

Reporting for Oil and Hazardous Substances

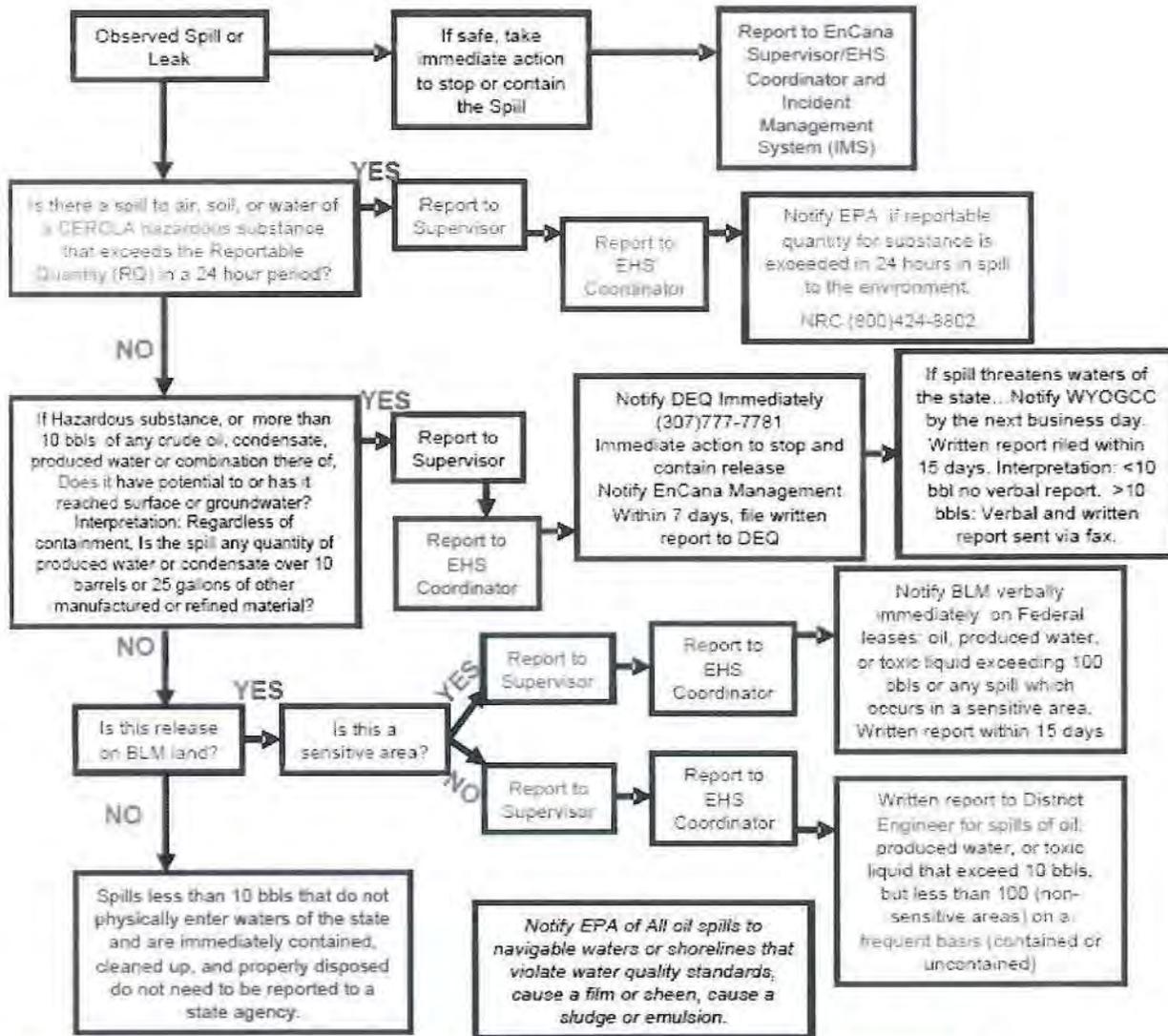
<http://law.justia.com/us/cfr/title40/40-21.0.1.1.6.0.6.6.html>

<http://law.justia.com/us/cfr/title40/40-21.0.1.1.6.0.6.3.html>

**APPENDIX B.4**

**NRBU DEFINITION AND NOTIFICATION OF SPILL OR LEAK**

**\*ALL AGENCY NOTIFICATIONS TO BE DONE BY EH&S COORDINATOR OR FIELD OPS MANAGER\***



**ENCANA SPILL DEFINITION**

A spill is any unpermitted quantity of liquid or solid substance that is partially or wholly outside of its primary containment (e.g., tank, drum, truck, pond, pit, storage sack, rig trench), excluding beverages, food items, and potable water

**Notification (By Agency):**

**DEQ:** All spills of the following if threatening surface or ground water: Hazardous substances, More than 10bbls of any crude oil, condensate, produced water or combo. Interpretation: Regardless of containment, any spill of produced water or condensate 10bbls or greater, 25 gals or more of refined crude oil product, hazardous substance or any amount or any substance that might threaten to enter waters of the state must be reported.

**WYOGCC:** By next business day, all spills that threaten to enter waters of state.

**BLM:** Verbal report within 24 hours on Federal leases of oil, produced water or toxic liquid exceeding 100bbls or any spill which occurs in a sensitive area.

**EPA:** All oil spills to navigable waters or shorelines that violate water quality standards, cause a film or sheen, cause a sludge or emulsion. Report all spills of Hazardous substances that exceed Reportable Quantities.

**APPENDIX C.1**

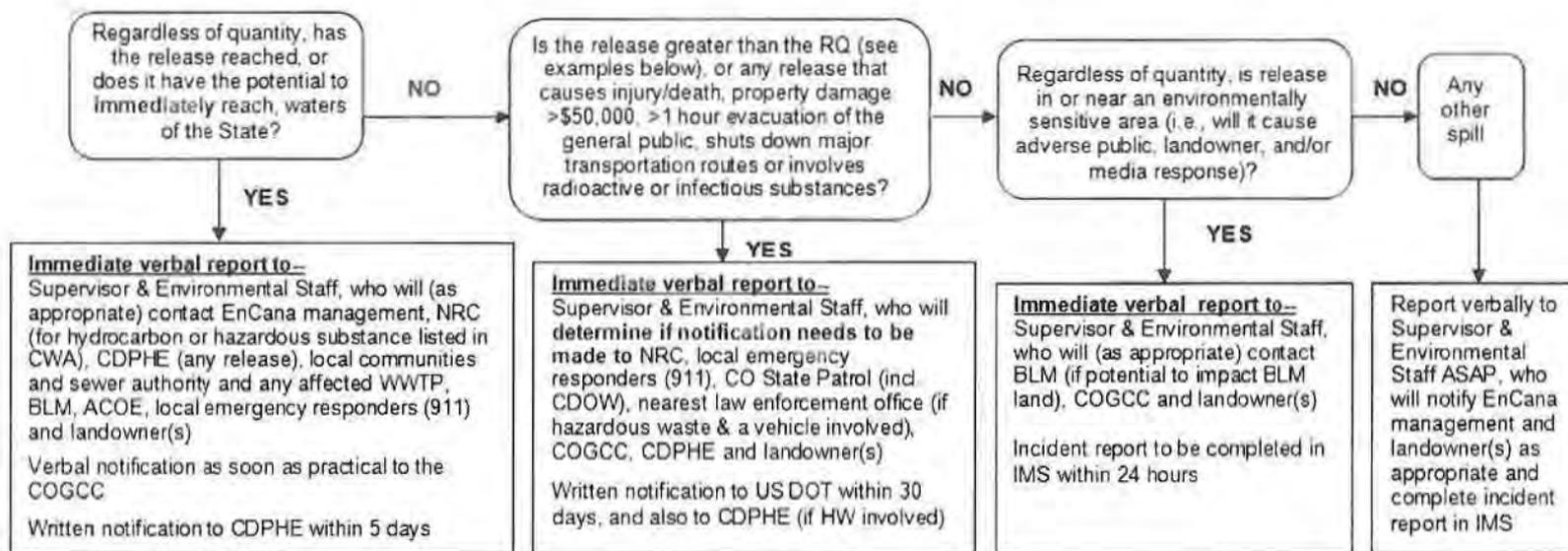
**REGULATORILY REQUIRED SPILL REPORTING  
MATRICES FOR SOUTH ROCKIES BUSINESS UNIT**

Note: The use of these Spill Reporting Documents does not preclude the use and importance of each field's Emergency Management Plan.

Spill Reporting Documents (matrices/flowcharts) are to be updated by BU EH&S personnel on a monthly basis and all potential spill response or affected personnel notified if an actual change is made to the document or its location is changed.

**APPENDIX C.2**

**SPILL REPORTING FLOWCHART – DJ BASIN, PICEANCE, PARADOX, COLORADO**



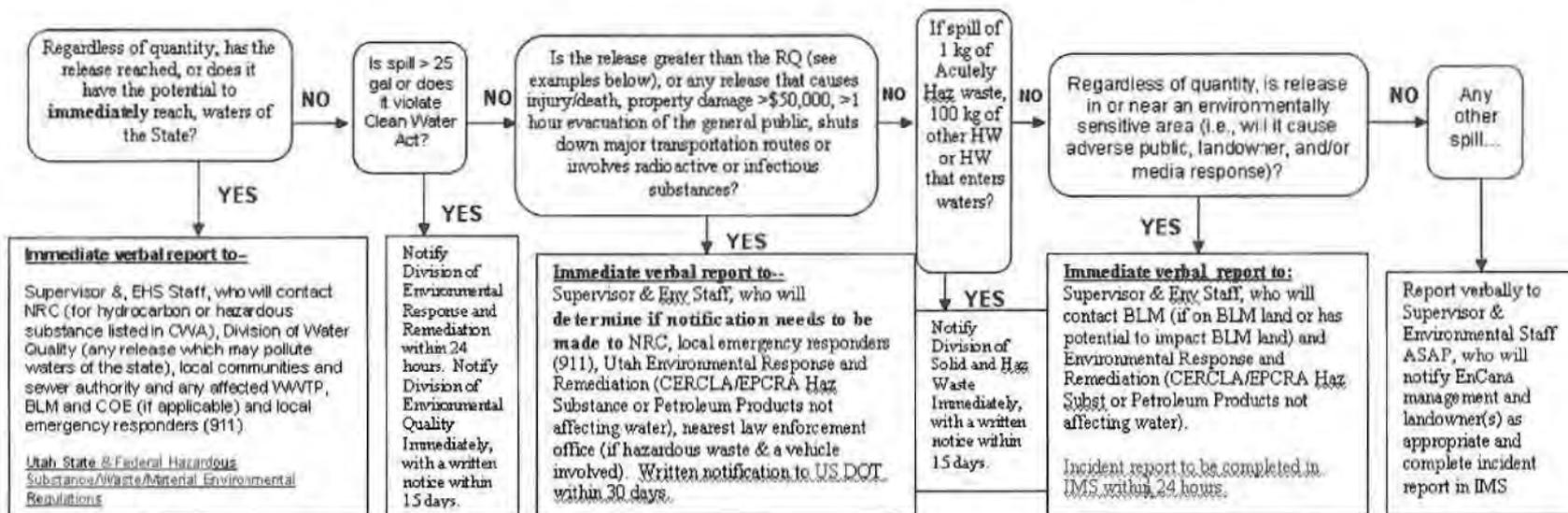
**EXAMPLES OF REPORTABLE QUANTITIES (RQ) OF HAZARDOUS SUBSTANCES**

Condensate	5 Bbl	(210 gallons)
Produced Water	5 Bbl	(210 gallons)
Frac fluids	5 Bbl	(210 gallons)
Gasoline	25 gallons	
Diesel	25 gallons	
Hydraulic oil	25 gallons	(Stationary source)
Ethylene Glycol (EG)	5,000 lbs	(538 gallons)
Methanol	5,000 lbs	(757 gallons)
Triethylene Glycol (TEG)	no listed reportable quantity - follow guidance above in flow chart	

**Note:** Any spill/release of E&P waste (including produced fluids) >5 barrels, including those within unlined berms, must be reported to COGCC using Form 19 within 10 days of discovery of the spill/release. In addition, ANY spill/release >20 barrels of E&P waste shall be reported verbally to the COGCC within 24 hours. Storage tank releases and pipeline releases have unique requirements—refer to Internet resources.

APPENDIX C.3

SPILL REPORTING FLOWCHART – PARADOX, UTAH



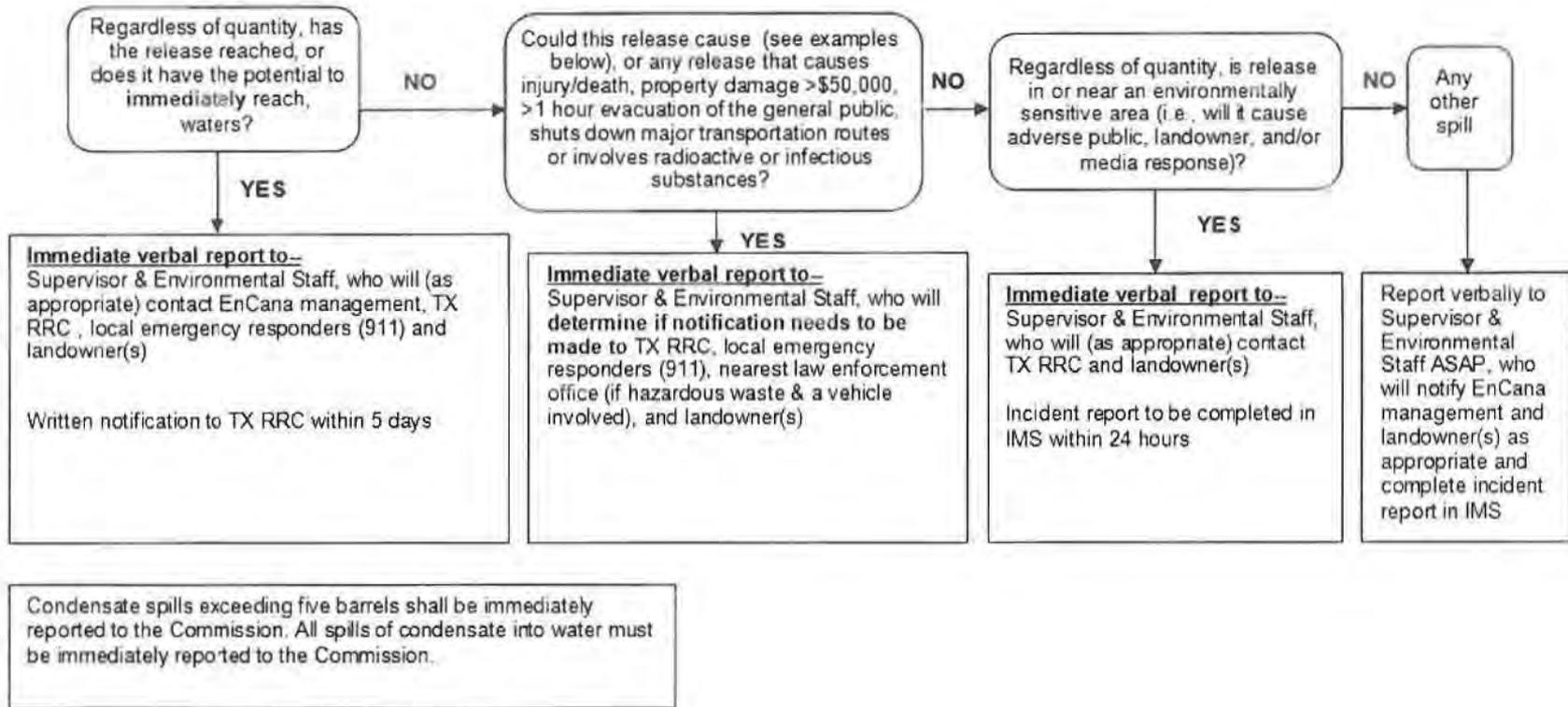
**EXAMPLES OF REPORTABLE QUANTITIES (RQ) OF HAZARDOUS SUBSTANCES**

Condensate	5 Bbl	210 gal	
Produced Water	5 Bbl	210 gal	
Ethylene Glycol (EG)		545 gal	5,000 lbs
Mercury	1 fl oz		1 lb
Methanol		750 gal	5,000 lbs
Triethylene Glycol (TEG)	no reportable quantity - follow guidance above in flow chart		

**Note:**  
**Div. of Water Quality:** Spills of substances which could pollute waters of the state.  
**Div. of Environmental Response and Remediation:** Spill over 25 gallons, causes a sheen on surface water, more than RQ of a CERCLA hazardous substance to environment or violates Clean Water Act.  
**Div. of Environmental Quality:** Used oil spills greater than 25 gallons or potential threat to human health or environment.  
**Div. of Solid and Hazardous Waste:** Spill of one kg of "acutely hazardous material", 100 kg of other hazardous waste, lesser quantity that is a threat to environment. Immediate notification with a written notice within 15 days.  
**BLM:** Verbal report within 24 hours on Federal leases of oil, produced water or toxic liquid exceeding 100 bbls or any spill which occurs in a sensitive area.  
**EPA:** All oil spills to navigable waters or shorelines that violate water quality standards, cause a film or sheen, cause a sludge or emulsion. Report all spills of Hazardous substances that exceed Reportable Quantities.

APPENDIX C.4

SPILL REPORTING FLOWCHART – SOUTH & WEST TEXAS



## APPENDIX C.5

### SRBU REGULATORY LINKS

#### Colorado Regulatory Links

Spill Guidance Document

<http://www.cdphe.state.co.us/wq/WhatsNew/SpillGuidanceDocument.pdf>

Environmental Spill Reporting Brochure

<http://www.cdphe.state.co.us/hm/spillreportingbroch.pdf>

Spill Release Rules

<http://cogcc.state.co.us/> (under rules: 200 series, 300 series, 600 series, 900 series)

#### **Reportable spills and reporting requirements for spills/releases (COGCC Rule 906 b)**

- (1) Spills/releases of E&P waste or produced fluid exceeding five (5) barrels, including those contained within lined or unlined berms, shall be reported on COGCC Spill/Release Report, Form 19.
- (2) Spills/releases which exceed twenty (20) barrels of an E&P waste shall be reported on COGCC Spill/Release Report, Form 19, and shall also be verbally reported to the Director as soon as practicable, but not more than twenty-four (24) hours after discovery.
- (3) Spills/releases of any size which impact or threaten to impact any waters of the state, residence or occupied structure, livestock, or public byway shall be reported on COGCC Spill/Release Report, Form 19, and shall also be verbally reported to the Director as soon as practicable, but not more than twenty-four (24) hours, after discovery.
- (4) Spills/releases of any size which impact or threaten to impact any surface water supply area shall be reported to the Director and to the Environmental Release/Incident Report Hotline (1-877-518-5608). Spills and releases that impact or threaten a surface water intake shall be verbally reported to the emergency contact for that facility immediately after discovery.
- (5) For all reportable spills, operators shall submit a Spill/Release Report, Form 19, within ten (10) days after discovery. An 8 1/2 x 11 inch topographic map showing the governmental section and location of the spill shall be included. Such report shall also include information relating to initial mitigation, site investigation, and remediation. The Director may require additional information.
- (6) Chemical spills and releases shall be reported in accordance with applicable state and federal laws, including the Emergency Planning and Community Right-to-Know Act, the Comprehensive Environmental Response, Compensation, and Liability Act, the Oil Pollution Act, and the Clean Water Act, as applicable.

#### Texas Regulatory Links

Field Guide for the Assessment and Cleanup of Soil and Groundwater Contaminated with Condensate from a Spill Incident

<http://www.rrc.state.tx.us/environmental/spills/spillcleanup.php>

Texas Railroad Commission Cleanup of Soil Contaminated by a Crude Oil Spill

[http://info.sos.state.tx.us/pls/pub/readtac\\$ext.TacPage?sl=R&app=9&p\\_dir=&p\\_rloc=&p\\_tloc=&p\\_ploc=&pg=1&p\\_tac=&ti=16&pt=1&ch=3&rl=91](http://info.sos.state.tx.us/pls/pub/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=16&pt=1&ch=3&rl=91)

Field Guide for Reportable Surface Releases of Crude Oil in Non-Sensitive Areas

<http://www.rrc.state.tx.us/environmental/spills/spillincident.php>

**APPENDIX C.5**

**SRBU REGULATORY LINKS**

**Utah Regulatory Links**

Utah Department of Environmental Quality Environmental Laws  
[http://www.deq.utah.gov/Laws\\_Rules/index.htm](http://www.deq.utah.gov/Laws_Rules/index.htm)

A Summary of Utah State and Federal Hazardous Substance/Waste/Material Environmental Regulations  
Requiring Immediate to Within 24 Hour Notification of Utah DEQ or EPA  
<http://www.superfund.utah.gov/docs/deqspillreport.pdf>

## APPENDIX D

### **Roles and Responsibilities in Spill Incident**

- Employee/Contractor that discovered spill
  - Report to supervisor
  - If safe, take action to contain or stop the spill/leak
  - Any individual can report and incident to IMS.
- Supervisor
  - Receives initial report
  - Responsible for Incident Investigation
  - At least one corrective action must be taken
  - Notify EH&S Field Coordinator
- EH&S Field Coordinator or Production Coordinator or Environmental Field Coordinator
  - Responsible for the Investigation Review
  - Notify Environmental/Safety/Field Ops Group Lead
  - Notifications to agencies for significant/reportable spills, if needed
- Environmental Group Lead or Safety Group Lead or Field Ops/Construction/D&C Group Lead
  - Notify Team Lead or EH&S Group Leads if reaches Level 3 incident
  - Notifications to agencies for significant/reportable spills, if needed
- EH&S Group Leads or Team Leads
  - Notification to VP of Business Unit for significant/reportable spills
  - Business unit assigns appropriate personnel to review and close incident when all corrective actions have been closed.
- VP Business Unit
  - Knowledge of significant/reportable incident
  - Business unit assigns appropriate personnel to review and close incident when all corrective actions have been closed.

### **Reportable Spills for IMS**

The reportable spills/environmental releases in this document go above and beyond that defined at the Corporate EH&S level, this is to ensure employee and contractor responsibility to the environment.

<http://ecn.encana.com/ehs/Corporate/docs/Reporting%20Guide.pdf>

### **Where and How to Capture Spill Information**

IMS can be filled out by any individual. Once the Supervisor received the Initial report, they are responsible for the incident investigation, where at least one corrective action must be taken.

Further information located in the IMS User Guide (link on the EH&S homepage)

<http://ecn.encana.com/ehs/>

### **Timeline for Reporting**

IMS should be reported to immediately or within a reasonable amount of time after spill discovery.

For spills reportable to the state, BLM, etc., the timeline varies by reporting agency. See the spill response flowcharts for each Basin/Business Unit

## APPENDIX E

### FREQUENTLY ASKED QUESTIONS

#### **What air emissions are included in 'environmental releases'?**

Fugitive emissions are not included. Emissions to an environmental release include evaporation of toxic chemicals to the air from a spilled substance, within secondary containment or outside of it.

#### **Do the spill flow charts override the Emergency Response Plans?**

No. The Emergency Response Plans for all fields come first. The flow charts are a guide to smaller level spills and reporting to IMS and outside agencies.

#### **What are Reportable Quantities?**

40 CFR 302.4 table, see next page for calculated volumes based on fluids commonly used in our field operations. Reportable quantities are defined on pages 11-12 in the Wyoming guidance.

#### **What are common contaminants found in our field operations that are on the Reportable Quantities list?**

##### **What are their Reportable Quantities?**

- Benzene: 100 pounds
- N-hexane: 5000 pounds
- Methanol: 5000 pounds
- Toluene: 1000 pounds
- Xylene: 100 pounds

#### **Who contacts the agencies, if needed?**

This task is done by the EH&S Field Coordinator.

#### **How are cumulative events, such as drips or leaks, managed?**

Fix repeated drips or leaks as soon as possible to avoid a reportable spill.

**APPENDIX F**

**CALCULATIONS FOR 40 CFR 302.4 REPORTABLE QUANTITIES**

Use the link below to access a calculating tool for a material's reportable quantity.

<http://livelinkusa.encana.com/livelinkusa/livelink.exe?func=ll&objId=23626179&objAction=browse&sort=name&viewType=1>

Material	Hazardous Constituent	CAS Number	Hazardous Constituent (wt %)	Hazardous Constituent RQ (lbs)	Specific Gravity	Specific Density (lb/gal)	Density of Water (lb/gal)	Material RQ (gals)	Material RQ (bbl)
<b>OTHER</b>									
Condensate (Sweet)	n-Hexane		50	5000	0.75	-	8.33	1,601	38.11
	Benzene		1	100	0.75	-	8.33	1,601	38.11
Condensate (Sour)	n-Hexane		50	5000	0.7	-	8.33	1,715	40.83
	Benzene		1	100	0.7	-	8.33	1,715	40.83
	Hydrogen Sulfide		0.0002	100	0.7	-	8.33	8,574,859	204,163.30
Produced Water (sour)	n-Hexane		1	5000	1.1	-	8.33	54,567	1,299.22
	Benzene		1	100	1.1	-	8.33	1,091	25.98
	Hydrogen Sulfide		0.1	100	1.1	-	8.33	10,913	259.84
Produced Water (Sweet - Deep Gas)	n-Hexane		1	5000	1.1	-	8.33	54,567	1,299.22
	Benzene		1	100	1.1	-	8.33	1,091	25.98
MultiChem DF7120 Defoamer Emulsion Breaker	Xylene*		0.0001	100	0.876	-	8.33	13,704,112	326,288.38
Multichem FA-4001 Foaming Agent/Corrosion Inhibitor	Ethylene Glycol		58	5000	1.056	-	8.33	980	23.33
	Methanol		8	5000	1.056	-	8.33	7,105	169.17
Multichem FA-4013 Foaming Agent/Corrosion Inhibitor	Methanol		25	5000	0.984	-	8.33	2,440	58.10
Multichem FA-4500 Low Temperature Foamer	Ethylene Glycol		60	5000	-	-	-	-	-
	Methanol		10	5000	-	-	-	-	-
Multichem HI-1000 Hydrate Inhibitor	Methanol		40	5000	-	8.28	8.33	1,510	35.94

	Ethylene Glycol		15	5000	-	8.28	8.33	4,026	95.85
Multichem MX365-4 Foaming Agent	Methanol		25	5000	-	8.05	8.33	2,484	59.15
Multichem P-3139 Paraffin/Asphaltene Dispersant	Toluene			1000	0.771				
Multichem P-3319 Paraffin Inhibitor	Toluene			1000	0.8659				
Multichem S-2008 Scale Inhibitor	Methanol		30	5000	0.995	-	8.33	2,011	47.88
Multichem S-2009 Scale Remover	Hydrochloric acid		3	5000	1.086	-	8.33	18,424	438.66
	Ethylene Glycol		50	5000	1.086	-	8.33	1,105	26.32
Gasoline, unleaded	Benzene		4.9	100	0.78	-	8.33	314	7.48
	Ethyl benzene		3	1000	0.78	-	8.33	5,130	122.15
	n-Hexane		4	5000	0.78	-	8.33	19,238	458.06
	Methyl tert-butyl ether		15	1000	0.78	-	8.33	1,026	24.43
	Toluene		25	1000	0.78	-	8.33	616	14.66
	Xylene		15	100	0.78	-	8.33	103	2.44
Multichem P-3200	Xylene		80	100	0.8681	-	8.33	17	0.41
	Ethyl benzene		15	1000	0.8681	-	8.33	922	21.95
Multichem WC-7579 Water Clarifier	Ethylene Glycol		70	5000	1.136	-	8.33	755	17.97
Methanol	Methanol		100	5000	0.791	-	8.33	759	18.07
OSW5200 Oxygen Scavenger	Ammonium bisulfate		100	5000	1.347	-	8.33	446	10.61
	Nickel sulfate		1	100	1.347	-	8.33	891	21.22
Tretolite RBW264 Water Clarifier	Ethylene Glycol		30	5000	1.155	-	8.33	1,732	41.25
Triethylene Glycol	Ethylene Glycol		0.1	5000	1.1	-	8.33	545,673	12,992.21
Ethylene glycol	Ethylene Glycol		90	5000	1.135	-	8.33	588	13.99
Multichem EB-1410 Emulsion Breaker	Xylene		26	100	0.8915	-	8.33	52	1.23
Mercury in thermometers	Mercury		100	1	13.59	-	8.33	0.009	0.0002
Polyken 1027 Primer	Toluene		12	1000	1.03	-	8.33	971	23.13
	Methanol		1.5	5000	1.03	-	8.33	38,850	925.01
<b>COMPLETIONS CHEMICALS</b>									
Water Friction-Reducing Agent B400	Ammonium chloride	12125-02-9	5	5000	-	1.1	8.33	90,909	2,164.50

	Aromatic solvent	Proprietary	30	NA	-	1.1	8.33		
	Aromatic solvent	Proprietary	30	NA	-	1.1	8.33		
PSG Polymer Slurry B306	Guar Gum	9000-30-0	60	NA	-	1.1	8.33		
	Hydrocarbon solvent		60	NA	-	1.1	8.33		
Breaker J218	Diammonium peroxodisulphate	7727-54-0	100	NA	-	2	8.33		
Liquid Breaker Acid J318	2,2',2"-nitrilotriethanol	102-71-6	100	NA	-	1.1	8.33		
EB-Clean* J475 Breaker	Diammonium peroxodisulphate	7727-54-0	100	NA	-	2	8.33		
Temporary Clay Stabilizer L64	Tetramethyl ammonium chloride	75-57-0	60	NA	-	1	8.33		
20/40-Mesh Sand S20	Crystalline silica	14808-60-7	100	NA	-	2.6	8.33		
<b>Non-Emulsifying Agent W54</b>	Methanol	67-56-1	70	5000	-	0.9	8.33	7,937	188.96
	Heavy aromatic naphtha	64742-94-5	5	NA	-	0.9	8.33		
	Oxyalkylated alcohol (2)	Proprietary	10	NA	-	0.9	8.33		
	Oxyalkylated alkyl alcohol (1)	Proprietary	10	NA	-	0.9	8.33		
	Synthetic resin	Proprietary	10	NA	-	0.9	8.33		
	Oxyalkylated alcohol (1)	Proprietary	5	NA	-	0.9	8.33		
	Quaternary ammonium compound	Proprietary	5	NA	-	0.9	8.33		
M298L Industrial Antimicrobial	Tetrakis(hydroxymethyl) phosphonium sulfate	55566-30-8	100	NA	1.375	-	8.33		
Stabilizer/Delay Agent J511	Aliphatic polyol	Proprietary	100	NA	-	1.5	8.33		
J920 Component-Crosslinker L10	Boric Acid	10043-35-3	100	NA	-	1.4	8.33		
<b>J920 Component-Activator M7</b>	Sodium hydroxide	1310-73-2	60	1000	-	1.5	8.33	1,111	26.46
Green-Cide 25G (B244)	Glutaraldehyde	111-30-8	25	NA	1.0815	-	8.33		

Super LC (S074L 1-1220)	Crystalline silica	14808-60-7	100	NA	-	2.5	8.33		
	Pehnoloformaldehyde Resin	57851-91-9	5	NA	-	2.5	8.33		
30/50 Mesh Sand S79	Crystalline silica	14808-60-7	not provided	NA	-	2.6	8.33		
Alpha 452	Phosphonium, tetrakis (hydroxymethyl)- sulfate	055566-30-8	40	NA	1.164	-	8.33		
Caustic Soda, Liquid	Sodium Hydroxide	1310-73-2	50	1000	1.53	-	8.33	157	3.74
Clay Treat-3C	Tetramethyl ammonium chloride	75-57-0	60	NA	1.02	-	8.33		
FRW-14	Hydrotreated light distillate	64742-47-8	40	NA	1.08	-	8.33		
	Ethoxylaied alcohol	68439-50-9	5	NA	1.08	-	8.33		
GBW-5	Ammonium Persulfate	7727-54-0	99	NA	1.9	-	8.33		
GBW-23L	White mineral oil	8042-47-5	91	NA	0.96	-	8.33		
	Magnesium hydroxide	1309-42-8	5	NA	0.96	-	8.33		
	Magnesium peroxide	14452-57-4	3	NA	0.96	-	8.33		
	Magnesium oxide	1309-48-4	2	NA	0.96	-	8.33		
GW-3LDF	Petroleum Distillate Blend	Proprietary	70	NA	1.07	-	8.33		
	Guar gum	009000-30-0	40	NA	1.07	-	8.33		
High Perm CRB	Ammonium Persulfate	007727-54-0	100	NA	1.72	-	8.33		
	Crystalline silica quartz	014808-60-7	15	NA	1.72	-	8.33		
High Perm CRB-LT	Ammonium Persulfate	7727-54-0	60	NA	-	-	8.33		
	Crystalline silica	7631-86-9	10	NA	-	-	8.33		
Magnacide 575 Microbiocide	Tetrakis(hydroxymethyl) phosphonium sulfate	55566-30-8	100	NA	1.375	-	8.33		
NE-940	Methanol	67-56-1	60	5000	0.88	-	8.33	1,137	27.07
	2-ethylhexanol	104-76-7	10	NA	0.88	-	8.33		
	Isopropanol	67-63-0	10	NA	0.88	-	8.33		
	Heavy aromatic naphtha	64742-94-5	5	NA	0.88	-	8.33		
	Polyethylene	25322-68-3	5	NA	0.88	-	8.33		

	glycol								
	EO-C7-9-iso-, C8-rich alcohols	78330-20-8	5	NA	0.88	-	8.33		
	EO-C9-11-iso- C10-rich alcohols	78330-20-8	5	NA	0.88	-	8.33		
	Naphthalene	91-20-3	1	100	0.88	-	8.33	1,364	32.48
XLW-30AG	Hydrotreated light distillate	064742-47-8	70	NA	1.07	-	8.33		
XLW-32	Methanol	64-56-1	90	5000	0.885	-	8.33	754	17.94
	Boric oxide	1303-86-2	20	NA	0.855	-	8.33		
Day-to-day Chemicals									
Napa Antifreeze Coolant NP001	Ethylene Glycol	107-21-1	100	5000	-	9.41	8.33	531	12.65
	Diethylene Glycol	111-46-6	5	NA	-	9.41	8.33		
	Inorganic Salt	NJTS# 254504001-5237	5						
Arctictherm E-50	Ethylene Glycol	107-21-1	50	5000	1.068	-	8.33	1,124	26.76
Valvoline ATF Dexron III/Mercon Automatic Transmission Fluid	Distillates (Petroleum) Hydrotreated Heavy Paraffinic	64742-54-7	90	NA	-	7.29	8.33		
Johnson's Baby Powder	Talc	14807-96-6	99	NA	Not listed	Not listed	8.33		
NAPA/CRC Brakleen Brake Parts Cleaner- Non-chlorinated	Acetone	67-64-1	60	5000	0.811	-	8.33	1,234	29.37
	Toluene	108-88-3	35	1000	0.811	-	8.33	423	10.07
	Methanol	67-56-1	25	5000	0.811	-	8.33	2,960	70.49
Condensate (Sweet)	Pentanes	109-66-0	60	NA	0.75	-	8.33		
	n-Hexane	110-54-3	50	5000	0.75	-	8.33	1,601	38.11
	Butanes	106-97-8	10	NA	0.75	-	8.33		
	Benzene	71-43-2	1	10	0.75	-	8.33	160	3.81
HD Fleet Engine Oil (All Grades)	Lubricant Base Oil (Petroleum)	Various	87		0.89	-	8.33		

	Additives	Proprietary	12	NA	0.89	-	8.33		
<b>Diesel #1</b>	#1 Diesel	8008-20-6	100	NA	0.9	-	8.33		
	Toluene	108-88-3	0.5	1000	0.9	-	8.33	26,677	635.17
	Napthalene	91-20-3	0.5	100	0.9	-	8.33	2,668	63.52
<b>Diesel #2</b>	#2 Diesel	68476-34-6	100	NA	0.9	-	8.33		
	Toluene	108-88-3	0.5	1000	0.9	-	8.33	26,677	635.17
	Napthalene	91-20-3	0.5	100	0.9	-	8.33	2,668	63.52
Ultra Max LR150 (Soap Stick)	Polyethy ene Glycol	25322-68-3	100	NA	1.056	-	8.33		
<b>Klean-Break</b>	Isopropy Alcohol	67-63-0	30	NA	0.86	-	8.33		
	2-Ethyl Hexanol	104-76-7	30	NA	0.86	-	8.33		
	Methanol	67-56-1	13	5000	0.86	-	8.33	5,369	127.83
	Raffinates (Petroleum) Distillation Sorption Process	NA	60	NA	0.86	-	8.33		
Kolor Cut Modified Water Finding Paste	Non- Hazardous	NA	NA	NA	1.1	-	8.33		
<b>Kopr Kote</b>	Lubricating Grease	74868219	60	NA	-	9.6	8.33		
	Nonhazardous Blend	7782435	Total 30	NA	-	9.6	8.33		
		1317335	Total 30	NA	-	9.6	8.33		
		13776744	Total 30	NA	-	9.6	8.33		
		471341	Total 30	NA	-	9.6	8.33		
	Metallic Copper	7440508	10	NA	-	9.6	8.33		
Pyroil White Greate (Lithium)	Heptane	142-82-5	70	NA	No Data	No data	8.33		

	Distillates (Petroleum) Hydrotreated Heavy Napht	64742-52-5	15	NA	No Data	No data	8.33		
Biocide MC B-8630	Acetone	67-64-1	40	5000	0.9868	-	8.33	1,521	36.21
	Glutaraldehyde	111-30-8	30	NA	0.9868	-	8.33		
MC FA-4500 Foaming Agent	2-Butoxyethanol	111-76-2	10	NA	1.084	-	8.33		
	Ethylene Glycol	107-21-1	33	5000	1.084	-	8.33	1,678	39.95
MC DF-7120 Defoamer/Emulsion Breaker	Aromatic Solvent	64741-68-0	75	NA	0.876	-	8.33		
	Xylene	1330-20-7	25	100	0.876	-	8.33	55	1.31
	Isopropyl Alcohol	67-63-0	Confidential ≤25	NA	0.876	-	8.33		
MC FA-4001 Foaming Agent/Scale & Corrosion Inhibitor Combination	Ethylene Glycol	107-21-1	58	5000	1.056	-	8.33	980	23.33
	Ethylene Glycol Monobutyl Ether	111-76-2	11	NA	1.056	-	8.33		
	Proprietary Blend	Proprietary	8	NA	1.056	-	8.33		
	Methanol	67-56-1	8	5000	1.056	-	8.33	7,105	169.17
MC FA-4013 Foaming Agent/Scale and Corrosion Inhibitor	Ethylene Glycol Monobutyl Ether	111-76-2	12	NA	0.984	-	8.33		
	Methanol	67-56-1	25	5000	0.984	-	8.33	2,440	58.10
	Alcohols, C6-10, ethoxylated, sulfate, ammonium salts	68037-05-8	8	NA	0.984	-	8.33		

	Anionic surfactants	Proprietary	20	NA	0.984	-	8.33		
	Proprietary Blend	Proprietary	12	NA	0.984	-	8.33		
	Isopropanol	67-63-0	3	NA	0.984	-	8.33		
<b>MC FA-4295 Foamer</b>	Methanol	67-56-1	25	5000	0.9677	-	8.33	2,481	59.07
	Ethylene Glycol Monobutyl Ether	111-76-2	10	NA	0.9677	-	9.33		
	Ethylene Glycol	107-21-1	5	5000	0.9677	-	8.33	12,405	295.37
	Isopropanol	67-63-0	5	NA	0.9677	-	8.33		
MC FS-7504 Foam Sticks	None	NA	NA	NA					
MC FS-7584 Foam Sticks	None	NA	NA	NA					
MC EB-1790 Emulsion Breaker	Isopropyl Alcohol	67-63-0	1	NA	1.02	-	8.33		
<b>MC WC-7579 Water Clarifier</b>	Ethylene Glycol	107-21-1	70	5000	1.136	-	8.33	755	17.97
<b>Methanol</b>	Methyl Alcohol	67-56-1	99.8	5000	0.7893	-	8.33	762	18.14
	Water	7732-18-5	Trace	NA	0.7893	-	8.33		
Natural Gas (Sweet)	Butanes	106-97-8	10	NA	0.5	-	8.33		
	Ethane	74-84-0	15	NA	0.5	-	8.33		
	Methane	74-82-8	90	NA	0.5	-	8.33		
	Propane	74-98-6	10	NA	0.5	-	8.33		
<b>Pipe Dope 2000</b>	Petroleum Grease Mixture	64742-52-5	Total 60	NA	1.2	-	8.33		
		64742-53-6	Total 60	NA	1.2	-	8.33		
		64742-01-4	Total 60	NA	1.2	-	8.33		
		64742-65-0	Total 60	NA	1.2	-	8.33		

		64742-62-7	Total 60	NA	1.2	-	8.33		
		7620-77-1	Total 60	NA	1.2	-	8.33		
		68783-36-8	Total 60	NA	1.2	-	8.33		
		6848-89-5	Total 60	NA	1.2	-	8.33		
		1310-65-2	Total 60	NA	1.2	-	8.33		
	Copper	7440-50-8	7	5000	1.2	-	8.33	7,146	170.14
	Lime	1305-78-8	5	NA	1.2	-	8.33		
	Talc	14807-96-6	10	NA	1.2	-	8.33		
	Additives, OSHA trade secret WHMIS Non- Hazardous	Proprietary	50	NA	1.2	-	8.33		
<b>Produced Water (Sweet- From Crude Oil or Deep Gas Production)</b>	Sodium chloride	7647-14-05	20	NA	1.1	-	8.33		
	n-Hexane	110-54-3	1	5000	1.1	-	8.33	54,567	1,299.22
	Benzene	71-43-2	1	10	1.1	-	8.33	109	2.60
<b>Pyroil Premium Starting Fluid</b>	n-Heptane	142-82-5	70	NA	-	5.89	8.33		
	Ethyl Ether	60-29-7	30	100	-	5.89	8.33	57	1.35
	Carbon Dioxide	124-38-9	5	NA	-	5.89	8.33		
Transfoam C	Isopropyl Alcohol	67-63-0	30	NA	0.895	-	8.33		
	Glycol Ethers	111-76-2	10	NA	0.895	-	8.33		
Triethylene Glycol	Triethylene Glycol	112-27-6	99	NA	1.126	-	8.33		
	Diethylene Glycol	111-46-6	5	NA	1.126	-	8.33		
<b>Chevron Regular Unleaded Gasoline</b>	Gasoline	86290-81-5	100	NA	0.8	-	8.33		

	Benzene	71-43-2	4.9	10	0.8	-	8.33	31	0.73
	Ethyl benzene	100-41-4	3	1000	0.8	-	8.33	5,002	119.10
	Naphthalene	91-20-3	2	100	0.8	-	8.33	750	17.86
	Ethanol	64-17-5	10	NA	0.8	-	8.33		
	Methyl tert-butyl ether (MTBE)	1634-04-4	15	1000	0.8	-	8.33	1,000	23.82
	Tertiary amyl methyl ether (TAME)	994-05-8	17	NA	0.8	-	8.33		
	Ethyl tert-butyl ether (ETBE)	637-92-3	18	NA	0.8	-	8.33		
WD-40	Aliphatic Petroleum Distillate	8052-41-3	70	NA	0.816	-	8.33		
	Petroleum Base Oil	64742-65-0	25	NA	0.816	-	8.33		
	Carbon Dioxide	124-38-9	3	NA	0.816	-	8.33		
	Non-hazardous Ingredients	NA	10	NA	0.816	-	8.33		
WSP 9030	Methanol	67-56-1	70	5000	0.962	-	8.33	891	21.22
	Ethylene Glycol	107-21-1	70	5000	0.962	-	8.33	891	21.22
WFT 9527	Toluene	108-88-3	7	1000	0.89	-	8.33	1,927	45.88
	Xylene	1330-20-7	70	100	0.89	-	8.33	19	0.46
	Methyl Isobutyl Ketone	108-10-1	5	5000	0.89	-	8.33	13,489	321.16
	Proprietary Alcohol	Proprietary	5	NA	0.89	-	8.33		
	D-Limonene	5989-27-5	7	NA	0.89	-	8.33		
WFT 97112W (W-CAP)	Methanol	67-56-1	40	5000	1	-	8.33	1,501	35.73
	Isopropanol	67-63-0	3	NA	1	-	8.33		

AFT 9785 (Multi-functional Foaming Agent)	Methanol	67-56-1	30	5000	1.03	-	8.33	1,943	46.25
	Ethoxylated Alcohol	9016-45-9	3	NA	1.03	-	8.33		
WSP 92011	Glycol Ethers	111-76-2	40	NA	0.8527	-	8.33		
	Methanol	67-56-1	40	5000	0.8527	-	8.33	1,760	41.90
WSP 9999	EB-Butyl Cellosolve	111-76-2	60	NA	0.9016	-	8.33		

[\[Back to Appendix Index\]](#)

**APPENDIX C**

**INSPECTION FORMS**

## Monthly Aboveground Container Inspection Checklist

Inspection Date: \_\_\_\_\_ Inspector: \_\_\_\_\_

Area: \_\_\_\_\_ Signature: \_\_\_\_\_

Containers Inspected: \_\_\_\_\_

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Item	Yes	No	Remarks
Is there any sign of leakage?			
Is the external coating damaged?			
Is the tank rusted, pitted, or deteriorated?			
Are there shell distortions?			
Are welds cracked?			
Has the foundation settled or eroded?			
Have tank supports deteriorated or buckled?			
Are valves, fittings, or other appurtenances leaking?			
Has the secondary containment been damaged?			
Is there oil in secondary containment?			
Is there debris in secondary containment?			
Is there water in secondary containment?			
Are the drain valves for the secondary containment operable and in a closed position?			
Are valves locked if not in use?			

Comments: \_\_\_\_\_

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## Annual Visual Inspection Checklist

Inspection Date: \_\_\_\_\_

Inspector: \_\_\_\_\_

Area: \_\_\_\_\_

Signature: \_\_\_\_\_

Containers Inspected: \_\_\_\_\_

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Item	Yes	No	Remarks
Evidence of paint failure?			
Evidence of corrosion or cracking?			
Any noticeable distortion, buckling denting, or bulging?			
Holes in roof?			
Standing water on roof?			
Vents free of obstructions?			
Is the liquid level gauge, if present, operable?			
Is the containment structure in satisfactory condition?			
Are the containment drainage valves and pipes fit for service?			
Evidence of tank settlement or foundation washout?			
Is there cracking or spalling of concrete pad?			
Are tank supports in satisfactory condition?			
Is water able to drain away from tank within containment?			
Is grounding strap secured and in good condition?			
Is associated piping in good condition?			
Is there any sign of leakage from the tank or associated piping or valves?			
Is piping properly supported?			

Comments: \_\_\_\_\_

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## Monthly Portable Container Inspection Checklist

Inspection Date: \_\_\_\_\_

Inspector: \_\_\_\_\_

Area: \_\_\_\_\_

Signature: \_\_\_\_\_

Containers Inspected: \_\_\_\_\_

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Item	Yes	No	Remarks
Any visible sign of leakage from containers?			
Any oil within containment area?			
Noticeable container distortions, buckling, denting, or bulging?			
Are container lids secured?			
Is there water in the secondary containment?			
Are there drain valves for the secondary containment operable?			
Are the drain valves in a closed position?			
Is there debris in containment or storage area?			

Comments: \_\_\_\_\_

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## SPCC Periodic Visual Inspection Checklist

	<b>SPCC PERIODIC VISUAL INSPECTION</b>	Document No:
		Revised By - Date:
		Reviewed By - Date:
		Approved By - Date:

**INSPECTION INFORMATION**

**Facility Name & SBU:**

**Inspector Name:** \_\_\_\_\_ **Inspection Date:** \_\_\_\_\_

Inspection Component Description	Yes	No	N/A	Comments and Notes (Use bottom of page 3 for extra space)
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***Tank Battery***

1. Are there produced water, condensate or oil tanks on-site? (List Service, Size, Serial Number and Manufacture Date)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. 2.
1a. Are all the tank thief hatches closed and latched?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1b. Are the gaskets on the thief hatches sealed properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1c. Are tanks properly labeled with liquid stored?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1d. Are exteriors free of paint chipping, pitting, rust, or corrosion?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1e. Are exteriors free of overflow, drip marks, or surface stains?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1f. Are tanks and foundation sitting flush and without gaps?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
1g. Is tank construction material compatible with stored product?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2. Does tank battery have secondary containment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2a. Is it free of spills and leaked materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2b. Within containment, is area free of oil stains?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2c. Outside containment, is area free of oil stains?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2d. Is rainwater present within secondary containment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2e. Are other objects (debris, buckets, etc) inside containment that could affect holding capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2f. Is there evidence of integrity issues with secondary containment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2g. Are soil or other natural materials used for containment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
o Is there evidence of erosion or failure?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
o Are there animal burrows or vegetation present?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2h. Are steel or other impervious dikes used for containment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
o Are holes, damage, gaps or corrosion/wear visible in panels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
o Is there evidence of faulty seam between panels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2i. Is a secondary containment impervious liner present? (List Type)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
o Are rips or tears visible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2j. Is secondary containment equipped with drain line?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
o Is the area around the drain valve free of oil stains?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
o Is the drain valve plugged/closed and locked?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3. Are tank battery pipes, valves, and flanges in good condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3a. Are they free of leaks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3b. Are they free of swelling, cracking, rust, and corrosion?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3c. Are bull plugs present on all valves?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3d. Are camlocks present on loading lines?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3e. Are pipelines properly supported?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

<b>Chemical Tank/Tote</b>				
4. Are there chemical tanks/totes on-site (methanol, corrosion inhibitor, used oil/filters, etc.)? (List Type and Size)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. 2. 3. 4.
4a. Do chemical tanks/totes have secondary containment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
o Is secondary containment in good condition (i.e. free of cracks, missing drain plugs, etc.)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
o Is secondary containment adequate to hold contents of tank/tote plus sufficient freeboard?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4b. Are tanks/totes properly labeled?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4c. Are MSDS sheets available, current and legible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Wellhead/Separator/Above-Ground Piping</b>				
5. Are there wellheads or separators on-site? (List Number of Each)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5a. Is area around the wellhead free of oil stains?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5b. Is separator dump valve seating properly with no leaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5c. Is area around the separator free of oil stains?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5d. Are all raincaps securely attached?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6. Are all above-ground piping and components in good condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6a. Are they free of leaks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6b. Are they free of swelling, cracking, rust, and corrosion?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6c. Are bull plugs present on all valves?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6d. Are pipelines properly supported?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Sump</b>				
7. Are sumps present on-site? (List Location and Function)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7a. Is area around sump free of staining and any evidence of overflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7b. Does sump have an automatic discharge system (e.g. floats)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
o Is the float operating properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
o Test high-level SCADA alarm, if present and verify it is working. Alert Encana before doing so.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7c. If feasible to inspect, is interior of sump in good condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Compressor Engine</b>				
8. Are there any engines on-site? (List Make, Model, HP if Marked)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8a. Is engine skid free of accumulated oil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8b. Is area around the engine skid free of oil staining?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8c. Are there fuel or lubricator service tanks? (List Type and Size)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8d. Do service tanks have secondary containment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
o Is secondary containment in good condition (i.e. free of cracks, missing drain plugs, etc.)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
o Is secondary containment adequate to hold contents of tank plus sufficient freeboard?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8e. Are service tanks properly labeled?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8f. Are MSDS sheets available, current and legible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Cooler Engine</b>				
9. Are there any engines on-site? (List Make, Model, HP if Marked)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9a. Is engine skid free of accumulated oil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9b. Is area around the engine skid free of oil staining?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9c. Are there fuel or lubricator service tanks? (List Type and Size)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9d. Do service tanks have secondary containment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
o Is secondary containment in good condition (i.e. free of cracks, missing drain plugs, etc.)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

○ Is secondary containment adequate to hold contents of tank plus sufficient freeboard?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9e. Are service tanks properly labeled?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9f. Are MSDS sheets available, current and legible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Glycol Dehydrator</b>				
10. Are there any dehydrators on-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10a. Is area around the dehydrator free of oil staining?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10b. Are there glycol tanks? (List Size)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10c. Do glycol tanks have secondary containment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
○ Is secondary containment in good condition (i.e. free of cracks, missing drain plugs, etc.)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
○ Is secondary containment adequate to hold contents of tank plus sufficient freeboard?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10d. Are glycol tanks properly labeled?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10e. Are MSDS sheets available, current and legible?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Line Heater/Heater Treater/Flare</b>				
11. Is there a heater device or flare on-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11a. Is area around the heater device or flare free of oil staining?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Pit</b>				
12. Are there any pits on-site? (List Contents)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12a. Is there at least 2 feet of freeboard present?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12b. Is there a liner installed? (List Type)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
○ Does liner show any signs of failure?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12c. Is the berm around pit in good condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12d. Is there a presence of oil in the pit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
12e. Is there visual evidence that sediment or pollution has been discharged off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Stormwater</b>				
13. Are stormwater or erosion controls present on or just beyond edges of site? (List Types)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
13a. If yes, are erosion controls adequate to retain stormwater sediment on-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
14. Are all culverts functioning within expected parameters, free of sediment deposits and accumulated oil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
15. Is there visual evidence that sediment or pollution has been discharged off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>Miscellaneous</b>				
16. Are there any other potential discharge sources on-site? (List each and note any oil staining around equipment)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1. 2.
17. Does the SPCC Site Plan for the facility match the field observations? If not, sketch update and take supporting photos. Provide documentation to Encana Environmental Field Coordinator.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**Any active leaks or unsafe conditions are to be immediately notified to Encana.**

Additional comments and notes from above:

Inspector Signature \_\_\_\_\_

Date \_\_\_\_\_

Inspection sheet will be provided to the designated Encana Environmental Field Coordinator within 7 days who will verify that all fields are marked and the comments do not require further clarification.

EFC Signature \_\_\_\_\_

Date Verified \_\_\_\_\_

Verified inspection sheet will be reviewed with the designated Encana Production Coordinator to discuss appropriate corrective actions within an additional 7 days. Inspection will be recorded in IMS with any corrective actions and due dates assigned. The need for an MOC will be determined.

IMS Inspection Number \_\_\_\_\_

PC Signature \_\_\_\_\_

Date Reviewed \_\_\_\_\_

Reviewed inspection sheet will be provided to the Encana Environmental Coordinator responsible for tracking and maintaining the SPCC inspection sheet, corresponding corrective actions, and updating the appropriate SPCC Plan as necessary. Corrective actions will be tracked through IMS. If necessary, SPCC Plan will be amended and signed within 6 months of qualified technical changes.

EC Signature \_\_\_\_\_

Date Amended \_\_\_\_\_

**APPENDIX D**

**PLAN REVIEW AND AMENDMENT LOGS**





**APPENDIX E**

**SPILL HISTORY LOG**



## **APPENDIX F**

### **SECONDARY CONTAINMENT CALCULATIONS**



# Secondary Containment Capacity & Calculations

EnCana Oil & Gas (USA) Inc.

Facility Name: **MIDDLE FORK WTF** Containment ID **DAF TANKS**

Route: **North Parachute Ranch**

Type of Secondary Containment: **Steel (lined)** Precipitation Event (PE): **25 year, 24-hour** Height of Containment (ft): **2.8**

Shape: **Rectangular w/square corners** Precipitation Inches: **2.2** Height based on PE (ft): **2.6**

<p>Radius Straight <b>0.0</b> Radius <b>0.0</b></p> <p>Straight <b>0.0</b> Straight <b>0.0</b></p>  <p>Radius <b>0.0</b> Straight <b>0.0</b> Radius <b>0.0</b></p> <p>Average Length (ft): <b>0.0</b></p> <p>Average Width (ft): <b>0.0</b></p> <p>Area of Rectangular Base (sq ft): <b>0</b></p> <p>Deduct for Curved Corners (sq ft): <b>0</b></p> <p>Area of Actual Base (sq ft): <b>0</b></p> <p>Gross Volume of Containment (bbls): <b>0</b></p> <p>Volume (w/ PE) of Containment (bbls): <b>0</b></p>	<p>Length: <b>0.0</b></p> <p>Width: <b>0.0</b></p>  <p>Area of Base (sq ft): <b>0</b></p> <p>Gross Volume of Containment (bbls): <b>0</b></p> <p>Volume (w/ PE) of Containment (bbls): <b>0</b></p>	<p>Length: <b>110.0</b></p> <p>Width: <b>25.5</b></p>  <p>Area of Base (sq ft): <b>2805</b></p> <p>Gross Volume of Containment (bbls): <b>1374</b></p> <p>Volume (w/ PE) of Containment (bbls): <b>1282</b></p>	<p>Diameter: <b>0.0</b></p>  <p>Area of Base (sq ft): <b>0</b></p> <p>Gross Volume of Containment (bbls): <b>0</b></p> <p>Volume (w/ PE) of Containment (bbls): <b>0</b></p>
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Tank ID Number	Tank Volume	Tank Diameter	Tank Height	Tank Number	Tank Serial Number	Tank Contents
	500	13.5	20	10		Fresh Water
	500	13.5	20	9		Bottom Solids
	500	13.5	20	8		Bottom Solids
	500	13.5	20	7		Bottom Solids
	500	13.5	20	6		Guar
	500	13.5	20	5		Guar
	500	13.5	20	4		Oil Recovery

Volume of Largest Tank:	<b>500</b>
Displacement of Other Tanks:	<b>421</b>
Required Containment Volume:	<b>921</b>

Containment Volume with Precipitation Event (bbls):	<b>1282</b>
Percent of Precipitation Event Capacity:	<b>139%</b>

## Containment Area B - Secondary Containment Calculations

Containment Calcs	Section 1	Section 2	Section 3	Section 4	Section 5	Total
Containment footprint (sqft):	45,265	26,810	8,563	17,012	19,310	116,959
Containment volume (cuft)	362,120	214,477	68,502	136,093	154,480	935,672
Containment Volume (gals):	2,708,658	1,604,286	512,398	1,017,974	1,155,510	6,998,827
Containment Volume (bbls):	64,494	38,198	12,200	24,238	27,513	166,643

### Displacement Calcs

Tank Elevation:	5,808 ft
Top Wall Elevation:	5,813 ft
Displacement Height:	8 ft
Tank Dimensions:	120 'dia
Tank Footprint (sqft):	11,310 sqft
Tank Displacement (bbls):	16,114 bbls
Number of tanks	3
Total Tank Displacement (bbls):	32,228 bbls
Tank Volume (bbls):	80,000 bbls
Net containment (bbls):	130,596 bbls
<b>% Containment:</b>	<b>163.24%</b>



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# Secondary Containment Capacity & Calculations

*White TANK Bench Condensate TANKS*

Type of Secondary Containment: **Steel (lined)**

Precipitation Event (PE): **25 year, 24-hour**

Height of Containment (ft): **2.2**

Shape: **Rectangular w/square corners**

Precipitation Inches: **2.2**

Height based on PE (ft): **2.0**

<p>Radius <b>0.0</b> Straight <b>0.0</b> Radius <b>0.0</b></p> <p>Radius <b>0.0</b> Straight <b>0.0</b> Radius <b>0.0</b></p> <p>Average Length (ft): <b>0.0</b></p> <p>Average Width (ft):: <b>0.0</b></p> <p>Area of Rectangular Base (sq ft): <b>0</b></p> <p>Deduct for Curved Corners (sq ft): <b>0</b></p> <p>Area of Actual Base (sq ft): <b>0</b></p> <p>Gross Volume of Containment (bbls): <b>0</b></p> <p>Volume (w/ PE) of Containment (bbls): <b>0</b></p>	<p>Length: <b>0.0</b></p> <p>Width: <b>0.0</b></p> <p>Area of Base (sq ft): <b>0</b></p> <p>Gross Volume of Containment (bbls): <b>0</b></p> <p>Volume (w/ PE) of Containment (bbls): <b>0</b></p>	<p>Length: <b>94.0</b></p> <p>Width: <b>39.0</b></p> <p>Area of Base (sq ft): <b>3666</b></p> <p>Gross Volume of Containment (bbls): <b>1417</b></p> <p>Volume (w/ PE) of Containment (bbls): <b>1297</b></p>	<p>Diameter: <b>0.0</b></p> <p>Area of Base (sq ft): <b>0</b></p> <p>Gross Volume of Containment (bbls): <b>0</b></p> <p>Volume (w/ PE) of Containment (bbls): <b>0</b></p>
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Tank ID Number	Tank Volume	Tank Diameter	Tank Height	Tank Number	Tank Serial Number	Tank Contents
81786	500	13.5	20	17	8J02901-04	Produced Water/Condensate
81501	500	13.5	20	23	8J02901-8	Produced Water/Condensate
81787	500	13.5	20	22	8589401-03	Produced Water/Condensate
81788	500	13.5	20	21	8589401-01	Produced Water/Condensate
82340	500	13.5	20	20	8J40101-03	Produced Water/Condensate
81785	500	13.5	20	19	8J23601-04	Produced Water/Condensate
81784	500	13.5	20	18	8J23601-03	Produced Water/Condensate
81783	500	13.5	20	15	8J26601-02	Produced Water/Condensate
81782	500	13.5	20	16	8J26601-01	Produced Water/Condensate
82339	500	13.5	20	24	8J40101-02	Produced Water/Condensate

Volume of Largest Tank:	<b>500</b>	Containment Volume with Precipitation Event (bbls):	<b>1297</b>
Displacement of Other Tanks:	<b>498</b>	Percent of Precipitation Event Capacity:	<b>130%</b>
Required Containment Volume:	<b>998</b>		

## Upper Level Tank Area - Secondary Containment Calculations

<b>Largest tank volume (bbls):</b>	<b>Containment Height (ft)</b>	<b>Containment volume (bbls)</b>	<b>Volume (cuft)</b>	<b>Footprint (sqft)</b>	<b>25-yr rain event (in)</b>
15,000	4	35,100	197071.9	49268.0	2.2

**Displacements for containment height of 4'**

Label	Description	Dimensions	Number	Footprint (sqft)	Volume (cuft)	Volume (bbls)
Tank Farm	SW of site - 10 tanks (containment overtopped)	13.5' dia	10	1431.4	5725.6	1,020
Shed	NE of site	28'x15'	1	420	1680	299
Pump House	East of site	29'x15'	1	435	1740	310
1,500 bbl filtered water tank	SE of site	20' dia	1	314.2	1256.6	224
<b>Totals:</b>				<b>2,601</b>	<b>10,402</b>	<b>1,853</b>

<b>Containment less displacement and rain</b>	<b>31,639</b>
<b>% containment:</b>	<b>210.9%</b>

**Encana North Parachute Ranch  
SPCC Spill Containment Calculations**

Location	Site	Tank	L (ft)	W (ft)	D (ft)	H (ft)	Volume (Cu Ft)	Volume (Gal)	Surface Area (Sq Ft)
Middle Fork DAF Building									
		Treatment units in series	48	8		8	3072	22979	0
		Containment	L (ft)	W (ft)	D (ft)	H (ft)	Volume (Cu Ft)	Volume (Gal)	Surface Area (Sq Ft)
			83.75	39.6		1	3317	24807	3317
		Freeboard with Tank(s) Displacement				H (ft)	Volume (Cu Ft)	Volume (Gal)	Surface Area (Sq Ft)
		No tank displacement				1	3317	24807	
		Freeboard with Largest Tank Spill				H (ft)	Volume (Cu Ft)	Volume (Gal)	Surface Area (Sq Ft)
						0.074	245	1829	3317
		Freeboard with Spill & 2.4 in. Storm				H (ft)	Volume (Cu Ft)	Volume (Gal)	Surface Area (Sq Ft)
		No storm as tanks are under building							

**Supporting Photo's**



**Dissolved Air Flotation (inside building)**

**Caption**

**Caption**

**Caption**

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2-Nov-10



Is containment freeboard adequate? Yes

Are repairs needed? No

What is % containment available? 108%