

Appendix 11: MFWF – Facility Response Plan



FACILITY RESPONSE PLAN

MIDDLE FORK WATER TREATMENT FACILITY

NORTH PARACHUTE RANCH

PARACHUTE, CO

Prepared for:

Encana Oil & Gas (USA) Inc.

143 Diamond Avenue

Parachute, CO 81635

Prepared by:

Geosyntec Consultants, Inc.

5670 Greenwood Plaza Blvd

Suite 540

Greenwood Village, CO 80111

Revision # 02: April 11, 2014

Original: February 4, 2013

MIDDLE FORK WATER TREATMENT FACILITY

FACILITY RESPONSE PLAN

COVER SHEET

GENERAL INFORMATION	
Facility Name:	Middle Fork Water Treatment Facility
Facility Address:	Parachute Field Office 143 Diamond Avenue Parachute, CO 81635Garfield County
Facility Phone Number:	970-285-2905
Latitude:	N 39 ⁰ 34'37" (Facility Entrance)
Longitude:	W 108 ⁰ 06'26" (Facility Entrance)
Township/Range	SWSW, Section 30, T5S, R95W, 6th PM
Facility Acreage	Approximately 20 acres

Owner/Operator Information	
Owner/Operator of Facility:	Encana Oil & Gas (USA) Inc.
Owner/Operator Address:	Republic Plaza 370 17 th Street, Suite 1700 Denver, CO 80202
Dun and Bradstreet Number:	03-000-7947
NAICS Code:	211111 – Crude Petroleum and Natural Gas Extraction
SIC Code	1311 – Crude Petroleum and Natural Gas

Qualified Individual Information	
Environmental On-Call Spill Coordinators – Emergency Phone (970) 319-9173	
Qualified Individual Name:	Brett Middleton
Position:	EHS Field Coordinator
Phone/Pager	970.987.4650
Qualified Individual Name:	Chris Hines
Position:	EHS Field Coordinator
Phone/Pager	970.261.1127
Qualified Individual Name:	Kathy Vertiz
Position:	EHS Field Coordinator
Phone/Pager	970.456.6406
Qualified Individual Name:	Charles Jensen
Position:	EHS Field Coordinator
Phone/Pager	970.309.1022

Oil Storage Information	
Total “Oil/Condensate” Storage	294,000 gallons
Largest “Oil/Condensate” Tank	21,000 gallons
Number of “Oil/Condensate” Tanks	14
Total “Produced Water” Storage	10,710,000 gallons
Largest “Produced Water” Tank	3,570,000 gallons
Number of “Produced Water” Tanks	3
Facility Distance to Parachute Creek:	0 – ¼ mile

ADDITIONAL COMMENTS

There are several stormwater retention ponds located within the facility, as shown in Figure D-3. These are not SPCC impoundments but will retain releases of oil if within their respective drainages.

CERTIFICATION OF THE APPLICABILITY OF THE SUBSTANTIAL HARM CRITERIA

Facility Name: Middle Fork Water Treatment Facility

Facility Address: 143 Diamond Avenue

Parachute, CO 81635 (Parachute Field Office)

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 appropriate formula in Attachment C-III to this appendix or a comparable formula ¹) 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 Plans: Fish and Wildlife and Sensitive Environments" (see Appendix E to this part, section 13, 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 in Attachment C-III to this appendix or a comparable formula ¹) such that a discharge from the facility would shut down a public drinking water intake ²?

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 discharge in an amount greater than or equal to 10,000 gallons within the last 5 years?

Yes ☐ No ☒

¹ If a comparable formula is used, documentation of the reliability and analytical soundness of the comparable formula must be attached to this form. See Appendix F for the comparable formulae used in this FRP.

²For 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).

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.

Signature

Title

Name (please type or print)

Date



FACILITY RESPONSE PLAN

MIDDLE FORK WATER TREATMENT FACILITY

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APRIL 11, 2014

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Appendix K Revision History

ACRONYMS

“	inches
‘	feet
#	pounds
API	American Petroleum Institute
AST	aboveground storage tank
bbl	barrels
BLM	Bureau of Land Management
CDPHE	Colorado Department of Public Health and Environment
COGCC	Colorado Oil and Gas Conservation Commission
CSP	Colorado State Patrol
CFR	Code of Federal Regulations
DAF	Dissolved Air Flotation
E&P	Exploration & Production
ECG	Environmental Compliance Group (aka, Piceance Environmental)
EHS	Environmental Health and Safety
EPA	Environmental Protection Agency
ERP	Emergency Response Plan
FRP	Facility Response Plan
gal	gallons
gpd	gallons per day
gpm	gallons per minute
HAZMAT	Hazardous materials
HAZWOPER	Hazardous Waste Operations
hr	hour
I-70	Interstate 70
ICS	Incident Command System
IMS	Incident Management System
LEPC	Local Emergency Planning Committee
MF	middle fork
MFP	Middle Fork Pond
MFWTF	Middle Fork Water Treatment Facility
min	minute
NA	not applicable
NAICS	North American Industrial Classification System
NIMS	National Incident Management System
NPR	North Parachute Ranch
NRC	National Response Center
NRT	National Response Team

OSHA	Occupational Safety and Health Administration
OSC	On-Scene Coordinator
OSRT	Oil Spill Response Team
oz	ounces
PREP	National Preparedness for Response Exercise Program
PWST	Produced Water Storage Tanks
RQ	Reportable Quantity
RRC	Regional Response Center
RRT	Regional Response Team
SERC	State Emergency Response Commission
SPCC	Spill Prevention, Control, and Countermeasure
USCG	United States Coast Guard
USGS	United States Geological Survey
WQCD	Water Quality Control Division

0.0 INTRODUCTION

0.1 PURPOSE, SCOPE AND SUMMARY

The Encana Oil & Gas (USA) Inc. (Encana) Middle Fork Water Treatment Facility (MFWTF) is located in the North Parachute Ranch (NPR) site in the North Piceance natural gas production field in Parachute, Colorado. MFWTF operations involve the storage and treatment of the free-phase “oil/condensate” and “produced water” (water containing dissolved hydrocarbons after initial oil/water separation, and prior to reinjection, beneficial reuse, discharge, or transfer for disposal) that is generated during the natural gas production process.

The free-phase oil/condensate is typically about 0.1%, and the produced water about 99.9%, of the fluids from the North Piceance natural gas production field. The equipment at the MFWTF is designed to separate the oil/condensate fraction from the produced water fraction, and to recover usable oil product and either reuse or dispose of produced water. The oil/condensate is stored in tanks with a total capacity of approximately 294,000 gallons, with the largest individual tank of approximately 21,000 gallons. The produced water is stored in three tanks, with the largest individual tank of 3.57 million gallons, containing approximately 150 parts per million (ppm) of dissolved hydrocarbons, and de minimis quantities of “oil/condensate”. Accordingly, the certifying Professional Engineer (PE) has evaluated two scenarios for EPA review and approval:

1. The PE has determined that when “oil” is the same as “oil/condensate” for purposes of FRP compliance, then at this site the Substantial Harm Criteria are not applicable to oil/condensate, since the facility does not have a total oil/condensate storage capacity greater than or equal to 1 million gallons, and therefore an FRP for oil/condensate is not required at this site; and,
2. The PE has determined that when “oil” is the same as “produced water” for purposes of FRP compliance, that one of the Substantial Harm Criteria are applicable at this site, since the facility storage capacity of produced water is greater than or equal to 1 million gallons, and since it is estimated that a “worst-case” discharge from the facility could cause injury to fish and wildlife and sensitive environments in a portion of the nearby receiving stream, Parachute Creek. It was also estimated that a “worst-case” discharge of produced water would not exceed water quality standards or shut down a public drinking water intake in the Colorado River downstream of Parachute Creek.

Because the facility stores oil/condensate, produced water, recovered oil, and other oil products in bulk quantities, the materials must be managed in accordance with applicable local, state, and federal oil pollution prevention regulations. These regulations focus on the implementation of oil spill prevention measures and facilitate the development of a plan to respond quickly to and effectively control oil releases. To aid in complying with these regulations, a Spill Prevention,

Control, and Countermeasure (SPCC) Plan has been implemented at the MFWTF that focuses on minimizing the potential for an oil spill and ensuring systems are in place to prevent spilled material from reaching waterways. An Emergency Response Plan (ERP) has also been developed by Encana and implemented at the MFWTF. The ERP defines actions to be taken by facility personnel in a number of emergency scenarios including oil spill response.

A Facility Response Plan (FRP) is a plan for responding to a worst-case discharge of oil and to a substantial threat of such a discharge of oil and may include responding to small and medium discharges. This FRP is designed to complement the information contained within the facility Spill Prevention, Control, and Countermeasures (SPCC) Plan and Encana's ERP by providing comprehensive planning measures specific to the MFWTF and detailing procedures to be followed by facility personnel in the event of an oil spill.

This FRP has been developed and implemented to comply with the requirements of the Environmental Protection Agency's (EPA's) regulations regarding the content and format of FRPs (40 Code of Federal Regulations (CFR) 112.20, 112.21 and 112 Appendix F). The information provided in the plan could be utilized in any oil spill situation; however, implementation of the plan is required whenever there is a spill of oil which could:

- Threaten human health or welfare;
- Cause or threaten to cause pollution of the environment;
- Cause a visible sheen upon or discoloration of surface waters.

0.2 FRP FORMAT

Consistent with the requirements of 40 CFR 112.20 and 112 Appendix F, the FRP is presented in the following format. Appendix I is a cross-reference between the model plan shown in Appendix F to Part 112 and this plan.

- Section 1, Emergency Response Action Plan (ERP) - A condensed version of the emergency actions that have been explained in greater detail in Section 3.0 of the FRP. This section is presented at the front of the document to provide the response team with the basic information necessary to conduct an effective response.
- Section 2, Facility Information - An overview of current operations at the MFWTF as well as a description of activities that have occurred at the facility in the past.
- Section 3, Hazard Evaluation – A discussion of the potential hazards that exist, the possibility of a release occurring, and an estimation of the damage a spill would cause to the environment, as well as a history of oil spills that have occurred previously at the MFWTF.

- Section 4, Discharge Scenarios – Small, medium, and worst-case discharge scenarios; the steps taken to report, respond to, contain, and clean up an oil release as well as calculations for response time and worst-case discharge amounts.
- Section 5, Discharge Detection Systems – A description of the methods implemented at the MFWTF to aid in the timely detection of a release.
- Section 6, Plan Implementation – Methods and procedures developed to ensure the FRP remains current and is followed.
- Section 7, Self-Inspection, Drills/Exercises, and Response Training – Inspection requirements and training conducted to ensure the availability of appropriate response equipment and that personnel are familiar with spill response procedures.
- Section 8, Diagrams – Maps and drawings of the facility and surrounding area.
- Section 9, Security Systems – A description of security measures instituted at the MFWTF.

1.0 EMERGENCY RESPONSE PLAN

The MFWTF FRP repeats several sections of the Encana Emergency Response Plan (ERP) for easy access by response personnel during an oil spill emergency. The FRP is designed to contain only as much information as necessary to combat a spill and has been arranged so that response actions are not delayed. The FRP includes the following information:

- Qualified Individual contact information
- Emergency notification telephone list
- Spill response notification form
- Response equipment list and locations
- Response equipment testing and deployment drill log
- Emergency response personnel lists
- Evacuation plans
- Immediate actions checklist
- Facility diagrams

This section of the FRP provides the information needed to respond to oil spills of varying degrees of severity up to and including an oil spill emergency. An oil spill that is beyond the capability of the Piceance Environmental to effectively control is considered an oil spill emergency for the purposes of this plan. An emergency situation involving an oil spill in combination with fire, injured personnel, or other such circumstances may be managed through the implementation of Encana's ERP. The information provided in this emergency response section is intended to assist Encana personnel when responding to all oil spills, including an oil spill emergency or worst-case oil spill.

The information presented in this section is consistent with national, regional, and local emergency response plans. In addition, the facility SPCC Plan and applicable sections of Encana's ERP were reviewed and have been referenced as appropriate within this section.

1.1 QUALIFIED INDIVIDUAL INFORMATION

The designated Qualified Individuals for the MFWTF are members of the Piceance Environmental who have been identified and trained as Spill Coordinators. Upon notification of an oil release, the Spill Coordinator on call will direct the response effort and provide technical assistance. The Spill Coordinator has full authority to implement removal actions and, in all instances, will be responsible for ensuring that state, federal and local notification procedures are initiated.

The individuals identified in Table A-3 have been trained on the contents of this FRP, the facility SPCC Plan, the Encana ERP, and associated operating procedures. The Spill Coordinators have also received Occupational Safety and Health Administration (OSHA) 40-hour Hazardous Waste Operations (HAZWOPER) training, annual HAZWOPER refresher courses, and have at least one year of experience working in oil and gas operations.

1.1.1 Qualified Individual Duties

A number of individuals at the NPR location have been authorized to perform the duties of a Qualified Individual, as described in 40 CFR 112.20. These personnel are referred to as the facility Spill Coordinators. The Spill Coordinator is responsible for implementing the FRP at the MFWTF. The Spill Coordinator on duty at the time of an oil spill emergency will direct and coordinate response efforts to help ensure an efficient, effective, and complete cleanup effort. If an oil spill falls outside the scope of a normal facility response (i.e., has impacted or threatens to impact waters of the state, has caused a fire or personnel injuries, or poses an imminent threat to the safety of Encana personnel or the public); the Spill Coordinator (or another individual identified by an authorized Encana representative) may assume the role of Incident Commander, and Encana's ERP will be activated. In such cases, the Spill Coordinator shall remain readily available and be capable of requesting assistance from state and/or federal authorities. In all oil spill emergencies, the Spill Coordinator maintains responsibility for ensuring that the requirements of this plan are complied with, to the greatest extent possible.

A complete copy of the Encana ERP is maintained with the FRP at the MFWTF Office and Parachute Field Office.

The primary duties of the Spill Coordinator include:

- Activate internal alarms and hazard communication systems to notify facility personnel
- Notify additional response personnel, as needed
- Identify the character, exact source, amount, and extent of the release, as well as other items needed for notification
- Notify and provide necessary information to the appropriate Federal, State, and local authorities with designated response roles, including the NRC, State Emergency Response Commission (SERC), and LEPC in accordance with Table A-5.
- Assess the interaction of the discharged substance with water, ditches, adjacent waterways, or other substances stored at the facility and notify response personnel at the scene of the results of that assessment
- Assess the possible hazards to human health and the environment due to the release. This assessment must consider both the direct and indirect effects of the

release (i.e., the effects of any hazardous surface water runoff from the oil, any materials used to control the release, chemicals that may be used to control fire, etc.)

- Assess and implement prompt removal actions to contain and remove the released substance
- Coordinate rescue and response actions as previously arranged with all response personnel
- Use authority to immediately access funding to initiate cleanup activities
- Direct cleanup activities until properly relieved of this responsibility

Provide technical assistance to Piceance Environmental.

1.2 EMERGENCY NOTIFICATION PHONE LIST

Because the circumstances involved in each oil spill will vary, the notification list provided in Table A-5 has been developed to assist the Spill Coordinator in identifying which personnel and agencies need to be notified under what circumstances. The Emergency Notification Phone List provided as Table A-5 contains the telephone numbers of individuals and organizations that may need to be contacted in the event of an oil spill. The list is arranged to prioritize notification according to the severity of the incident. The contact list is made accessible to all facility employees to ensure that, in the case of an oil spill, any employee on site can immediately notify the appropriate parties. The information in Table A-5 is reviewed and verified/corrected each time this plan is updated or as soon as possible following oil spill response personnel changes.

1.3 NOTIFICATION

Once the nature of the oil spill has been evaluated and the amount of oil released quantified, notifications may be necessary. Table A-6 provides a summary of reporting requirements and is intended to help ensure that all appropriate initial notifications are made. In many situations, the severity of the spill will depend on whether or not a reportable quantity (RQ) has been released. RQs applicable to the types of oils handled at the MFWTF are provided in Table A-2. Notifications must be made as soon as practicable following the occurrence of spilled oil.

The information outlined in the sections below is provided to assist facility personnel in meeting notification requirements for immediate spill reporting. Written follow-up reports may also be required depending on the nature and severity of the incident. The Spill Coordinator will ensure that all necessary information is recorded to develop written reports and that reports are issued as required. Guidelines for issuing written spill reports are provided in Section 1.3.1.

1.3.1 Spill Response Notification Form

The Spill Response Notification Form provided as Table A-6 is to be used as a checklist when providing notification in the event of a reportable oil release. The form is formatted to ensure that all required information relevant to a reportable spill is recorded and conveyed to the National Response Center (NRC) and other response personnel and organizations. All information on this checklist must be known or be in the process of being collected at the time of notification; however, spill notification should not be delayed to collect the information on the form. Select facility information has been pre-entered to expedite the recording process. This form has also been provided in Table A-6 and tabbed for quick reference.

Table A-6 includes information that must be communicated to the NRC and other designated response agencies when reporting an oil spill. Following notification of the occurrence of a reportable spill, an individual will be tasked with gathering required information. The Spill Response Notification Form is to be used as a checklist when recording information. A separate form must be completed for each reportable oil release and maintained at the Parachute Field Office for a minimum of 5 years.

1.3.2 Follow-up Reporting Requirements

Following the occurrence of a reportable release, certain governing agencies require that a spill report be submitted in writing. Table A-9 summarizes the reporting requirements applicable to the MFWTF. For detailed information regarding the information to be submitted, the regulation requiring the submittal should be referenced. Table A-9 should be reviewed following a reportable release and the deadlines for submitting written reports noted.

1.4 RESPONSE EQUIPMENT LIST AND LOCATIONS

A list of the spill response equipment available for use at the MFWTF and their storage locations are presented in Table B-1.

Prior to and during oil spill control efforts, it is necessary to have a clear understanding of the equipment and materials available for the response. The Facility Response Equipment List and Locations summary, provided as Table B-1, includes an inventory of response equipment, materials, and supplies maintained at the MFWTF and identifies corresponding storage locations. The quantities of equipment and material necessary to provide an effective oil spill response are also listed along with the equipment's capabilities and limitations. Additional equipment and materials/supplies are also maintained off-site by local spill response contractors. Section 1.6.2 and Table A-8 describe the resources available through contractors.

1.5 RESPONSE EQUIPMENT INSPECTION, TESTING AND DEPLOYMENT

Oil spill response equipment is inspected and tested and/or deployed on a regular basis to help ensure that the proper equipment and materials are readily available in the event of a release and that crews are familiar with deployment procedures. Such inspection and test activities are recorded on the inspection forms and Response Equipment Testing and Drill Log located in Section 8.0. In accordance with the National Preparedness for Response Exercise Program (PREP) Guidelines¹, equipment testing and deployment exercises are performed at least semi-annually in areas where spills have the highest potential for occurrence. Emergency equipment, materials and supplies including the contents of spill trailers and cleanup kits are inspected annually. Inspection records are maintained at the Parachute Field Office.

Inspections are conducted annually to ensure that any materials with a shelf-life, such as batteries or neutralizing materials, are replaced prior to the expiration of that shelf-life or on a routine basis based on an expected shelf-life.. Fire extinguishers are inspected monthly, and recertified annually, based on the type of fire extinguisher (OSHA requirement). Tools, sorbent materials and such materials do not have a shelf-life; inspections will determine their suitability for use.

New response equipment and materials are tested following receipt to ensure that they will perform as expected during an emergency. Subsequent testing is conducted, as appropriate, during semi-annual oil spill equipment deployment drills. The deployment exercises are conducted on a regular basis to ensure that response equipment is operational and that the personnel tasked with utilizing the equipment during a spill response are capable of deploying and operating it. During deployment drills, representative samples of each type of response equipment are deployed and operated with the remaining supply maintained for spill response. As appropriate, testing of response equipment is also conducted during the drills. A copy of the Response Equipment Inspection, Testing and Deployment Drill Log is provided as Table B-2. Completed log forms are maintained in Appendix C.

1.6 FACILITY OIL SPILL RESPONSE TEAM

This section of the FRP lists selected personnel whose duties involve responding to an oil spill at the MFWTF, including both facility and contract personnel. The MFWTF Oil Spill Response Team is comprised of members of Piceance Environmental, operations personnel, and contractors that will respond immediately upon discovery of released oil. These individuals are

¹ <http://www.boemre.gov/offshore/OilSpillProgram/Assets/PDFs/PREPGuidelines.pdf>

considered first-responders and are normally on the facility premises or are primary response contractors. Off-site contractors may be given response duties; however, in the event that contract support is not available, company personnel must be able to respond immediately and adequately. Members of the MFWTF Oil Spill Response Team are identified in Section 3.0.

The average amount of time needed for those personnel to respond and their responsibilities in the event of an oil spill emergency are also discussed.

1.6.1 Oil Spill Response Personnel

The MFWTF Oil Spill Response Team consists of the Qualified Individuals/Spill Coordinators and selected facility personnel identified in Table A-9, Emergency Response Personnel List. This team is referred to as Piceance Environmental. Piceance Environmental works on behalf of Encana to implement response procedures in the event of an oil spill. These personnel have the authority to utilize necessary resources to carry out a response and have training and experience in coordinating and managing spill response and cleanup efforts.

The Spill Coordinator may designate any of the following duties to members of Piceance Environmental during an oil spill emergency:

- Activate internal alarms and hazard communication systems to notify facility personnel, as needed
- Notify additional response personnel and arrange for external notifications to be made, as needed
- Identify the character, exact source, amount, and extent of the release, as well as other information needed for notification
- Assess the impact or potential impact of the spilled substance on ditches or adjacent waterways and notify response personnel of the situation
- Assess the possible hazards to human health and the environment due to the release. This assessment must consider both the direct and indirect effects of the release (i.e., the effects of any hazardous surface water runoffs from the oil, any materials used to control the release, chemicals that may be used to control fire, etc.)
- Assess and implement removal actions to contain and remove oil that has been released
- Coordinate rescue and response actions as previously arranged with all response personnel
- Use authority to immediately access funding to initiate cleanup activities
- Direct cleanup activities until properly relieved in accordance with the ERP of this responsibility.

1.6.2 Emergency Response Contractors

Encana has identified a number of outside emergency response contractors that may be utilized for spill response at the MFWTF. The contract companies and the resources they are anticipated to provide have been identified in Table A-8, and an itemization of the equipment and materials provided by primary spill response contractors is provided in Table A-8. The capabilities of the contractors have been reviewed by Encana management personnel and communication established between facility and contractor representatives to ensure that contract response personnel are familiar with the MFWTF and the services that they have been requested to provide. The contract companies were further evaluated and, based on anticipated travel time and their capability to provide adequate personnel and response equipment, were listed by type of service provided and (in Table A-8) in the order in which they should be contacted. Copies of the written agreements established between Encana and primary spill response contractors are included in Appendix E.

1.6.3 Oil Spill Response Team

The Oil Spill Response Team is comprised of facility oil spill response personnel and primary contractors that will respond immediately upon discovery of an oil discharge (level of response is dependent upon the severity of the spill). These first-responders are persons normally present on facility premises and primary response contractors. In the event that contract support is not available, company personnel must be able to respond immediately and adequately. Table A-7 lists current members of the Oil Spill Response Team.

1.7 EVACUATION PLAN

A comprehensive ERP has been developed by Encana and implemented at the MFWTF. The ERP has been designed to help ensure that a uniform and thorough approach is taken in managing emergency scenarios. A complete and current copy of the ERP is maintained in the MFWTF Office and is available for reference during emergencies.

The ERP discusses the general evacuation plans that have been developed for Encana sites. The following sections outline evacuation plans specific to the MFWTF that take into account hazards that may be presented by an oil spill emergency.

1.7.1 Facility Evacuation During Normal Working Hours

An evacuation of the MFWTF during working hours would proceed according to the following outline.

1.7.1.1 Spill Coordinator/Incident Commander Duties

In the event that a natural or man-made disaster causes a significant release of oil at the MFWTF, the Spill Coordinator will receive immediate notification. The Spill Coordinator will assume control of the situation and orchestrate response actions. In the event of a multi-faceted emergency, a designated Encana representative may assume the role of Incident Commander and coordinate the response. Under either scenario, the individual in charge will comply with all aspects of Encana's ERP, including implementation of the following basic measures (to be conducted as quickly as possible or simultaneously when possible):

- Establish a Mitigation Command Center – in most instances, this will be the Parachute Field Office
- Obtain a current aerial map of the NPR location (a smaller-scale map is provided as Figure D-1; a larger-scale map is maintained at the Parachute Field Office)
- Identify the area(s) affected by or having the potential to be affected by the oil spill
- Assess the potential safety, health, and/or environmental risks associated with the discharged material
- As needed, arrange for the transportation of injured personnel to the nearest emergency facility
- Take note of the following conditions:
 - Flow direction and relative flow rate of spilled material (i.e., rapid vs. sluggish flow)
 - The location of stored materials that may be affected by the release
 - Weather conditions, including the prevailing wind direction and speed ([weather channel website](#) or [weatherspark.com](#); or refer to Table A-5, Emergency Notification Phone List - local radio/TV contact numbers)
 - Arrival route of emergency response personnel and response equipment
- Determine the need to evacuate or shelter-in-place
- If an evacuation is deemed necessary:
 - Establish a safe and efficient evacuation route
 - Determine an alternate route of evacuation to be utilized if there is a likelihood for an alternate route to be needed
 - Identify points of contact at evacuation rally points and establish/maintain communication

- Notify company and contract personnel of the need to evacuate via 2-way radio or by other reliable means of communication and relay the established evacuation route
- If the option to shelter-in-place is selected:
 - Notify company and contract personnel of the requirement to take shelter via 2-way radio or by other reliable means of communication and relay the shelter location(s) to be utilized at the MFWTF
 - Gather information regarding the release (refer to Table A-6 Spill Response Notification Form) and begin documenting response actions.

1.7.1.2 Facility Personnel Duties

Upon notification of the evacuation or order to take shelter, facility personnel will proceed in accordance with the ERP, utilizing the following basic protocol:

- Using all appropriate SAFETY PRECAUTIONS, shut down equipment (e.g., cease any flow into or out of any tanks and isolate the system) when possible
- Evaluate the safety/feasibility of the identified evacuation route or shelter location and proceed if clear
- If an evacuation route has not been assigned, vacate the area using the routes previously established for the facility. Standard evacuation routes are provided as Figure D-4
- When evacuating, travel away from the MFWTF and be cautious of road traffic
- Assist with the evacuation/sheltering of visitors and/or contractors when present
- Proceed to the designated shelter or evacuation assembly area (do not stop, wander, or linger)
- Evacuation:
 - Two (2) evacuation assembly areas have been established for MFWTF personnel
 - The Primary Muster Area is at the main gate;
 - The White Table Muster Area north of the upper level.
- Check in at assembly area and await further instructions (do not leave unless conditions become unsafe or instructed to do so)
- Shelter-in-place:
 - Contact the Mitigation Command Center for roll call

- Remain in the shelter location and await further instructions (do not leave unless conditions become unsafe or instructed to do so)
- Specific personnel may be authorized to remain in an evacuated area to maintain or shut down critical operations. Upon completion of those activities, those personnel must evacuate the area in accordance with the above procedure.

1.7.2 Facility Evacuation During Off-shift Hours

If an evacuation is determined necessary during work hours outside of normal day-shift hours (i.e., nights, weekends, or holidays), similar procedures to those described above will be followed. The MFWTF is monitored 24-hours a day by facility personnel. In the event that an evacuation is called for outside of the standard day shift, the Spill Coordinator or Incident Commander will notify the individual or individuals monitoring the facility of the requirement to evacuate. The operations personnel will then safely secure their operations (e.g., cease any flow into or out of any tanks or the MFP and isolate the system) and proceed to the nearest evacuation assembly area or established shelter-in-place location. They will then contact the Mitigation Command Center for roll call and await further instruction from the Spill Coordinator or Incident Commander.

The individual monitoring the MFP during the off-shift will also ensure that any other personnel known to be working at the facility (i.e., maintenance or contract personnel) have been notified of the situation and the required response action.

1.7.3 Community Evacuation

Due to the nature of the oils stored at the MFWTF and the physical distance between the facility and the nearest town (Parachute, 14.0 miles), a community evacuation is not anticipated to be necessary in the event of an oil spill emergency. In the event that a community evacuation is deemed necessary, the on-scene Incident Commander will coordinate the effort with local authorities in accordance with the [Garfield County Emergency Operations Plan](#).

1.8 COMPATIBILITY WITH LOCAL, AREA, AND NATIONAL RESPONSE PLANS

Procedures provided in the National Incident Management System (NIMS) were referenced in the development of the evacuation plans described in this section. The planning and implementation procedures for emergency response at the MFWTF follow NIMS and Incident Command System (ICS) protocols and will therefore be compatible with the methods utilized by the Parachute fire and police departments, Garfield and Mesa County emergency response agency personnel, EPA Region VIII Regional Response Team (RRT) members, and members of the National Response Team (NRT).

To maintain consistency with the oil spill response procedures implemented by the above-referenced agencies, the following documents will be reviewed annually and the contents of this plan updated accordingly:

[Garfield County Emergency Operations Plan](http://www.garcosheriff.com/emergency_management.html) (available through the Garfield County website: http://www.garcosheriff.com/emergency_management.html)

EPA Region VIII Regional Contingency Plan (available by contacting the EPA Region VIII office – contact information can be found on their website at: <http://www.epa.gov/region8/preparedness/acp.html>)

[National Oil and Hazardous Substances Pollution Contingency Plan](http://www.epa.gov/oem/content/lawsregs/ncpover.htm) (available online at: <http://www.epa.gov/oem/content/lawsregs/ncpover.htm>)

1.9 IMMEDIATE ACTIONS

This section describes the basic immediate actions to be taken during an oil spill event at the MFWTF.

The following actions should be taken in order, which may vary depending on circumstances surrounding the oil spill, but each should be addressed.

- Stop the oil flow. Act quickly to secure pumps, close valves, etc. Utilize spill kits, absorbents, and other immediately available equipment.
- Warn personnel working in the vicinity of the spill using the horn, 2-way radio or flashing light. Implement and enforce safety and security measures.
- Shut off ignition sources such as motors, electrical circuits, open flames, etc.
- To the extent possible, contain spilled oil at or near the source. Initiate containment around the tank or piping with berms and/or in the water with booms. Prevent the oil from flowing into creeks, to the maximum extent possible.
- Notify Piceance Environmental (970) 319-9173.
- Protect the surrounding wildlife areas to the maximum extent possible and, if applicable, safely monitor the movement of oil/condensate on open water. Begin to remove accumulated oil/condensate when safe to do so.
- Notify National Response Center at (800) 424-8802.
- Notify On Scene Coordinator (800) 227-8914.

1.9.1 Potential Environmental Setting of a Spill

The MFWTF has systems that could potentially release oil to the environment in a number of settings. The facility is situated on sloped terrain and in close proximity to waterways. The immediate actions identified above must be tailored to the environmental setting of the oil spill. The following section describes in detail methods that may be employed to effectively control an oil spill in different environmental settings.

1.9.2 Potential Spills and Response Actions by Geographic Source Area

The MFWTF is comprised of a lower area located in the valley of a canyon and an upper area residing on a hillside above. The upper level contains the initial process operations and is also known as the White Tank Bench area. The lower level contains the DAF including oil/condensate storage tanks, produced water storage tanks and other operations. Section 9.0 includes diagrams of the MFWTF depicting the different operational areas, bulk storage tanks, and other features. Section 2.0 describes facility operations in greater detail. This section describes potential oil spill sources residing in different areas of the facility.

1.9.2.1 Spill at the Upper Level

The raw water tank and finished water tank are containers for the storage of produced water. They are single-wall tanks with secondary containment provided by a compacted soil berm (comprised of materials sufficiently impermeable to oil) that surrounds the perimeter of the area. Also located within the upper level soil berm are several oil/condensate storage tanks (which have also been provided with a lined steel containment structure), a separator (i.e., slug catcher), a produced water filtering unit, and oil-filled operational equipment. Temporary, portable storage units may also be positioned at the upper level if needed and are typically staged within the soil berm.

In the event that any of the storage or process units on the upper level experienced a failure or a transfer operation resulted in spill, the oil/condensate or produced water released would be contained by the sized containment structure (e.g., metal containment and/or soil berm). If a catastrophic spill occurred and the containment structure(s) were compromised in some manner, the oil/condensate or produced water would flow to the west, down the hill, across the road, into a historically dry creek channel, and would be detained prior to entering Parachute Creek. The distance from the west end of the upper level to the Middle Fork of Parachute Creek is approximately 680 feet.

Response actions for such a release would include the immediate actions listed in Section 1.8.1. Securing the source and physical containment of the oil spill is the focus of initial response actions. With the primary goal of preventing oil from reaching Parachute Creek, the materials in the spill kit drums situated on the upper level could be utilized to absorb free liquids and help

confine the release. The surface of the upper level consists of a relatively even grade, which may assist in controlling and confining a release to that area. In the event that the spill threatens to flow downhill, the spill response trailers located on the lower level would be deployed to the road near the bottom of the hill and the materials utilized to aid in controlling the release. In addition, response personnel (when safe to do so) may utilize non-sparking shovels and any heavy equipment available to dig shallow trenches or stage temporary earthen berms to intercept the oil flow. Since the volume of the dry creek and flat area to the west of the upper level is greater than the volume of a catastrophic spill at the Upper Level, it is not anticipated that the spill would reach Parachute Creek. Spill at the Lower Level

The lower level of the MFWTF houses the DAF Unit (including oil recovery equipment) and the produced water storage tanks. Each container in the DAF Unit is provided with a sized metal secondary containment structure; any overflow of the DAF Unit will be contained by the DAF building. Temporary, portable storage units may also be positioned at the lower level and may not be provided a secondary means of containment.

In the event that any of the oil/condensate storage or produced water tanks on the lower level experienced a failure or a transfer operation resulted in small-, medium-spill, the oil released would be contained by the sized containment structure. If a catastrophic spill of a produced water tank occurred, a portion of the produced water could overtop or breach the secondary containment. A portion of the produced water could flow to the southwest, across the road, into the East Fork of Parachute Creek and ultimately to Parachute Creek. The distance from the southern corner of the facility to the East Fork of Parachute Creek is approximately 120 feet.

Response actions for such a release would include the immediate actions listed above. Securing the source and physical containment of the oil spill are the focus of initial response actions. With the primary goal of preventing oil from reaching the East Fork of Parachute Creek, the materials in the spill kit drums and trailers located on the lower level could be utilized to absorb free liquids and help confine the release. In the event that the spill begins to flow off-site, response personnel may (when safe to do so) utilize non-sparking shovels and any heavy equipment available to dig shallow trenches or stage temporary earthen berms for control. For spills that reach the East Fork of Parachute Creek or Parachute Creek, booms and other on-water response equipment may be strategically deployed.

1.9.2.2 Spill From a Pipeline

Produced water pipelines associated with the MFWTF are located in a number of environmental settings and often closely follow the Parachute Creeks. None of the pipelines have secondary containment; however, the majority of the major water pipelines are either internally epoxy coated or have insituform HDPE liner installed to guard against pipeline corrosion. A pipeline

failure within 50 feet of a creek is possible and would result in a discharge to the creek in a very short period of time.

Response actions for such a release would include the immediate actions listed above. Securing the source and physical containment of the oil spill are the focus of initial response actions. The spill kit drums and trailers closest to the release would be immediately deployed to the scene and to strategic locations downstream. The materials in the kits/trailers would be utilized to absorb free liquids from the ground and help confine the release. Booms and other on-water response equipment may be employed as needed. When safe to do so, response personnel may also begin utilizing non-sparking shovels and any heavy equipment available to stage temporary earthen berms to intercept the oil flow.

1.10 FACILITY DIAGRAMS

The diagrams included in this section and Section 9.0 provide a resource for the planning of response actions and may also be referenced during an oil spill emergency at the MFWTF.

The Site Plan Diagram depicts the entire facility to scale and is provided as Figure D-2. The Facility Diagram presented as Figure D-3 identifies the locations of:

- Aboveground bulk oil storage tanks (including their contents and capacities)
- Electrical equipment which contains oil and other utilities
- Transfer areas
- Process buildings
- Direction of discharge flow from discharge point
- Secondary containment systems (including their capacities)
- Emergency response equipment (spill kit drums)
- Weirs and shut-off valves
- Facility drainage patterns and surface water receiving streams.

The Site Evacuation Plan Diagram is provided as Figure D-4 and depicts the following:

- Evacuation routes
- Locations of the 2 designated evacuation assembly areas
- Communication equipment (phones and 2-way radios)
- Emergency response equipment (spill trailers)
- Response personnel and equipment transportation (ingress and egress) routes

Because there are no storm sewers, or hazardous material storage areas currently present at the MFWTF, these areas are not depicted on the site diagrams. The fresh water pond is shown on the facility diagram and is a source of fire-fighting water.

2.0 FACILITY INFORMATION

This section of the FRP provides an overview of the equipment and operations associated with the MFWTF. A Facility Information Form has been included as Table A-1 to provide specific details regarding the facility and a description of past activities at the site. The information presented in Table A-1 is reviewed and updated on an annual basis and as needed following changes in facility operations and/or personnel.

2.1 FACILITY DESCRIPTION

The MFWTF is situated at the mouth of a canyon in an undeveloped area located approximately 14.0 miles northeast of the town of Parachute, Colorado. The facility covers approximately 20 acres. The facility is comprised of a lower area located in the valley of the canyon and an upper area residing on a hillside above. At the upper level, condensate is received into a slug catcher unit and separated into two fractions: one containing oil/condensate and the other consisting of produced water. The produced water is transferred to the Raw Water Tank (Tank A, Figure D-3) while the oil fraction is stored in one of several smaller oil/condensate tanks (Tanks C to L, Figure D-3). The condensate tanks also receive material via truck.

Produced water from the Raw Water Tank is discharged to the produced water delivery system and distributed throughout the NPR for use in well completion and production operations. Prior to discharge to the delivery system, produced water from the Raw Water Tank is treated to reduce the amount of oil present in the stream, either through a series of filter bags housed on the upper level or through the water treatment system on the lower level.

At the lower level, water from the Raw Water Tank is received into the DAF system, where any remaining free oil and suspended solids are separated from the produced water stream. The recovered oil, guar, and bottom solids from the DAF process are stored in nearby tanks. Produced water from the DAF Unit is discharged to the produced water storage tanks where it is stored until it can be discharged to the produced water delivery system.

Components of the produced water delivery system are also included in MFWTF operations. The delivery lines are utilized to pipe produced water to other production operations located to the south and northwest of the NPR. As an alternative to transport via piping, produced water may be loaded into tank trucks and transported off-site for use at Encana sites outside of the NPR area or to a properly permitted waste disposal facility.

2.2 FACILITY INFORMATION FORM

The information provided in the Facility Information Form, Table A-1, is intended to provide an overview of facility operations and a description of historical activities that have taken place at the site.

Table 2-1

Facility Information Form

FACILITY INFORMATION FORM	
General Information	
Facility Name:	Middle Fork Water Treatment Facility
Street Address:	Encana Parachute Field Office 143 Diamond Avenue Parachute, CO 81635
Facility Phone Number:	970-285-2905 (Parachute Field Office)
Latitude:	N 39 ⁰ 34'37" (Facility Entrance)
Longitude:	W 108 ⁰ 06'26" (Facility Entrance)
Wellhead Protection Area:	None identified per CDPHE WQCD - Restoration & Protection Unit Representative
Facility Acreage	Approximately 20 acres.
Owner/Operator Information	
Owner/Operator of Facility:	Encana Oil & Gas (USA) Inc.
Owner/Operator Address:	370 17 th Street, Suite 1700 Denver, CO 80202
Qualified Individual Information	
Environmental On-Call Spill Coordinators – Emergency Phone (970) 319-9173	
Work Address for All Qualified	143 Diamond Avenue

FACILITY INFORMATION FORM	
Individuals/Spill Coordinators:	Parachute, CO 81635
Home Addresses:	See Encana representative
Training for All Qualified Individuals/ Spill Coordinators:	HAZWOPER 40-hour, Incident Command System, Encana ERP, MFWTF FRP, facility SPCC Plan
MFWTR Qualified Individuals/Spill Coordinators (Name – Position, Mobile Phone):	
Brett Middleton – EHS Field Coordinator, 970.987.4650	
Chris Hines –EHS Field Coordinator, 970.261.1127	
Kathy Vertiz – EHS Field Coordinator , 970.456.6406	
Charles Jensen –EHS Field Coordinator, 970.309.1022	
Oil Storage Information	
Date of Oil Storage Start-Up:	2004
Current Operation:	Treatment facility for waters generated during associated natural gas production operations
NAICS Code:	211111
Date(s) and Type(s) of Substantial Expansion(s):	2005 – Added middle fork (MF) water storage pond
	2006 – Added MF electric pump house #1
	2007 – Added 3-phase separator & vapor recovery unit, MF pond discharge pump house
	2009 – Added middle fork avian radar/hazing system, MF thermal oxidizer unit
	2010 – completed reconstruction of white tank, added MF DAF unit building and assoc. tank battery, added MF electric pump

FACILITY INFORMATION FORM	
	house #2, added MF white tank flash separator
	2012-completed installation of three 85,000 bbl produced water storage tanks, and associated pumping, piping and containment

MF – Middle Fork

DAF – Dissolved Air Floation

NAICS – North American Industrial Classification System

HAZWOPER – Hazardous Waste Operations

ERP – Emergency Response Plan

MFWTF – Middle Fork Water Treatment Facility

FRP – Facility Response Plan

SPCC – Spill Prevention, Control, and Countermeasures

EHS – Environmental Health and Safety

3.0 HAZARD EVALUATION

A hazard evaluation has been conducted for the MFWTF to assist facility management in developing a complete understanding of potential hazards and the response actions that may be necessary to mitigate those hazards should an emergency situation develop. In accordance with standard industry practice, the facility's operations were closely examined to help predict where discharges could occur; thus assisting in the correction of problems identified during the evaluation and aiding in the control of potential sources of an oil spill. In addition, special safety hazards to workers and emergency response personnel were also evaluated, as well as the facility's oil spill history. This hazard identification, evaluation, and correction process will be repeated during the annual review of this plan. The evaluation will assist facility management in ongoing planning efforts related to potential discharges; thereby reducing the potential for a discharge that could severely impact facility operations, the surrounding environment, and/or local residents. The following sections describe individual components of the hazard evaluation process.

3.1 HAZARD IDENTIFICATION

To properly plan for an oil spill, two things must be considered: 1) the location of a possible release, and 2) the facility operations that may result in the release. This section lists the bulk storage tanks at the MFWTF and identifies the various operations conducted at the facility that could result in a significant release. Because of the size of the MFWTF, however, the location of every possible release source is not included in this plan. Only oil storage containers with a capacity equal to or greater than 300 gallons have been included. Thus small, oil storage containers for flammable liquids or lubricants are not specifically identified. A facility diagram depicting the locations of containers storing oil/condensate, produced water, and recovered oil is provided as Figure D-3. The quantities of oils stored are also noted on Figure D-3 and are detailed in Table A-4, Hazard Identification – Inventory of MFWTF Bulk Storage Containers.

The MFP located on the lower level at the MFWTF is utilized for storage of fresh water and is therefore not considered to be a surface impoundment. There are no surface impoundments currently in service at the MFWTF.

3.1.1 Aboveground Storage Containers

The MFWTF currently has 24 aboveground storage containers storing a total of 11,206,020 gallons of oil products. This includes three 85,000-barrel storage tanks for produced water with a total storage capacity of 10,710,000 gallons. The oil products stored at this facility include oil/condensate, produced water, guar, and recovered oil. These materials are stored in aboveground storage tanks (ASTs) with shells made of steel, compatible for storage of petroleum-based substances. There are no records of any AST or earthen berm failures at the

MFWTF. The following sections describe the facility ASTs in greater detail, and Table A-4 provides a listing of the ASTs at the MFWTF. All ASTs are identified on Figure D-3, included in Section 9.0.

3.1.2 Upper Level

The tanks located on the upper level of the MFWTF are constructed of steel, which is compatible with the stored liquids. The Raw Water Tank and the Filtered Water Tank are both single-walled, field-erected tanks that have been provided with an internal epoxy coating which meets the Encana engineering coating specification for the shell and floor of oil filled storage tanks. The ten oil/condensate tanks located on the upper level are shop-built steel tanks.

The Raw Water Tank contains produced water and oil/condensate and was originally constructed in 2004 per American Petroleum Institute (API) 650 standards. The Raw Water Tank was reconstructed in 2010 and rests on a concrete ring around its circumference and compacted sand in its center. Overfill protection is provided for the Raw Water Tank with two high level switches (vertical and horizontal) and one low level switch (horizontal level switch) and a Rosemount 5400 Series Radar Level which provides constant monitoring of produced water or oil/condensate levels. Liquid level data is reported through programmable logic control and an electronic “Cygnnet” device, which Gas Control personnel monitor 24-hours a day. If the liquid level gets too high, a dump valve is automatically opened to send water to the MFP on the lower level. A flashing red light on the tank also serves as a visual high level alarm.

The Filtered Water Tank was also constructed in 2004 and rests on compacted road base. The Filtered Water Tank contains produced water that has been treated through pressure filters to remove a fraction of the original oil/condensate content. The Filtered Water Tank has both a high level and low level switch and a Rosemount 3300 Series Radar Level. Water level data for the Filtered Water Tank is also monitored by Gas Control personnel. A flashing red light on the tank serves as a visual high level alarm.

The ten oil/condensate tanks located on the upper level were also placed into service in 2004 and rest on a synthetic liner inside a common steel containment structure. Overfill protection is provided by a high level switch and a Rosemount 3300 Series Radar Level. Each tank also has an automated isolation valve and has been equipped with an equalization line.

3.1.3 Lower Level – Produced Water Storage Tanks and DAF Unit

The Middle Fork Pond (MFP) is a pond with earthen side walls and double synthetic liners used for storing fresh water. Since the MFP does not contain oil as defined by the regulations, it is not included in the FRP.

The DAF unit is designed to further treat produced water before it is stored in PWST. Produced water is received from the Raw Water Tank into the DAF Unit, and the discharge from the DAF goes to PWST. This treatment unit runs at a constant rate of ~15,000 barrels per day and removes suspended solids and oil/condensate from the water. The tanks associated with the DAF Unit include: a recovered-oil tank, three bottom solids tanks, two guar tanks, and a fresh water tank. Overfill protection for the DAF tanks is provided by radar with high level alarms triggering warning lights notifying personnel of tank level issues. In addition, the DAF solids tank has an emergency shutdown level switch that will shut down the DAF unit if triggered.

3.1.4 Produced Water Storage Tanks

The MFWTF has three 85,000-barrel produced water storage tanks (PWST) within secondary containment. The design includes the potential for a fourth such tank. The tanks are manifolded together with valves maintained in the closed position. These tanks have installed level indicators with remote monitoring plus redundant high level indicators. These levels are constantly monitored by facility personnel and computerized system. These tanks are made of steel with epoxy coating compatible with produced water. Secondary containment consists of a concrete wall 8 feet high surrounding the entire tank area.

3.1.5 Mobile Storage Containers

Mobile, portable, or temporary containers such as diesel trailers, frac tanks, or blowdown tanks may be utilized throughout the facility for additional fuel supply or for the storage of oil-containing liquids. During standard facility operations, as many as fifty such containers may be present in the MFWTF area. As a standard practice, the volume of fuel stored in the tank trucks will be minimized to the greatest extent practicable. The anticipated capacities of these containers have been approximated as:

- Blow-down tanks – 80 – 150 barrels (bbl)
- Frac tanks – 500 bbl

General secondary containment is provided for portable and temporary containers where practicable. The facility diagram provided as Figure D-3 identifies the areas where mobile, portable, and temporary containers are generally positioned when needed during loading and unloading operations.

3.1.6 Loading/Unloading of Transportation Vehicles

The loading and unloading of transportation vehicles presents a risk for the release of oil during the transfer process. Loading and unloading areas are located on both the upper and lower levels of the MFWTF. These areas have been identified on Figure D-3.

On the upper level, a tank truck loading/unloading area is situated adjacent to the oil/condensate tank battery. At this tank truck loading/unloading area, oil/condensate is unloaded from tank trucks for storage in the tanks. A second tank truck loading/unloading area is located to the west of the oil/condensate tank battery. At this second tank truck loading/unloading area, oil/condensate is loaded into tank trucks to be hauled for sale. The compacted soil berm surrounding the upper area provides general secondary containment for these areas. The capacity of the transportation vehicles involved in transfer of produced water and oil/condensate is estimated to be between 80 and 120 bbl.

To the southwest of the DAF unit, there is a designated area for loading/unloading materials generated by the treatment process and for utilizing the facility's mobile filter press. There is typically no secondary containment provided for the loading/unloading operations taking place on the lower level. The capacity of fuel trucks/trailers is estimated to be between 3,360 and 5,060 gallons.

3.1.7 Daily Operations

In addition to the loading and unloading of oil products from transportation vehicles as described above, daily operations also include the transfer of oil-containing materials from container to container. Daily operations conducted at MFWTF involve the frequent or continuous transfer of oil/condensate and produced water, presenting the potential for an oil spill. Maintenance activities such as the repair and replacement of transfer piping also present the risk of a spill. The average throughput of the MFWTF is estimated to be 0.5 million bbl per month.

3.1.8 Secondary Containment

General secondary containment is required, at a minimum, to contain the most likely quantity of oil expected to be discharged by the most typical failure modes from equipment storing or transferring oil at the facility. Such equipment includes bulk storage containers, treatment units, separation installations, portable containers, transfer lines, and oil-filled operational equipment. The facility SPCC Plan and Table A-10 describe typical failure modes for this equipment and provide estimated discharge volumes and flow rates. The following describes the secondary containment volumes associated with the upper and lower areas of the MFWTF.

On the upper level, general secondary containment is achieved through maintenance of the compacted soil berm that surrounds the level. The calculated capacity of the containment berm is 31,659 bbl compared to the 15,000 bbl largest single tank (211% of the largest tank failure). The berm provides containment for the Raw Water Tank (Tank A), Filtered Water Tank (Tank B), Filter Unit (located in the Produced Water Filter Building), Oil/condensate Tanks (Tanks C through L), and the oil-filled transformer that resides on the upper level. In addition, the ten 500 bbl oil/condensate tanks have been provided with a common steel containment structure with a capacity of 862 bbl.

General secondary containment is also provided for the containers residing on the lower level of the MFWTF. The seven 500 bbl tanks associated with the DAF unit (Tanks 1 through 7) reside in one large, sized secondary containment structure having a total capacity of 883 bbl.

The lower level also has three 85,000-barrel (3,570,000 gallons each) produced water tanks with concrete walls 8 feet tall providing a containment volume of approximately 5.48 million gallons (153% of largest tank failure). If the secondary containment failed the facility has a “Watergate” temporary dam that can be placed upstream of the guard shack to minimize the flow from travelling further downstream.

The oil-filled transformers on both levels have dedicated containment structures with a total capacity of 250 gallons each

3.1.9 Normal Monthly Throughput

The total normal monthly throughput for the MFWTF is estimated to approximately 0.5 million bbl per month. The routine fluctuation in daily throughput quantities will have a negligible effect on potential discharge volumes.

3.2 VULNERABILITY ANALYSIS

A vulnerability analysis for the MFWTF has been conducted in accordance with FRP guidance (40 CFR 112, Subpart D). The analysis evaluates the source, pathway and receptors which could be impacted in the case of a spill of oil, in this case produced water, which may be discharged beyond the facility boundaries, as described in Appendix F.

The source of a potential spill is defined further in Appendix F, in terms of: volume, rate of flow, direction of flow and chemical characteristics of produced water. Depending on exposure, dissolved hydrocarbons from a spill may create adverse acute or chronic impairment in humans, aquatic or terrestrial species. As explained in Appendix F, benzene has been determined to be the primary contaminant of concern in produced water, with respect to potential impairment.

Human health vulnerability has been defined by FRP guidance as the potential to shut down a drinking water intake. In this case the nearest downstream drinking water intake is approximately 26.7 miles, on the Colorado River, at DeBeque. A drinking water intake would be subject to shut down on a temporary basis if the benzene level in the river water exceeded 0.2 mg/l, which is the USEPA Drinking Water Health Advisory for an acute, one day exposure by ingestion of a child. Similarly, a permanent shut down of the drinking water intake could occur if the benzene level in river water exceeded 0.005 mg/l, which is the Drinking Water MCL for chronic exposure over 30 years. Calculations in Appendix F evaluate the estimated concentrations of benzene in Parachute Creek and the Colorado River which may be created by a spill.

Fish vulnerability has been defined by FRP guidance as the potential to cause injury. An acute standard for exposure of aquatic life to benzene has been established at 5.3 mg/l, in accordance with CDPHE Regulation 31, The Basic Standards and Methodologies for Surface Water. No chronic standard for benzene has been established for surface water. Calculations in Appendix F evaluate the estimated concentrations of benzene in Parachute Creek and the Colorado River which may be created by a spill.

Wildlife and sensitive environment vulnerability has been defined by FRP guidance as the potential to cause injury. As can be seen on Figure D-2, the produced water storage facilities are in close proximity to the East Fork of Parachute Creek and Parachute Creek. Much of the land and waterways around the MFWTF has been designated as Sensitive Wildlife Habitat by the U.S. National Forest Service. Table D-5 provides a detailed depiction of the areas designated as sensitive for cutthroat trout, golden eagle, sage grouse, prairie falcon, and elk activity. Because of the sensitive nature of the environment surrounding the area, small volumes of produced water spilled to the environment near the MFWTF has the potential to have adverse impacts on area fish and wildlife, not only due to the presence of hydrocarbons but from the disturbance of natural habitat resulting from cleanup operations as well. It has been assumed, without calculation, that a worst-case scenario spill into Parachute Creek has the potential to cause injury to wildlife and sensitive environments.

This FRP documents that there are no known or anticipated spill impacts to nearby schools, medical facilities, residential areas, businesses, transportation routes or other areas of economic importance.

3.3 ANALYSIS OF THE POTENTIAL FOR AN OIL SPILL

An analysis of the probability of an oil spill to occur at the MFWTF has been conducted. As part of this analysis, factors such as the vulnerability of the location to natural disaster and the potential range of an oil spill have been considered. The oil spill history of the facility and the age and condition of its tanks were also researched and factored into the analysis. The information obtained from this analysis has been summarized in the following sections and was utilized in the development of discharge scenarios of varying levels of severity. Because this analysis is conducted annually during the plan review, the process will also aid in the ongoing development of techniques designed to control the size and frequency of discharges.

3.3.1 Analysis of Equipment Failure

An analysis of equipment failure was performed for higher-risk bulk storage containers and pipelines at the MFWTF. During this evaluation, the types of equipment failures identified as having the highest probability of occurring were analyzed. The volume of material expected to be released as a result of each type of failure was estimated. A visual evaluation and

topographical information for the area were used to estimate a potential rate of flow for the spilled material as well as a general direction of flow. Information resulting from the analysis is summarized in Table A-10, Analysis of Equipment Failure. As discussed in Section 4.2, Vulnerability Analysis, the topography of the facility is such that a significant release of produced water-containing material has the potential to reach a waterway.

3.3.2 Natural Disaster Potential

The potential exists for certain natural disasters to affect the MFWTF. Based on the 2008 USGS National Seismic Hazard Maps, the potential exists for an earthquake to occur in the area of the facility. A review of emergency preparedness plans developed for Garfield and Mesa Counties and EPA Region VIII suggests that wildfires may also occur in the area. Although flash floods may occur in the creek beds, county flood data indicate that the MFWTF is not located in an area prone to flooding. The occurrence of severe winter storms may also affect operations at the facility and could ultimately influence the potential for an oil spill due to the potential for damage to occur when materials freeze inside equipment and piping. Encana's ERP also includes planning elements for the occurrence of a tornado in the South Rockies area.

3.4 FACILITY REPORTABLE OIL SPILL HISTORY

A review of Encana's corporate records and historical operating records for the facility did not reveal any reportable oil spills having occurred at the MFWTF since the facility was established in 2004. Should a reportable oil spill occur at the facility, information regarding the release will be documented on the MFWTF Oil Spill History Log provided as Table C-2. In addition, a completed Spill Response Notification Form (Table A-6) and any associated documentation must be maintained on file at the Parachute Field Office for a minimum of 5 years.

4.0 DISCHARGE SCENARIOS

This section provides a description of the facility's calculated worst-case discharge scenario, as well as scenarios for small and medium sized spills. A multilevel planning approach has been implemented to effectively respond to oil spills (i.e., providing the necessary level of response equipment, products, and personnel) depending upon the magnitude of the spill and varying spill pathways. Thoughtful planning for a worst-case scenario is essential to an effective response; however equivalent planning for lesser discharge events is equally as important because the nature of the response may differ depending on the quantity of oil released.

For the purposes of this plan, a discharge refers to any unauthorized release or spill of oil. Below are the definitions for small, medium, and worst-case discharges, as provided by 40 CFR 112:

- **Small discharge** - Any discharge volume less than or equal to 2,100 gallons (50 bbls), but not to exceed the calculated worst-case discharge. A single bob-tail or vacuum truck (approx. 80 bbl capacity) has the capacity to recover releases of this size.
- **Medium discharge** - Any discharge volume greater than 2,100 gallons (50 bbls) and less than or equal to 36,000 gallons (857 bbls), or 10 percent of the worst-case discharge, whichever is less. Release in this range can be recovered using multiple vacuum trucks that are available locally.
- **Worst-case discharge** - For an onshore, non-transportation-related facility, the largest foreseeable discharge in adverse weather conditions as determined using the worksheets provided in 40 CFR 112, Appendix D. Releases larger than medium discharges will require additional equipment, including heavy equipment or water gates (temporary dams) that are available locally in addition to bob-tails and vacuum-trucks.

4.1 SMALL AND MEDIUM DISCHARGE SCENARIOS

This section discusses the potential for a small or medium discharge of oil to occur at the MFWTF, as well as factors that could potentially delay response to such a discharge.

4.1.1 Facility-Specific Spill Scenarios

Facility-specific spill scenarios that could result in a small or medium discharge of oil to occur at the MFWTF involve primarily operator error or faulty equipment, and include:

- Discharge during oil transfers (i.e., loading and unloading operations)
- Discharge during maintenance activities involving storage tanks, equipment, and/or piping
- Discharge during vehicle refueling
- Discharge due to vehicle collision with oil transport equipment

- Discharge due to a failure resulting from the age and/or condition of storage, process, and/or transfer equipment.

4.1.2 Factors that Affect Response Efforts

Response to small or medium discharges of oil at the MFWTF could be affected by:

- **Size of the spill** - The MFWTF maintains sufficient spill response personnel and equipment on-site to respond to a small oil spill. In accordance with the regulations presented in 40 CFR 112 Appendix C, the MFWTF maintains at least 100 feet of containment boom, Watergate, recovery pumping capacity of at least 2,100 gallons per day, and temporary storage capacity of 4,200 gallons per day to manage a small spill. For a medium spill, response equipment provided by the facility and off-site contractors would be utilized for control and cleanup.
- **Proximity to down gradient wells, waterways, and drinking water intakes** – Based on the distance between the facility and the nearest drinking water intake (26.7 miles), response to a small or medium spill is not anticipated to be affected by the proximity of the facility to the drinking water supply area. Similarly, it is anticipated that a small or medium spill of oil occurring at the MFWTF could be contained and cleaned up before reaching down gradient wells. As noted in previous sections, facility operations are situated in relatively close proximity to the Parachute Creek system. The possibility exists for response efforts to be affected by the proximity of the spill to a waterway.
- **Proximity to fish and wildlife and sensitive environments** – There are several identified sensitive wildlife areas located within close proximity to the facility. The close proximity to these habitats requires added emphasis on a timely and effective response to any release of oil to the environment. Beyond the critical nature of a timely response, the proximity to fish and wildlife sensitive environments is not anticipated to greatly affect response efforts.
- **Likelihood of discharge traveling offsite** – As noted in previous sections, the majority of storage, process, and oil-containing equipment at the MFWTF is located within sized secondary containment. As such, in the majority of overfill or equipment failure scenarios, the likelihood of the spill traveling offsite should not greatly affect the response to a small or medium discharge. However, temporary and mobile units may be operated outside of general containment structures and may hold capacities of oil sufficient to result in a small or medium sized spill should a failure or overfill occur. Likewise, pipelines transferring produced water are also located outside containments. Under these discharge scenarios, the possibility for a small or medium spill to travel offsite exists and could affect the timing and magnitude of the response effort.
- **Spill location** – Spill location will affect the timing and level of response to small or medium spills. Spills that occur within the operational area of the MFWTF will allow for a quicker response time and will be more accessible to response personnel and equipment. Although access to remote locations is not anticipated to be an issue, spills located at remote pipeline locations or spills that result in the discharge of oil to a creek

will require additional time to dispatch resources to the scene and may require additional and/or different types of response equipment.

- **Material discharged** – The type of material discharged is not likely to affect or delay response efforts to a small or medium spill, as the MFWTF stores a limited variety of oils that have similar qualities/characteristics.
- **Weather conditions** – Severe weather conditions may result in delays in response to oil discharges due to the inability of response personnel to navigate roads. However, all MFWTF oil spill response personnel are trained to respond in a variety of adverse weather conditions (i.e., heavy snow, fog, below-freezing temperatures); therefore, such delays are anticipated to have minimal effect on the overall response effort.
- **Availability of remediation equipment** – Response equipment, materials and supplies (including remediation equipment) sufficient to control and cleanup a small spill are maintained readily available onsite. For a medium spill, response equipment provided by the facility and off-site contractors would be utilized for control and cleanup. Contractor-supplied remediation equipment may be provided by a number of local companies located in relatively close proximity to the facility; therefore, the availability of that equipment should not greatly affect or delay the response to a medium discharge.
- **Probability of a chain reaction of failures** – Because the majority of MFWTF operations are either performed in stand-alone units (i.e., Raw Water Tank, DAF Unit, or produced water storage tanks) and/or are conducted as independent transfers (i.e., unloading of oil/condensate into receiving tank), the probability of a chain reaction of failures is not believed to have a significant probability of occurring. Although the possibility of a chain reaction of failures to occur is considered during oil spill response preparation, such an event is not anticipated to greatly affect or delay a response effort.
- **Direction of spill pathway** – The direction of spill pathway may affect the timing associated with a response. Spill pathways that travel offsite in remote areas may require additional time to reach than spills that are confined within containment structures or those that run alongside an established road. Typically, an offsite spill pathway can be anticipated, as it will follow the grade of the sloped area. MFWTF personnel are trained to anticipate spill pathways and respond accordingly to intercept.

4.2 WORST-CASE DISCHARGE

This section discusses the potential for a worst-case discharge of oil, in the form of produced water, to occur at the MFWTF, as well as the factors that could potentially delay response to a discharge of this magnitude.

4.2.1 Worst-Case Discharge Volume

The volume of a worst-case discharge at the MFWTF, based on FRP guidance, is from the largest produced water tank, i.e., 85,000 bbl (3,570,000 gallons). All aboveground oil storage containers at the facility have been provided with adequate secondary containment.

4.2.2 Facility-Specific Spill Scenarios

Appendix F and Figure D-6 provide the detailed assumptions, calculations and results of the evaluation of Substantial Harm to drinking water, fish, wildlife and sensitive environments, as a result of a worst-case discharge scenario from a spill of produced water at the MFWTF facility. This scenario is summarized as follows:

- A worst-case discharge is assumed from a total collapse of the single largest tank, 3,570,000 gallons, and this discharge may occur over a relatively short period, estimated to be seven minutes. Based on modeling of tank ruptures at other sites, approximately 50% of the produced water may overtop the containment wall, with 50% being contained and available for recovery. Accordingly, 1,785,000 gallons overtops the wall. Again based on modeling of tank ruptures at other sites, it is assumed that the discharge overtopping the wall proceeds in a radial pattern, i.e., 25% each to the north, east, west and south. Due to the topography of the site, 75% of this discharge to the north, east and west will be captured in natural drainage swales, ditches and flat areas, whereas 25% may proceed overland to the south toward Parachute Creek. Accordingly, approximately 446,250 gallons of produced water may enter the creek over a period of seven minutes.
- The free-phase oil/condensate is typically about 0.1%, and the produced water about 99.9%, of the fluids from the North Piceance natural gas production field. Produced water is treated in a Dissolved Air Flotation (DAF) system, which separates floating product (oil/condensate) from dissolved-phase produced water.
- The primary contaminant of concern in the discharge, benzene, has been analyzed extensively in produced water at the MFWTF, and averages less than 10 mg/l. Over 50 samples were taken of the effluent from the Dissolved Air Flotation unit (DAF) between 2010 and 2012. The DAF is designed to remove contaminants in the produced water. The data shows that the DAF is effective in removing between 30 and 65% of the undissolved contaminants. The DAF is more effective in removing DRO (64%) than GRO (33%). Suspended solids are removed at around 33% (volatile suspended solids) to 43% (total suspended solids) efficiency. To some extent the DAF acts as an air stripper.
- Based on USGS stream gauging data, Parachute Creek can be characterized with median values of: 30 cubic feet per second flow rate, 3.74 feet depth, 29 feet width, and velocity of 4.98 feet per second; accordingly as the 446,250 gallons of spill becomes mixed with 395,731 gallons of downstream creek water (total of 841,981 gallons of spill/creek mix), the benzene concentration will dilute from 10.0 to 5.3 mg/l over approximately 0.2 miles. Since the acute aquatic life toxicity of benzene is 5.3 mg/l, Parachute Creek is no longer impaired for aquatic life beyond approximately 0.2 miles downstream of the MFWTF
- Similarly as the 841,981 gallons of spill/creek mix becomes further diluted with 21,470,000 gallons of downstream creek water (total of 22,312,000 gallons of spill/creek mix), the benzene concentration will dilute from 5.3 to 0.2 mg/l over approximately 4.7 miles. Since the Drinking Water Health Advisory-One Day for benzene is 0.2 mg/l, Parachute Creek is no longer impaired as a drinking water supply beyond approximately 4.7 miles of the 12.7 miles downstream of the MFWTF. Finally, the estimated benzene concentration in the Colorado River at the DeBeque drinking water intake is estimated to

be less than 0.005 mg/l for less than two hours of spill impact from the MFWTF. Conversely, the benzene concentration would need to be greater than 0.005 mg/l over 30 years to exceed the chronic Drinking Water MCL.

4.2.3 Factors that Affect Response Efforts

The following sections discuss factors that may affect response efforts in the event of a worst-case discharge of oil at the MFWTF.

Response to a worst-case discharge of oil at the MFWTF could be affected by the same factors addressed in Section 5.1.3. In addition to the discussion presented in Section 5.1.3, response efforts to a worst-case discharge event could be affected as follows:

- Off-site migration of a worst-case oil spill is very likely due to the close proximity of the MFWTF to the Parachute Creek system. Rapid deployment of adsorbent materials, temporary dams and other control measures to drainage ditches and other spill pathways is critical to reducing the probability of spilled material reaching Parachute Creek.
- In a worst-case discharge scenario, the availability of remediation equipment will affect the timing and availability of a response. Response equipment available at the MFWTF is more appropriate for responding to and controlling a small discharge. To respond to a medium to worst-case oil spill, equipment, materials, and supplies would need to be supplied by offsite spill response organizations. Local emergency responders (i.e., fire department and local hazardous materials response teams) will respond in the event of an oil spill emergency at the MFWTF and provide the resources available to them. In addition, according to the Garfield County Emergency Operations Plan, the Garfield County Sheriff's Office and county Multi-Agency Hazardous Material Response Team will respond to a worst-case discharge of oil at the MFWTF. Resources from Mesa County may also be called upon for assistance when cooperative efforts are needed. The response time from the centralized dispatch station for local emergency responders is 45 minutes to 1 hour, while the response time for county responders is anticipated to be between 2 and 3 hours, still well within the 6 hour response time listed for the first tier of responders to arrive on-scene.

4.3 RECOVERED MATERIAL

- Material recovered under any scenario will be made up of oil/condensate, produced water or recovery materials such as sorbent material.
- Recovered produced water will be returned to the produced water tanks for further treatment. The produced water capacity of the MFWTF is over 270,000 bbls.
- Recovered oil/condensate will be returned to the produced water tanks, if contaminated with water, or to the oil/condensate tanks if not. The oil/condensate capacity of the MFWTF is over 5,000 bbls.
- Recovery materials such as booms, sorbent materials etc. will be collected and disposed of off-site in accordance with applicable regulations.

- Additional storage capacity is available locally using portable frac tanks (500 bbls each) for storage of produced water, oil/condensate, or mixtures of both.

5.0 DISCHARGE DETECTION SYSTEMS

5.1 DISCHARGE DETECTION BY PERSONNEL

Because of its size, the MFWTF relies on the individuals working in the central MFWTF area as well as the more remote pipeline areas to be responsible for detecting spills. Facility personnel have been assigned individual responsibilities for conducting periodic inspections of operational areas for malfunctions or deterioration of equipment that may lead to the release of oil to the environment. These inspections are documented and the records maintained in accordance with the facility SPCC Plan. Detailed inspection guidelines are provided in Section 3.0 of the facility SPCC Plan and are also discussed in Section 8.0 of this document. Operation-specific inspections may also be developed for non-routine tasks, as needed. A protocol has been established to account for personnel vacations, sick leave, etc. to ensure that inspections continue to be performed as required.

The oil storage containers at the MFWTF are situated aboveground and are visible for inspection during routine operational and periodic equipment inspections. Visible piping, seals, and valves associated with the containers are typically in plain view of facility personnel and are also inspected. Periodic container inspections (monthly, annual, etc.) include written notations of observations made and the date and nature of any repairs or other corrective actions that need to be taken. Corrective actions are managed through Encana's Incident Management System (IMS). Although daily inspections are not recorded, any issues identified during routine operational inspections (leaks, spills, etc.) are also reported and managed through the IMS.

In addition to the routine operational and periodic inspections described above, all facility personnel are responsible for immediately reporting any leak or spill of oil. The primary bulk storage containers are located in work areas that are occupied or visited regularly during normal working hours. In the event of an oil spill that cannot be readily handled by operations personnel, or upon discovery of a previously undetected oil release, or if unsure of the proper response to an oil spill, all MFWTF personnel are trained to immediately call the Encana Environmental On-Call Line to reach Piceance Environmental. The Emergency Notification Phone List (Table A-5) is posted in all work locations. The list explains the proper notification protocol in the event of an oil spill.

During evening or other off-shift hours (i.e., weekends, holidays), the level of the MFP is monitored continuously. Continuous monitoring is achieved through a combination of visual observation by the operator on duty and the utilization of electronic level gauges. In addition, remote areas of the facility are patrolled on an as-needed basis depending on operational activity. All MFWTF personnel working during evening or off-shift hours are trained to immediately report any oil or hazardous substance discharge to the Encana Environmental On-Call Line.

5.2 AUTOMATED DISCHARGE DETECTION

A number of automated systems are in place at the MFWTF to detect a release of oil to the environment. Some of the equipment is used to prevent overfilling, while others are used to detect leaks. Detection equipment provided for specific containers is described below:

- The Raw Water Tank (Tank A) and the Filtered Water Tank (Tank B), are equipped with high level switches, radar level analog switches, and flashing light alarms
- The Oil/condensate Storage Tanks (Tanks C through L) have redundant shut down switches and equalization lines
- The MFP, is equipped with a pressure transmitter that would detect a sudden loss of volume from the pond
- The DAF Oil Recovery Tank (Tank 1) has two redundant high level switches to detect and prevent overfilling
- The 85,000 bbl produced water tanks have real-time sensors for low- and low, low-levels and for high- and high, high-levels of fluids in the tanks. Transfer into tanks, from tank to tank, and from tanks to reuse pumps is both automated and manually controlled.

The equipment listed above is maintained in accordance with manufacturer's recommendations.

In the event that a leak detection device indicates the potential for a release (i.e., a redundant high level switch is triggered), the container and equipment will be thoroughly inspected to determine the source of the problem. If the source of the problem cannot be readily identified, the situation will be reported to the Encana Environmental On-Call Line. If a spill is verified, notification procedures as described in Section 3.1 will be followed.

6.0 PLAN IMPLEMENTATION

This section provides further instruction for the implementation of this FRP. Included in this section is a discussion of the accessibility of spill response equipment, plans for the containment of oil and drainage of impacted areas, and plans for disposal of recovered oily materials.

6.1 SPILL RESPONSE RESOURCES FOR SMALL, MEDIUM, AND WORST-CASE DISCHARGES

The MFWTF emergency response personnel identified in Table A-7 are ready and capable of responding to all spills at the MFWTF. Spill control equipment is maintained onsite and readily available for responding to small spills. Safety and emergency equipment and operating and structural equipment are regularly inspected. In addition, all of the response equipment identified in Table B-1 is maintained readily available at the MFWTF to respond to an oil spill. This equipment has been selected for its applicability and capability to handle spills at the MFWTF under a variety of environmental conditions.

In the event that resources in addition to those available at the MFWTF are needed to control a release, Encana has identified a number of local contractors to provide assistance. In addition, Garfield County HAZMAT personnel will respond in an oil spill emergency. In such cases, the Spill Coordinator will contact local emergency responders and the Garfield and Mesa County LEPCs for assistance.

Language provided in 40 CFR 112 Appendix C presents guidelines for the identification of response resources for small, medium, and worst-case discharges. Based on the guidelines provided in Appendix C, the equipment listed below is required to be made available to respond to a small or medium discharge.

Small discharge (2,100 gallons) minimum response resources:

- 50 ft of containment boom as well as bob-tail vacuum trucks that can be deployed within 1 hour
- 2,100 gallons per day (gpd) recovery capacity
- 4,200 gpd storage capacity

Medium discharge (36,000 gallons) minimum response resources:

- 100 ft of boom, and bob-tail vacuum trucks
- 18,000 gpd recovery capacity (50% of the medium discharge volume)
- 36,000 gpd temporary storage capacity (two times the recovery capacity)

The equipment necessary to handle a worst-case discharge is described in Table B-5. This equipment is required to be on-scene within the timeframe specified.

Because facility personnel are expected to respond immediately to a small discharge, the minimum response resources listed above for a small discharge are maintained onsite (in spill kits, spill response trailers, and other accessible storage locations). The equipment necessary to respond to a medium or worst-case discharge is stored at both the MFWTF and at local offsite contractor facilities. The equipment required to be provided by contract companies must be made available immediately upon request but within a timeframe not to exceed those identified in Table B-5. For contractors providing equipment and materials to meet the regulatory requirements for response resources, a copy of the contract/agreement between Encana and the contractor is maintained in Appendix E.

The Garfield County Emergency Operations Plan states that the Garfield County Multi-Agency Hazardous Material Response Team and the Garfield County Sheriff's Office will respond to an oil spill emergency. To fulfill their responsibilities in this capacity, the HAZMAT team and LEPC maintains a fully supplied response vehicle as well as a staff of trained HAZMAT team members. For worst-case discharge scenarios, emergency assistance may also be provided by the Mesa County LEPC, EPA Region VIII RRT, and NRT members.

6.1.1 Operations Personnel Actions

The immediate actions to be taken by operations personnel in the event of an oil spill are outlined in Section 1.8. Notification is one of the key actions to be initiated by operations personnel immediately upon discovery of an oil spill. Notification requirements are summarized in the Emergency Notification Phone List, provided as Table A-5. Table A-5 is posted in operational areas throughout the MFWTF.

6.1.2 Oil Spill Response Team Actions

When notified of an oil discharge at the MFWTF, Piceance Environmental alerts members of the Oil Spill Response Team who respond to the discharge location. Initial response steps are taken to prevent any additional spillage, prevent the spilled material from migrating off-site or entering a drainage ditch, and to fully contain the spill if possible. If the spill exceeds the reportable quantity (reportable quantities are provided in Section 1.2), or if the spill has entered a storm water drainage ditch or waterway, the Spill Coordinator will immediately notify the agencies listed in Table A-5. The Spill Coordinator will then follow all procedures outlined in this plan.

6.1.3 Higher Level Personnel Actions

When notified of the release of oil to a storm ditch or waterway, in most situations the Spill Coordinator will organize and oversee the response effort. Depending on the severity of the incident, the Spill Coordinator (or other authorized Encana representative) may assume the role

of Incident Commander. Under either scenario, the Spill Coordinator will remain available to provide direction and technical assistance. The Spill Coordinator is also responsible for initiating state and federal notification procedures. Piceance Environmental Spill Coordinators have been provided with full authority to implement removal actions. The coordination between or transfer to an outside agency will be in accordance with the ERP.

6.2 DISPOSAL PLANS

Once an oil release has been contained and the spilled materials recovered, a strategy must be developed to dispose of any contaminated materials/wastes. Disposal of all spill-related wastes will be coordinated through Piceance Environmental and conducted by waste characterization and disposal specialists in accordance with applicable federal, state, and local regulations. Colorado disposal requirements can be found in COGCC regs series 900. If temporary storage of spill-related wastes is required, the materials will be stored in designated locations/containers within the North Parachute Ranch area. Disposal actions for the waste materials commonly encountered during an oil spill cleanup operation include:

- **Recovered Product** – Stored and transferred to the MFWTF system for recovery as appropriate or transferred off-site for treatment and disposal at an approved facility
- **Contaminated Soil** – Disposed of in accordance with local, state, and federal regulations
- **Contaminated Equipment and Materials** (e.g., personal protective equipment, brooms) – Decontaminated on-site by cleaning (cleaning liquid contained and disposed of in accordance with local, state, and federal regulations) or disposed of in an approved landfill
- **Decontamination Rinsate** – Collected and disposed of in accordance with local, state, and federal regulations
- **Adsorbents** – Collected and disposed of in accordance with local, state, and federal regulations
- **Spent Chemicals** – Collected and disposed of in accordance with local, state, and federal regulations

6.3 CONTAINMENT AND DRAINAGE PLANNING

The SPCC Plan for the facility contains information regarding spill containment and drainage planning for the facility. Approximated drainage flow patterns are included on the Facility Diagram provided as Figure D-3. This diagram can be used as a resource when evaluating countermeasure options during spill response efforts. Although the footprints of the facility on the upper and lower levels have a relatively even grade, in general the MFWTF is located in a sloped area, and any significant release of oil would be expected to flow to the lowest elevation. For spills confined to secondary containment structures, the structures would be drained from the

lowest point to recover as much spilled material as possible. The recovered material would then be reintroduced into the MFWTF system for processing or disposed of offsite in accordance with Section 7.2. For releases of produced water to the environment, outside the containment areas, a portion of the spilled material would be expected to flow downhill via overland flow toward the Parachute Creek system. If needed, absorbent materials (booms, socks, etc.) or temporary dams can be placed at a number of locations along these pathways. Should more substantial containment be necessary, the MFWTF has access to a variety of earth-moving machinery (front-end loaders, graders, etc.) as well as trained equipment operators. Materials collected during spill response efforts outside of established containment structures would be managed in accordance with Section 7.2 above.

6.4 FRP PLAN MAINTENANCE

This FRP will be reviewed at least annually. The FRP will be revised and resubmitted to the Regional Administrator within 60 days of each facility change (40 CFR 112.20 (d) (1)) that materially may affect the response to a worst-case discharge, including:

- A change in the facility's configuration that materially alters the information included in the response plan
- A change in the type of oil handled, stored, or transferred that materially alters the required response resources
- A material change in capabilities of the oil spill removal organization(s) that provide equipment and personnel to respond to discharges of oil described in 40 CFR 112.20 (h)(5)
- A material change in the facility's spill prevention and response equipment or emergency response procedures
- Any other changes that materially affect the implementation of the response plan.

The Regional Administrator must approve changes described above. Although amendments to personnel and telephone number lists or changes in oil spill removal organization(s) that do not result in a material change in support capabilities do not require approval, a copy of such updates must be provided to the Regional Administrator as the revisions occur.

7.0 SELF-INSPECTION, DRILL/EXERCISES, AND RESPONSE TRAINING

This section presents the procedures implemented to conduct facility inspections, drills, response exercises, and spill response training at the MFWTF. This information supplements information provided in the facility SPCC Plan.

Records of inspections, drills, exercises, and training will be maintained by the Spill Coordinator in the Parachute Office.

7.1 FACILITY SELF-INSPECTION

Inspections of containers, associated equipment and piping, and secondary containment structures are conducted in accordance with written procedures developed for the MFWTF. These written procedures and records of the inspection, signed by the appropriate supervisor or inspector, are made a part of the facility SPCC Plan. Response equipment inspections are performed in accordance with the procedures outlined in this section. A summary of the self-inspections performed at the MFWTF is provided in the following sections.

7.1.1 Aboveground Container and Secondary Containment Inspections

Facility personnel have been assigned individual responsibilities for conducting periodic inspections of operational areas for malfunctions or deterioration of equipment that may lead to the release of oil to the environment. Routine operational inspections are performed during visits to operational areas made by personnel throughout a given shift. Such inspections are not typically documented unless discrepancies are noted. Periodic equipment inspections are conducted for all bulk oil storage containers and process vessels at the MFWTF and are documented. An example of a periodic inspection record form is provided as Table C-1. As indicated on Table C-1, equipment inspections include an evaluation of all monitoring, operating, and structural equipment necessary to prevent and detect an oil spill. Operation-specific inspections may also be developed for non-routine tasks, as needed.

7.1.2 Response Equipment Inspections

The facility has developed a schedule for inspecting oil spill response, safety, and emergency equipment. Response equipment listed in Table B-1 is maintained in spill kit drums and on spill response trailers located at or near the facility. This equipment is inspected monthly by facility personnel to ensure that spill response equipment is available and ready. Copies of the spill response equipment inventory checklists are provided as Tables B-3 and B-4.

7.1.3 Inspection Documentation and Management of Deficiencies

Documented equipment inspections include written notations of observations made and the date and nature of any repairs or other corrective actions that need to be taken. Corrective actions are managed through Encana's IMS. Although routine operational inspections are typically not recorded, any issues identified during such inspections (e.g., leaks, spills, etc.) are also reported and managed through the IMS.

Inspection records and records of corrective actions taken are retained for at least 5 years from the date of inspection/correction. Inspections of procedures and pertinent records may be conducted periodically or at any time by Encana personnel or by proper state or federal authorities in conjunction with facility representatives.

7.2 FACILITY DRILLS AND EXERCISES

The MFWTF has developed a facility response drill/exercise program to regularly test the effectiveness of the facility SPCC Plan and FRP. As part of this program, a number of simulated oil release events are conducted on a routine basis to test the response and effectiveness of the Oil Spill Response Team and FRP. The program implemented by Encana at the MFWTF for conducting drills and exercises is documented in Appendix H of this plan. During a drill, members of the Oil Spill Response Team and outside (i.e., contractor or 3rd party) participants observe and critique procedures and actions. Following the drill, an evaluation is conducted with drill participants to initiate improvements to response plans. Facility personnel also meet semi-annually following each drill, or as needed in response to a specific incident, to discuss training objectives and to evaluate training and operational goals.

The MFWTF response drill/exercise program consists of internal drills/exercises, including qualified individual notification drills, spill management team tabletop exercises, equipment development exercises, and unannounced exercises, as well as external exercises. A single exercise or drill may include scenarios that satisfy the requirement for conducting one or more of the individual drills/exercises described in the following sections. Refer to Appendix H for detailed information regarding the drills and exercises conducted by/at the facility.

Drills are coordinated with the Garfield County LEPC and Mesa County LEPC who are invited to participate.

7.2.1 Spill Coordinator Notification Drill

The MFWTF conducts Spill Coordinator Notification Drills to ensure that Spill Coordinators are able to be contacted in an oil spill emergency to carry out their duties. Members of the Oil Spill Response Team randomly select an operation at which to simulate an oil release and initiate a mock spill to evaluate the response of facility personnel up to and including notifications made

to the Environmental On-Call line and the Spill Coordinator's response. The Oil Spill Response Team documents the activities and findings associated with each drill on the forms provided in Appendix E of this plan.

7.2.2 Oil Spill Response Team Tabletop Exercise

The MFWTF conducts Oil Spill Response Team Tabletop Exercises to develop improved coordination within the Oil Spill Response Team. The MFWTF Oil Spill Response Team consists of appropriate representatives from facility operations and management. The exercise involves an evaluation of the MFWTF spill scenarios and appropriate responses to each spill scenario to ensure the members of the Oil Spill Response Team are familiar with the response plan and are able to use it effectively to conduct a spill response. The Oil Spill Response Team documents the activities and findings associated with each exercise on the forms provided in Appendix H of this plan.

An annual table top exercise is conducted and members of the Garfield and Mesa County LEPCs are invited to attend.

7.2.3 Equipment Deployment Exercises

The facility Oil Spill Response Team conducts equipment deployment exercises to ensure that personnel who will typically operate or supervise the operation of response equipment demonstrate their ability to deploy and operate the equipment. The exercise also works to ensure that the equipment is in good operating condition and is appropriate for the intended operating environment. The performance of equipment deployment exercises is documented on the forms provided in Appendix H of this plan.

7.2.4 Unannounced Exercises

Select drills and exercises performed at the MFWTF must be conducted unannounced to test facility spill response procedures. Members of the Oil Spill Response Team randomly select an operation or area of the facility to simulate an oil release and to test the Oil Spill Response Team's response to the spill. The exercise simulates all aspects of an oil spill response from immediate actions and initial notifications to corrective actions and final reports. The Oil Spill Response Team documents the activities and findings associated with each exercise on the forms provided in Appendix H of this plan.

7.2.5 External Exercises

The MFWTF facilitates an external spill response exercise at least once every three years to evaluate spill response coordination between MFWTF and outside emergency response agencies. In these exercises, facility response personnel work through a large or worst-case type of spill scenario with representatives of outside response agencies to help provide an understanding of

response capabilities and expectations in the event of an actual release. Results of the exercises are recorded on the forms provided in Appendix H of this plan.

7.3 RESPONSE TRAINING

The MFWTF has developed a spill response training program to ensure that all spill response personnel have had the proper instruction and practice necessary to effectively respond to an oil spill at the facility. The training is conducted in accordance with Encana's overall training program.

Per the MFWTF training program, personnel must successfully complete required formal classroom instruction and supervised on-the-job training to prepare them to operate and maintain facility equipment. Encana personnel and contractors receive training on the types of oils typically stored or generated at or near their work areas and the storage and handling requirements for those substances. On-the-job training, as applicable to individual job functions, includes:

- Location, types, and use of emergency equipment
- Oil storage containers and container construction and operation requirements
- Required equipment inspections and procedures for correcting deficiencies
- Emergency procedures specified in the facility SPCC Plan for responding to an incident such as a discharge of oil, a fire, or an explosion
- Replacement of equipment and materials as needed following an exercise or emergency
- Communications and alarm systems; emergency telephone numbers
- Applicable spill response laws, rules, and regulations

The frequency of training and techniques utilized at the MFWTF ensure that personnel receive adequate initial and follow-up training in emergency response. The trainers develop specific lesson plans on subject areas relevant to the facility personnel involved in oil spill response at the facility. Lessons also include a functional training component that focuses on the job tasks for both supervisory and non-supervisory operating personnel. A detailed discussion on training topics and methods is provided as Appendix H.

Records documenting the employee names and completed training programs including curriculum for both introductory and review courses are maintained in accordance with standard business practice and retained at the Parachute Field Office for a minimum of 5 years.

7.3.1 Personnel Spill Response Training Logs

Training performed for Oil Spill Response Team members is recorded on a Spill Response Personnel Training Log. A copy of the training log used at the MFWTF is provided as Table C-3. Completed logs are maintained in accordance with the requirements of this section and Section 8.0 of the facility SPCC Plan. Specific training information is also recorded in Table A-7 of this plan.

7.3.2 Discharge Prevention Meeting Logs

The MFWTF conducts discharge prevention meetings at least annually for oil-handling personnel. Results of the meetings are recorded on the Discharge Prevention Meeting Log (Table C-4). Meeting attendees include facility oil-handling personnel, Oil Spill Response Team personnel, and individual facility operators, as appropriate. Completed logs are maintained in accordance with the requirements of this section and Section 8.0 of the facility SPCC Plan.

8.0 FACILITY DIAGRAMS

The diagrams included in this section provide a resource for the planning of response actions and may also be referenced during an oil spill emergency at the MFWTF.

The Site Plan Diagram depicts the entire facility to scale and is provided as Figure D-2. The Facility Diagram presented as Figure D-3 identifies the locations of:

- Aboveground bulk oil storage tanks (including their contents and capacities)
- Electrical equipment which contains oil and other utilities
- There are no drum storage areas.
- Transfer areas
- Process buildings
- Direction of discharge flow from discharge point
- Secondary containment systems (including their capacities)
- Emergency response equipment (spill kit drums)
- Weirs and shut-off valves
- Facility drainage patterns and surface water receiving streams
- The locations of deployment of temporary dams

The Site Evacuation Plan Diagram is provided as Figure D-4 and depicts the following:

- Evacuation routes
- Locations of the two designated evacuation assembly areas
- Communication equipment (phones and 2-way radios)
- Emergency response equipment (spill trailers)
- Response personnel and equipment transportation (ingress and egress) routes

Because there are no storm sewers, fire-fighting water sources, or hazardous material storage areas currently present at the MFWTF, these areas are not depicted on the site diagrams. The fresh water pond is shown on the facility diagram and is a source of fire-fighting water.

9.0 SECURITY

This section of the plan provides a description of security measures in place at the MFWTF. Although the facility is not surrounded by an enclosure, access is limited by way of natural landscape features (i.e., remote location, canyon walls). A guard station is situated on the only public road leading to the facility, restricting access to the area. There is a guard on duty at the station 24-hrs a day. Lighting is provided in the central areas of the MFWTF (upper and lower levels) to aid in detecting and responding to oil releases. Emergency cut-off points for most bulk oil storage containers will be the primary discharge valve located on or near the discharge pipeline for the container. Discharge valves and pumps on bulk oil storage containers are locked when not in use for an extended period of time (e.g., holidays). Pipeline connections are drained and capped when it has been determined that their use will be suspended.

Appendix A: Notification Tables

Table A-1
Facility Information Form

FACILITY INFORMATION FORM	
General Information	
Facility Name:	Middle Fork Water Treatment Facility
Street Address:	Encana Parachute Field Office 143 Diamond Avenue Parachute, CO 81635 Garfield County
Facility Phone Number:	970-285-2905 (Parachute Field Office)
Latitude:	N 39 ⁰ 34'37" (Facility Entrance)
Longitude:	W 108 ⁰ 06'26" (Facility Entrance)
Wellhead Protection Area:	None identified per CDPHE WQCD - Restoration & Protection Unit Representative
Facility Acreage:	Approximately 20 acres
Owner/Operator Information	
Owner/Operator of Facility:	Encana Oil & Gas (USA) Inc.
Owner/Operator Address:	370 17 th Street, Suite 1700 Denver, CO 80202
Qualified Individual Information	
Environmental On-Call Spill Coordinators – Emergency Phone (970) 319-9173	
Work Address for All Qualified Individuals/Spill Coordinators:	143 Diamond Avenue Parachute, CO 81635
Home Addresses:	See Encana representative
Training for All Qualified Individuals/ Spill Coordinators:	HAZWOPER 40-hour, Incident Command System, Encana ERP, MFWTF FRP, facility SPCC Plan
MFWTR Qualified Individuals/Spill Coordinators (Name – Position, Mobile Phone):	
Brett Middleton – EHS Field Coordinator, 970.987.4650	
Chris Hines –EHS Field Coordinator, 970.261.1127	
Kathy Vertiz – EHS Field Coordinator, 970.456.6406	
Charles Jensen –EHS Field Coordinator, 970.309.1022	
Oil Storage Information	
Date of Oil Storage Start-Up:	2004
Current Operation:	Treatment facility for waters generated during associated natural gas production operations
NAICS Code:	211111
Date(s) and Type(s) of Substantial Expansion(s):	2005 – Added middle fork (MF) water storage pond
	2006 – Added MF electric pump house #1
	2007 – Added 3-phase separator & vapor recovery unit, MF

FACILITY INFORMATION FORM

	pond discharge pump house
	2009 – Added middle fork avian radar/hazing system, MF thermal oxidizer unit
	2010 – completed reconstruction of white tank, added MF DAF unit building and assoc. tank battery, added MF electric pump house #2, added MF white tank flash separator
	2012 – Installation of three 85,000-bbl produced water storage tanks

MF – middle fork

DAF – Dissolved Air Flotation

NAICS – North American Industrial Classification System

HAZWOPER – Hazardous Waste Operations

ERP – Emergency Response Plan

MFWTF – Middle Fork Water Treatment Facility

FRP – Facility Response Plan

SPCC – Spill Prevention, Control, and Countermeasures

EHS – Environmental Health and Safety

Table A-2
MFWTF Reportable Quantities

MFWTF REPORTABLE QUANTITIES		
Governing Agency	Type of Oil-Containing Material Spilled	Reportable Quantity*
EPA	Oil	Any amount of oil that: a) causes a film or sheen upon or discoloration of the surface of the water or adjoining shorelines, or b) causes a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines, or b) may result in a violation of an applicable water quality standard
BLM	Oil	Any amount that contacts BLM land
COGCC	Exploration and Production waste	>1 barrel outside containment; > 5 barrels inside containment
CDPHE	Refined Petroleum Hydrocarbons (i.e., diesel)	25+ gallons
*Only RQs that require immediate or short-term verbal notification are listed		

BLM – U.S. Bureau of Land Management

RQ – Reportable Quantity

Table A-3
Piceance Environmental On-Call Spill Coordinators

Piceance Environmental ON-CALL SPILL COORDINATORS	
SPILL COORDINATOR	
Name:	Brett Middleton
Position:	EHS Field Coordinator
Emergency Telephone :	970.319.9173
Mobile Phone:	970.987.4650
SPILL COORDINATOR	
Name:	Chris Hines
Position:	EHS Field Coordinator
Emergency Telephone :	970.319.9173
Mobile Phone:	970.261.1127
SPILL COORDINATOR	
Name:	Kathy Vertiz
Position:	EHS Field Coordinator
Emergency Telephone :	970.379.9173
Mobile Phone:	970.456.6406
SPILL COORDINATOR	
Name:	Charles Jensen
Position:	EHS Field Coordinator
Emergency Telephone :	970.319.9173
Mobile Phone:	970.309.1022

Table A-4**Hazard Identification – Inventory of MFWTF Bulk Storage Containers**

HAZARD IDENTIFICATION – INVENTORY OF MFWTF BULK STORAGE CONTAINERS					
Tank ID	Substance Stored	Quantity Stored ¹ (gallons)	Tank Type/Year	Maximum Capacity (gallons)	Containment Capacity (gallons)
Tank A	Produced Water / Oil/condensate	472,500	2004, field erected, welded steel, reconstructed in 2010	630,000	1,330,000
Tank B	Produced Water	72,765	2004, field erected, bolted steel	97,020	1,330,000
Tank C	Oil/condensate	15,750	2004, steel, closed top	21,000	54,475
Tank D	Oil/condensate	15,750	2004, steel, closed top	21,000	54,475
Tank E	Oil/condensate	15,750	2004, steel, closed top	21,000	54,475
Tank F	Oil/condensate	15,750	2004, steel, closed top	21,000	54,475
Tank G	Oil/condensate	15,750	2004, steel, closed top	21,000	54,475
Tank H	Oil/condensate	15,750	2004, steel, closed top	21,000	54,475
Tank I	Oil/condensate	15,750	2004, steel, closed top	21,000	54,475
Tank J	Oil/condensate	15,750	2004, steel, closed top	21,000	54,475
Tank K	Oil/condensate	15,750	2004, steel, closed top	21,000	54,475
Tank L	Oil/condensate	15,750	2004, steel, closed top	21,000	54,475
Tank 910	Produced Water	3,570,000	Field Erected Steel Tanks	3,570,000	5,480,000
Tank 920	Produced Water	3,570,000			
Tank 930	Produced Water	3,570,000			
Tank 1	Oil	15,750	2010, steel, closed top	21,000	37,086
Tank 2	Guar	15,750	2010, steel, closed top	21,000	37,086
Tank 3	Guar	15,750	2010, steel, closed top	21,000	37,086
Tank 4	Bottom solids	15,750	2010, steel, closed top	21,000	37,086
Tank 5	Bottom solids	15,750	2010, steel, closed top	21,000	37,086
Tank 6	Bottom solids	15,750	2010, steel, closed top	21,000	37,086
Tank 7	Oil Recovery	15,750	2010, steel, closed top	21,000	37,086
Oil Filled Transformers					
	Oil	All Oil filled transformers are less than 55 gallons capacity			
Drums					
Drums	Oil	NA	Steel drums	55	NA ³
¹ Average volume on any given day is anticipated to be approximately ¾ of maximum capacity					
² – General site containment sufficient					
³ - White tank bench area containment sufficient					

Date Last Updated: 4/11/2014

Table A-5
Emergency Notification Phone List

EMERGENCY NOTIFICATION PHONE LIST		
Circumstances	Required Notification	Emergency Phone
OIL SPILL Release of oil inside containment	Supervisor	Employee Supervisor's #
	Piceance Environmental	See Table A-3
OIL SPILL Release of oil outside of containment that: Has been controlled, Is below the RQ, and Has not entered a waterway.	Supervisor	Employee Supervisor's #
	Environmental 24-hr On-call/ Spill Coordinator	970.319.9173
	Doug Rosa – Authorized Facility Representative	970.285.2686
	Bureau of Land Management (BLM) - Notify ONLY if spill contacts BLM land	970.244.3000 (Grand Junction Field Office) 970.947.5200 (Glenwood Springs Energy Office)
OIL SPILL Release of oil outside of containment that: Has been controlled, EXCEEDS the RQ, and Has not entered a waterway.	Environmental 24-hr On-call/ Spill Coordinator	970.319.9173
	Supervisor	Employee Supervisor's #
	Doug Rosa – Authorized Facility Representative	970.285.2686
	National Response Center (NRC) (EPA Region VIII receives information directly from NRC)	1.800.424.8802
	CDPHE 24-hr Emergency Spill/Release Reporting Hotline	877.424.8802
	Colorado Oil and Gas Conservation Commission (COGCC)	Environmental Release / Incident Report Hotline 877.518.5608 and Carlos Lujan 970.625.2497 (office)
	Bureau of Land Management (BLM) - Notify ONLY if spill contacts BLM land	970.244.3000 (Grand Junction Field Office) 970.947.5200 (Glenwood Springs Energy Office)
	Public Relations / Land Department On-Call - Notify ONLY if spill has impacted public or private land	970.285.2777

EMERGENCY NOTIFICATION PHONE LIST		
Circumstances	Required Notification	Emergency Phone
OIL SPILL EMERGENCY Release of oil outside of containment that: Has NOT been controlled, Has ENTERED A WATERWAY, or Has otherwise resulted in an EMERGENCY situation.	ALL NOTIFICATIONS LISTED ABOVE (AS NECESSARY)	
	Local Emergency Response	911
	Mesa County Emergency Planning Committee (LEPC)	Horace Sessions 970.245.8148
	Garfield County Emergency Planning Committee (LEPC)	Chris Bornholdt 970.945.8020
	Colorado State Patrol (CSP)	303.239.4501
	Federal On-scene Coordinator (OSC) and/or Regional Response Center (RRC)	800.227.8914
	State Emergency Response Committee (Environmental Release and Incident Reporting Line – CDPHE WQCD)	877.518.5608
	Parachute Public Works / Parachute Creek & Colorado River	Emergency – 24 hr 970.285.7630 Mark King or 970.285.7630 Bill Rose
	DeBeque Public Water/ Colorado River	Emergency – 24 hr 970.250.8468 Coe Latham or 970.216.4885 Isaac Inskeep
	Parachute Creek/ Colorado River Water Treatment Plant	Emergency – 24 hr 970.464.5563
	Piceance Creek/ White River Water Treatment Plant	Emergency – 24 hr 970.675.2221
	Encana's Safety On-Call - Notify if an injury has occurred or public/ employee health or safety is threatened	970.210.8755
	Encana's Gas Control On-Call - Notify if a gas release is observed or suspected	970.285.2615
Additional Emergency Contacts	Local TV: KJCT News 8 Local Radio: KZKS 105.3 FM KRGs 690 AM	970.245.8880 (KJCT) 970.241.6460 (KZKS) 970.241.6460 (KRGs)

EMERGENCY NOTIFICATION PHONE LIST		
Circumstances	Required Notification	Emergency Phone
	(contact for weather information)	
	Other weather sources	www.wunderground.com www.weatherspark.com www.weather.com www.accuweather.com Forecast.weather.gov
	St. Mary's Hospital – Grand Junction	970.244.2273
	Grand River Medical Center – Rifle	970.625.1510
	Division of Oil and Public Safety (Dept. of Labor and Employment)	303.318.8547
	Colorado State Patrol HAZMAT Service	970.242.7283
	Rifle Fire Protection District	970.625-1243
	Grand Valley Fire Protection District	970.285.9119

CDPHE WQCD – Colorado Department of Public Health and Environment Water Quality Control Division

CSP – Colorado State Patrol

OSC – On Scene Coordinator

RRC – Regional Response Center

HAZMAT – Hazardous Materials

Table A-6
Spill Response Notification Form

SPILL RESPONSE NOTIFICATION FORM									
General Information									
Reporter's Name:				Date:			Time:		
Title:									
Day Phone:				Evening Phone:					
Company: Encana Oil & Gas (USA) Inc.				Facility ID:					
Organization Type: Oil & Gas Production									
Address: 143 Diamond Avenue Parachute, CO 81635									
City: Parachute		County: Garfield		State: CO			Zip: 81635		
Were Materials Discharged (Yes/No):									
Confidential Information (Yes/No):									
Meeting Federal Obligations to Report (Yes/No):									
Calling for Responsible Party (Yes/No):									
Incident Description									
Source of Incident:									
Cause of Incident:									
Date of Incident:				Time of Incident:			AM/PM		
Incident Address/Location:									
Nearest City: Parachute				State: CO					
Distance from City: 14.0				Unit of Measure: miles					
Direction from City: Northeast									
Section:				Township:					
Range:				Borough:					
Container Type:									
Container Oil Storage Capacity:				Units of Measure:					
Facility Oil Storage Capacity:				Units of Measure:					
Facility Latitude:		Degrees	39	Minutes:	34	Seconds:	37		
Facility Longitude:		Degrees:	108	Minutes:	06	Seconds:	26		

Material Spilled					
Material Type	Discharged Quantity	Unit of Measure	Discharged in Water (Yes/No)	Quantity in Water	Unit of Measure
Oil					
E&P Waste					
Refined Product or Diesel					
Response Action					
Impact					
Number of Injuries:			Number of Deaths:		
Were there Evacuations (Yes/No):			Number Evacuated:		
Was there any damage (Yes/No):			Damage in Dollars(approx.):		
Medium Affected:					
Description of Medium:					
Additional Information about Medium:					
Additional Information					
Any information about Incident Not Recorded Elsewhere:					
Caller Notifications					
Environmental Protection Agency (Yes/No, who):					
United States Coast Guard (Yes/No, who):					
State (Yes/No, who)					
Other (Yes/No)					
Description of Other (and who):					

Table A-7
Emergency Response Personnel List

Name	Emergency Phone ¹	Response Time ²	Job Title/Responsibility During Response	Training
Bill Wilde	970.379.4197	0-20 min.	Construction supervisor/earth work	40 hr Hazwoper and annual SPCC awareness
Carl Turnipseed	970.930.5057	0-20 min.	Production Coordinator/shut-in of well production	40 hr Hazwoper and annual SPCC awareness
Steve Robinson	970.366.2860	0-20 min.	Middle Fork WTF supervisor/onsite emergency response coordinator	40 hr Hazwoper and annual SPCC awareness
Tom Cogburn	970.260.0161	0-20 min.	Automation supervisor/maintenance of ESD system	40 hr Hazwoper and annual SPCC awareness
Brad Ankrum	435.260.1673	0-20 min.	Midstream/Gathering Supervisor/management of response personnel	40 hr Hazwoper and annual SPCC awareness
Tom Ripper	970.210.9424	0-20 min.	Middle Fork CS manager/coordination of ESD system	40 hr Hazwoper and annual SPCC awareness
Lindsey Kruckenberg	970.456.3229	0-20 min.	Lead, Environmental for Piceance Basin/Spill Control & Countermeasure	40 hr Hazwoper and annual SPCC awareness
Kathy Vertiz	970.456.6406	0-20 min.	EHS Field Coordinator/OSRT	40 hr Hazwoper and annual SPCC awareness
Laura Lancaster	970.216.1251	0-20 min.	Safety Lead Piceance Basin/Spill Control & Countermeasure	40 hr Hazwoper and annual SPCC awareness
Brett Middleton	970.987.4650	0-20 min.	EHS Field Coordinator/OSRT	40 hr Hazwoper and annual SPCC awareness
Chris Hines	970.261.1127	0-20 min.	EHS Field Coordinator/OSRT	40 hr Hazwoper and annual SPCC awareness
Charles Jensen	970.309.1022	0-20 min.	EHS Field Coordinator/OSRT	40 hr Hazwoper and annual SPCC awareness

Date Last Updated: 4/11/2014

¹ Phone number to be used when person is not on-site

² Response time will depend on team member's location at the time of notification with 20 minutes being the time required to drive from the Parachute Field Office to the MFWTF observing the posted speed limit.

OSRT – Oil Spill Response Team

Personnel training is conducted in accordance with the training specified in Section 7.

Table A-8
Emergency Response Contractors

OIL SPILL EMERGENCY RESPONSE CONTRACTORS			
Contractor (Company & Address)	Emergency Phone	Response Time	Contract Responsibility ¹
Water Hauler Resources			
Arnett Trucking, LLC 4654 County Road 309 Parachute, CO 81635	970.878.5015	40 min	Trained operating personnel and water hauling equipment resources. These contractors provide water vacuum trucks and respond to recover free liquids when called out. An average bobtail truck can hold 80 bbls of fluid. The recovered fluid is placed back into the treatment system.
Beaver Creek Water Hauling 6194 County Road 320 Rifle, CO 81650	970.618.9735	47 min	
Big H Water Service, Inc. 2202 Ute Ave Rifle, CO 81650	970.309.8162	47 min	
Trinity Water Services, Inc. 806 North Crest Drive Grand Junction, CO 81506	970.985.0510	1.2 hr	
Knowles Enterprises, LLC 2381 River Road Grand Junction, Co 81505	970.434.1912	1.3 hr	
Arrested Oil Field Services, Inc. (Alliance Energy Service Co.) 1400 Chevron Road Rangely, CO 81648	970.371.4164 970.539.5266	2.5 hr	
Summit Trucking 5020 Flora St Golden, CO 80403	970.361.1730	3.7 hrs	
Earth Work / Excavation Resources			
Tamerrel Excavating Inc. 1810 Medicine Bow Ct #101 Silt, CO 81652	Ken White 970.379.5121 John Miner 970.379.6449 Jerry Burgett 970.631.8170 Brett Smith 970.390.1755	25 min	Trained operating personnel and heavy/earth-moving equipment resources These contractors provide backhoes, trackhoes, and front end loaders to move soil and debris when and where needed.
	Moody & Sons Excavation 2202 County Rd 7 Meeker, CO 81641	970.379.5121 1.6 hr	They assist in maintaining the facility's stormwater BMPs
Roustabout Resources			
WCO 2183 S10 Street Rifle, CO 81650	970.556.0885	50 min	Trained roustabout personnel These contractors provide services in maintaining containment systems and deployment of spill kits and
Advanced Oil Field Services P.O. Box 1106 Rifle, CO 81650	970.625.9704	50 min	

OIL SPILL EMERGENCY RESPONSE CONTRACTORS			
			booms. Assist in the cleanup of stained soils and affected equipment.
Water Pumping Resources			
Western Pump and Dredge, Inc. 2314 Logos Dr. Grand Junction, CO 81505	970.244.9097	1.3 hr	Trained operating personnel and pump services for moving water and other fluid. Provide temporary water storage tanks and pumps to transfer and recover fluids.
Rain for Rent 100 Oil Court Rifle, CO 81650	970.625.4600	47 min	
Environmental Consulting Resources			
LT Environmental, Inc. 820 Megan Avenue, Unit B Rifle, Colorado 81650 www.ltenv.com	(970) 285-9985 office (970) 620-5743 mobile (970) 285-2467 fax	45 min	Environmental assessment and remediation
Rule Engineering, LLC 786 Valley Court Grand Junction, CO 81505	(970) 244-8500 Office (970) 623-0995 Cell (303) 431-3750 Fax	1.5 hrs	Environmental assessment and remediation

Date Last Updated: 4/11/2014

¹ Primary Spill Response Contractors identified in bold. Evidence of Contracts/agreements with primary spill response contractors included in Appendix E.

hr – hour

min - minute

Table A-9
Follow-Up Reporting Requirements

Agency/ Address	Written Report Description	Reporting Deadline (from date of spill)	Quantity that must be Exceeded
COGCC 1120 Lincoln #801 Denver, CO 80203	Information Required in COGCC Rule 906 - Spill/Release Report (Form 19)	72 hours	> 5 bbl inside containment; >1 bbl outside containment
EPA Region VIII Administrator 999 18 th St. Suite 500, Denver, CO 80202	Information Required in 40 CFR 112.4(a)	60 days	> 1000 gal, or (if a discharge of > 42 gal has occurred in the prior 12 months) > 42 gal
Colorado Dept. of Public Health and Environment (CDPHE) 4300 Cherry Creek Dr. S., Denver, CO 80246	Same report as submitted to EPA	60 days	Same as EPA Region VIII
BLM GJFO 2815 H Road, Grand Jct., CO 81506, and GSEO 2425 S. Grand Ave., Glenwood Springs, CO 81601	“Undesirable Event Form”	Following verbal notification	Any amount of spilled oil contacting BLM land
Garfield County Emergency Planning Committee (LEPC) 109 8 th St., Suite 300 Glenwood Springs, CO 81601	Written Follow-up Report	7 days	Discharge reaching waters of the state, or a municipal drain or storm sewer Garfield County

Date Last Updated: 4/11/2014

bbl – barrel

CFR – Code of Federal Regulations

gal – gallon

EPA – Environmental Protection Agency

CDPHE – Colorado Department of Public Health and Environment

BLM – Bureau of Land Management

LEPC – Local Emergency Planning Commission

COGCC – Colorado Oil and Gas Conservation Commission

Table A-10
Analysis of Equipment Failure – MFWTF

ANALYSIS OF EQUIPMENT FAILURE			
Potential Failure	Spill Direction	Potential Volume Released (gallons)	Potential Spill Rate (gallons/minute)
Raw Water Tank/Filtered Water Tank/Oil/condensate Tanks – Upper Level			
Catastrophic failure of completely full tank	west	630,000	20,000
Partial failure of tank	west	50,000	2,000
Tank overflow	west	5,000	500
Pipe fitting failure	west	500	50
Leaking fitting or valve	west	500	50
Produced Water Storage Tanks – Lower Level			
Catastrophic failure of tank	southwest	3,570,000	500,000
Partial failure of tank	southwest	500,000	50,000
Tank overflow	southwest	10,000	1,000
Pipe fitting failure	southwest	5,000	350
Leaking fitting or valve	southwest	1,000	100
Produced Water Delivery Pipeline – Lower Level			
Catastrophic failure of pipeline	southwest	8,400	500
Slow pipeline leak	southwest	1,000	100

Appendix B

Response Equipment and Inspections

Table B-1**Facility Response Equipment List and Locations**

FACILITY RESPONSE EQUIPMENT LIST AND LOCATIONS		
Skimmers/Pumps – Operational Status		
Vac trucks are available 24/7 within 45 minutes of the facility. Each vac truck can pump at approximately 170 gpm, and has a capacity of 80 bbls.		
Booms and Dikes/Socks – Operational Status (Stored in the four spill kits and emergency response trailer)		
Type: 3” by 4’	Model: 3”	Year Purchased: 2013
Number: 68	Size (length in ft): 4’	Containment Area (ft ²): NA
Absorption Capabilities of this Equipment: 1 to 1.25 gallons each		
Total Absorption Capabilities of this Equipment: 76 gallons		
Storage Location(s): Eight in each environmental response trailer, 60 in spill drums		
Type: 3” by 10’	Model: 3”	Year Purchased: 2013
Number: 40	Size (length in ft): 10’	Containment Area (ft ²): NA
Absorption Capabilities of this Equipment: 2.5 to 3.125 gallons each		
Total Absorption Capabilities of this Equipment: 100 gallons		
Storage Location(s): 40 in spill drums		
Type: 5” by 10’	Model: 5”	Year Purchased: 2013
Number: 4	Size (length in ft): 10’	Containment Area (ft ²): NA
Absorption Capabilities of this Equipment: 5 to 6.25 gallons each		
Total Absorption Capabilities of this Equipment: 20 gallons		
Storage Location(s): Two located in each environmental response trailer		
Type: 8” by 20’	Model: 8”	Year Purchased:
Number: 4	Size (length in ft): 20’	Containment Area (ft ²): NA
Absorption Capabilities of this Equipment: 27 to 33 gallons each		
Total Absorption Capabilities of this Equipment: 108 gallons		
Storage Location(s): Two located in each environmental response trailer		
Sorbents – Operational Status		
Type: 18” by 18” pad		Year Purchased: 2013
Absorption Capacity: 28 to 32 oz		Amount: 400
Total Absorption Capabilities of this Equipment: 87.5 gallons		
Storage Location(s): 400 located in spill drums		
Type: 17.5” by 17.5” pillow		Year Purchased: 2013
Absorption Capacity: 32 to 64 oz		Amount: 100
Total Absorption Capabilities of this Equipment: 25 gallons		
Storage Location(s): 100 located in spill drums		
Type: Oil Adsorbent Pads (Cube)		Year Purchased: 2013
Absorption Capacity: 28 to 32 oz		Amount: 4
Total Absorption Capabilities of this Equipment: less than ½ gallon		
Storage Location(s): Two located in each environmental response trailer		
Type: Bag of absorbent		Year Purchased: 2012
Absorption Capacity: up to 8.5 gallons		Amount: 12

FACILITY RESPONSE EQUIPMENT LIST AND LOCATIONS		
Total Absorption Capabilities of this Equipment: 102 gallons		
Storage Location(s): Six bags located in each environmental response trailer		
Hand Tools – Operational Status		
Shovels:	Eight (8) located in environmental response trailer	
Brooms:	Four (4) located in environmental response trailer	
Fire Fighting Equipment		
Type:	20# Fire Extinguisher rated at 80BC	
Quantity:	1 (Inspected monthly, certified annually)	
Location(s):	At DAF tanks on Lower Level	
Type:	20# Fire Extinguisher rated at 80BC	
Quantity:	1 (Inspected monthly, certified annually)	
Location(s):	At Upper Level, White Tank Bench area	
Type:	20# Fire Extinguisher rated at 80BC	
Quantity:	2 (Inspected monthly, certified annually)	
Location(s):	Inside entrances to DAF Building on Lower Level	
Communications Equipment		
Type	Quantity	Location
Cell Phones		With Individuals
Landlines		As marked on site diagram
Two-Way Radios		

gpm – gallons per minute

ft – feet

ft² – square feet

NA – not applicable

DAF – Dissolved Air Flotation

“ - inches

‘ – feet

- pounds


oz - ounces

Table B-2**Response Equipment Inspection, Testing and Deployment Drill Log**

RESPONSE EQUIPMENT INSPECTION, TESTING & DEPLOYMENT DRILL LOG			
Date of last inspection, test, or deployment	Description of Inspection, Test/Drill or Deployment	List of Equipment Inspected, Tested and/or Deployed	Findings
*(latest date) 8/6/2013	Actual response: 50 bbl oil sludge spill from a truck offloading into a tank as a result of a broken site glass.	6 vacuum trucks and 2 spill kits were used in the cleanup. The additional vacuum trucks were needed due to the rainfall the site was receiving that day. Had to recover more than was released.	Spill did not leave location. Stormwater BMPs worked well to capture water. Response time was under 5 minutes and the regulatory agency has closed out the event.


Date Last Updated: 4/11/2014

Table B-3
Environmental Response Trailer Inventory

	Environmental Response Trailer Inspection/Inventory	Document No:
		Revised By - Date:
		Reviewed By - Date:
		Approved By - Date:

Spill Trailer # NPR Guard Shack				
INSPECTION/INVENTORY DONE BY:			DATE:	
Piceance Environmental Staff				
Equipment Type		Required Amount	Need	Notes
Mandatory Equipment	Porta berm	1		
	Spill Kit drums	2		
	Oil adsorbent Pads (cube)	2		
	3'' x 4' Booms	8		
	5'' x10' Booms	2		
	8'' x 20' Booms	2		
	Absorbent (bag)	6		
	Acid Neutralizer (bag)			
	Over Pack Drum	1		
	Shovels	8		
	Brooms	4		
	Safety Glasses/Goggles	10		
	Nitrile Sample Gloves (box)	4		
	Chemical Gloves (pair)	25		
	Saranex Coveralls (box)	4		
	Boot Covers	20		
	Dust masks			
	Reflective Vests	6		
	Flashlights	4		
	Fire Extinguisher (30 lb)	1		
	Drum and Tank repair kit	1		
	Caution Tape (roll)	2		
	Emergency cones/ spare tire	6		
	Remediact (35 lbs bucket)	1		
	Stakes (wood)	25		
	Heavy Duty Trash Bags (box)	2		
	25' x 30' Pit Liner	2		

Table B-4
Spill Drum Inventory

	Spill Drum inspection/inventory	Document No:
		Revised By - Date:
		Reviewed By - Date:
		Approved By - Date:

Spill Drum at the Middle Fork WTF			
INSPECTION/INVENTORY DONE BY:			DATE:
Middle Fork WTF Staff			
Yes	#	Inventory List	Equipment Description
<input type="checkbox"/>	100	18" x 18" Pads	
<input type="checkbox"/>	25	17.5" x 17.5"	
<input type="checkbox"/>	15	3" x 4" Dikes/Socks	
<input type="checkbox"/>	10	3" x 10" Dikes/Socks	
<input type="checkbox"/>	2	SilverShield Gloves, Size L	
<input type="checkbox"/>	2	Nitrile Gloves, Size 10	
<input type="checkbox"/>	2	Goggles	
<input type="checkbox"/>	2	Tychem QC Coveralls, Size XL	
<input type="checkbox"/>	1	Floor-Stand Spill Sign	
<input type="checkbox"/>	6	33" x 60" Haz-Mat Disposal Bags	
<input type="checkbox"/>	1	Spill Response Pocket Guide	
<input type="checkbox"/>	1	Safety and Compliance Directory	
<input type="checkbox"/>	1	DOT Emergency Response Guidebook	
<input type="checkbox"/>	1	DOT Label Pkg.	
<input type="checkbox"/>			
<input type="checkbox"/>			
<input type="checkbox"/>			

Table B-5**Worst-Case Discharge Response Equipment Requirements**

WORST-CASE DISCHARGE RESPONSE EQUIPMENT REQUIREMENTS			
Maximum time allowed for equipment to arrive on-scene within the given timeframe	Tier 1 (within 12 hours)	Tier 2 (within 36 hours)	Tier 3 (within 60 hours)
Oil Recovery Capacity	7,000 bbl/day	11,806 bbl/day	18,889 bbl/day
Contracted On-water Response Capacity ¹	12,000 bbl/day	25,000 bbl/day	50,000 bbl/day
Identified On-water Response Capacity ²	NA	NA	NA

¹ Capacity calculations are provided in Appendix F of the SPCC

² On-Water Amount Needed to be Identified but not Contracted for in Advance – Not Applicable, contractor cap not exceeded


bbl – barrels

NA – not applicable

Appendix C

Logs and Checklists

Table C-1
SPCC – Visual Inspection Form and Checklist

		<h1 style="text-align: center;">SPCC – Visual Inspection Form and Checklist</h1>		
Owner: USA Division Environment Revision No: 0X		Date last revised: 05/08/2012		

INSPECTION INFORMATION				
Site Name:		SBU:		
Inspector Name:		Inspection Date:		
Visual Site Inspection Components <ul style="list-style-type: none"> Facility drawing and equipment list must be available for reference during documented inspections. Check that drawing and list match all equipment noted below on site Take photos of site sign, site overview, tanks, berms, equipment, etc. 		Yes	No	N/A
Corrective Action or Comments (Use separate page for extra space)				
General applicability:				
Is the facility regulated under 40 CFR 112? To determine if a facility is regulated under 40 CFR 112, answer these questions: <ul style="list-style-type: none"> Is the completely buried oil storage capacity over 42,000 gallons or is the aggregate aboveground storage capacity over 1,320 gallons (31.4 bbls) AND Is the facility a non-transportation-related facility (Not DOT) engaged in drilling, producing, gathering, storing, processing, refining, transferring, distributing, using, or consuming oil and oil products, which, due to its location, could reasonably be expected to discharge oil into or upon the navigable waters of the United States (as defined in 40 CFR 110.1) (BU Optional Question) 		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tanks and Bulk Storage Container Inspections				
1. Are there produced water, condensate or oil tanks on site? (Check for correct Service, Dimensions, Capacity, Serial Number and Manufacture Date on Facility Drawing) (If the answer is No, answer N/A for this question and N/A for questions 1a.-1h.)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1a. Are pressure/vacuum relief devices present?		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1b. Are tanks properly labeled with liquid stored?		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1c. Are exteriors free of paint chipping, pitting, rust, or corrosion?		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1d. Are exteriors free of overflow, drip marks, surface stains and any signs of leaking?		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1e. Are tanks and foundation sitting flush and without gaps?		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1f. Are tank battery pipes, valves, and flanges and other ancillary tank equipment in good condition?		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1g. Is there sufficient general containment for a spill at a truck loading/unloading area? (BU Optional Question)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1h. Are tanks operated independently and not freely equalized at the base?		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Secondary Containment Inspections				
2. Does tank battery have secondary containment?		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2a. Does the containment size match the measurements shown on the site diagram and the containment calculation sheet?		<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 the containment free of precipitation (stormwater)?		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2e. Is the containment free of other objects (debris, buckets, etc.) that could affect holding capacity, which are not accounted for on the site diagram or calculation sheet?		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2f. Are soil or other natural materials used for containment? (If the answer is No, answer N/A for this question and the associated bullets.)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Is the containment free of erosion, failure or pathways (e.g., animal burrows) through containment? 		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Is the containment free of vegetation? 		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2g. Are steel or other impervious dikes used for containment? (If the answer is No, answer N/A for this question and the associated bullets.)		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> Is the containment free of holes, damage, gaps or corrosion/wear in panels? 		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please contact USA Division EH&S for any required changes to this Practice.

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• Is the containment free of faulty seams between panels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2h. Are concrete walls used for containment? (If the answer is No, answer N/A for this question and the associated bullets.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Is the containment wall free of cracks or other damages?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2i. Is a secondary containment impervious liner present? (List Type) (If the answer is No, answer N/A for this question and the associated bullet.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Is the liner free of rips or tears?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2j. Does secondary containment have a drain line? (If the answer is No, answer N/A for this question and the associated bullets.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Is the area around the drain pipe or valve free of oil stains?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Is the drain pipe or valve plugged/closed and locked?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Pipeline, Flange, and Valve Inspections				
3. Are all aboveground piping and components 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 open-ended lines (if applicable)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3d. Are pipelines properly supported (if applicable)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Pit and Pond Inspections				
4. Is there a pit on location? (List Contents) (If the answer is No, answer N/A for this question and N/A for questions 4a.-4f.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4a. Is there at least 2 or 3 feet (BU dependent) of freeboard present?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4b. Is there a liner installed? (List Type)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Is the liner free of rips, tears, or other integrity issues?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4c. Is the berm around the pit in good condition and free of erosion?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4d. Is the pit/pond free of oil or oil sheen?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4e. Have the pit contents remained in the pit and not left the location?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4f. If applicable, is the leak detection system showing that the liner is working and there is no leaking? (BU Optional Question)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sump/Pump				
5. Are sumps or pumps present? (If so, list location and function) (If the answer is No, answer N/A for this question and N/A for questions 5a.-5c.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5a. Is area around the sump or pump free of staining and any evidence of overflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5b. Does sump have an automatic discharge system (e.g., float)? If so:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
• Is the float operating properly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5c. If feasible to inspect, is interior of sump in good condition?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Oil-Filled/Miscellaneous Equipment/Wellhead/Separator/Slug Catcher/Dehy/Engines/Transformers/Oil-based Chemical totes and tanks/>55gal oil product (List number of each)				
6. Is there other Oil-Filled or Miscellaneous Equipment on location? If so, answer the questions below and record any new or removed equipment on the Facility Drawing : (If the answer is No, answer N/A for this question and N/A for questions 6a.-6g.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6a. Is the equipment free of oil leakage?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6b. Is the soil around the equipment and on the well pad free from staining and accumulated liquids?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6c. Is the equipment free of maintenance issues (paint chipping, rust, cracking, etc.)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6d. If present, is the secondary containment functioning properly and adequately maintained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6e. If present, are all secondary containment systems clean and free from accumulated liquids (PCC Pots, drip and drainpans, etc.)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6f. Do portable oil containers have secondary containments and are they adequate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6g. Is the site free of any other potential discharge sources? (List each and note any oil staining around equipment)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6h. Are drainage ditches proximate to the site free from oil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6i. Does the SPCC Facility Drawing for the facility match the field observations? If not, sketch update and take supporting photos. Provide documentation to Encana Environmental SPCC Coordinator.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6j. If there are water bodies or sensitive areas within the likely path of an off-site discharge to the adjacent properties, are adequate passive controls in place to contain spills? (BU Optional Question)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Please contact USA Division EH&S for any required changes to this Practice.

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IF YOU HAVE ADDITIONAL NOTES OR COMMENTS THEY MUST BE DATED, INITIALED, AND ATTACHED TO THE BACK OF THIS FORM!

To the best of my knowledge the information provided above is accurate as of the date of this inspection.

Inspector Signature:

*All "NO" answers require a corrective action

Table C-2

MFWTF Oil Spill History Log

[illegible]

Date Last Updated: 4/11/2014

bbl - barrels

Spill Response Personnel Training Log (Latest training module – other dates available upon request)

[illegible]

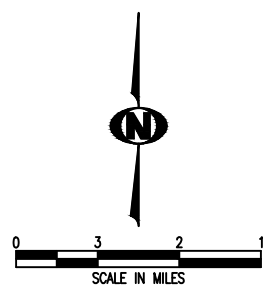
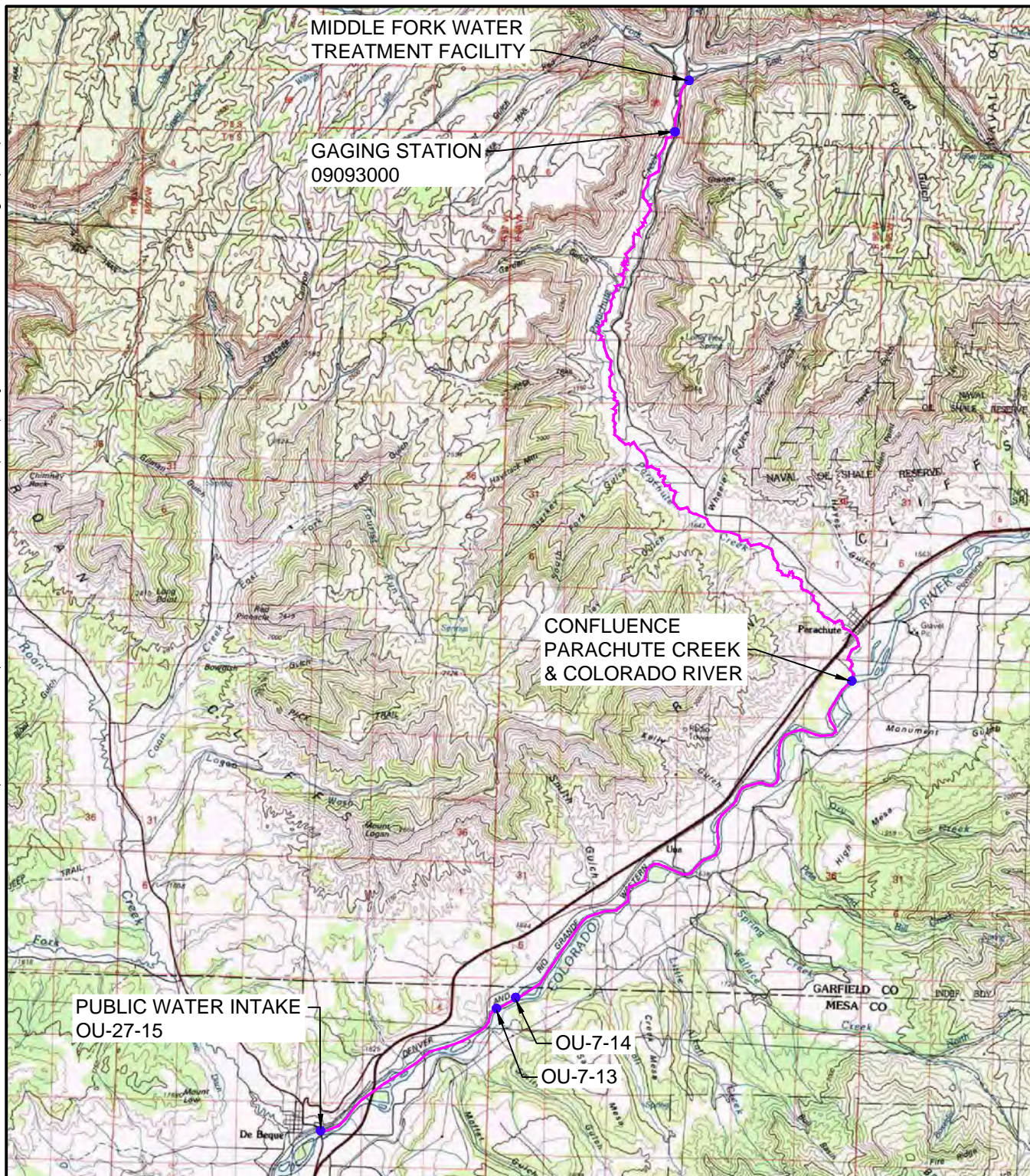
Table C-4 Discharge Prevention Meeting Log

[illegible]

Appendix D

Site Diagrams

Figure D-1
Facility Location



NOTE:
OU-7-14 and OU-7-13 are 317B (Water Supply)
sample points.

FLOW DISTANCE

Colorado River, Parachute Creek to DeBeque Public
Water Intake ~12.7 miles

Parachute Creek, MFWTF Outlet to Colorado River
~14.0 miles

TOTAL DISTANCE ~26.7 miles

MFWTF FACILITY RESPONSE PLAN
Garfield County, Colorado

FACILITY LOCATION

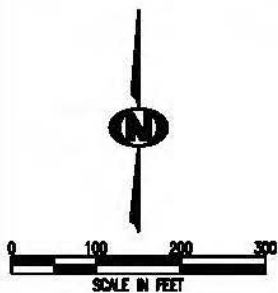
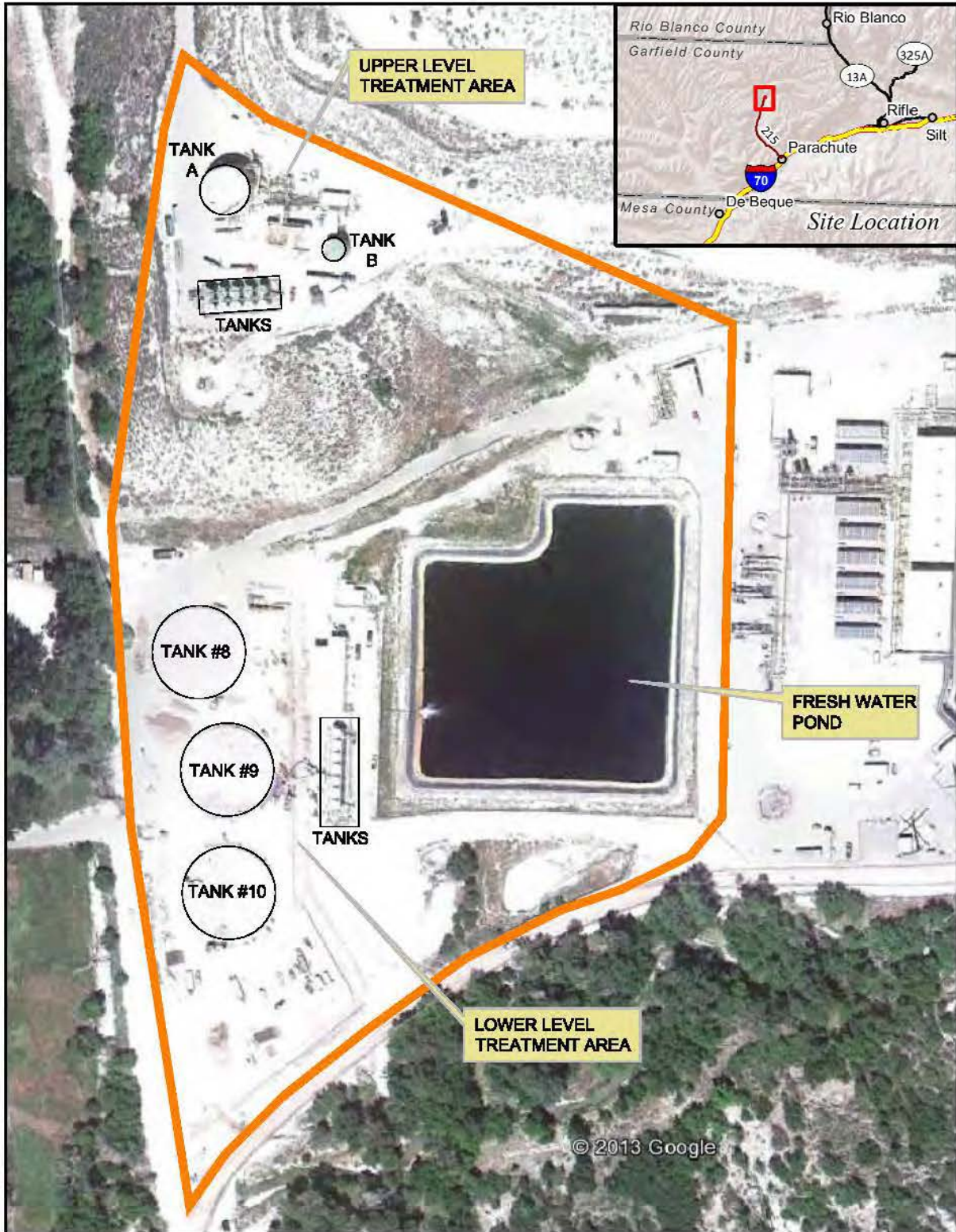
Geosyntec
consultants

FIGURE D-1

APR. 2014

EC-0729

Figure D-2
Site Plan Diagram



MFWTF FACILITY RESPONSE PLAN
Garfield County, Colorado

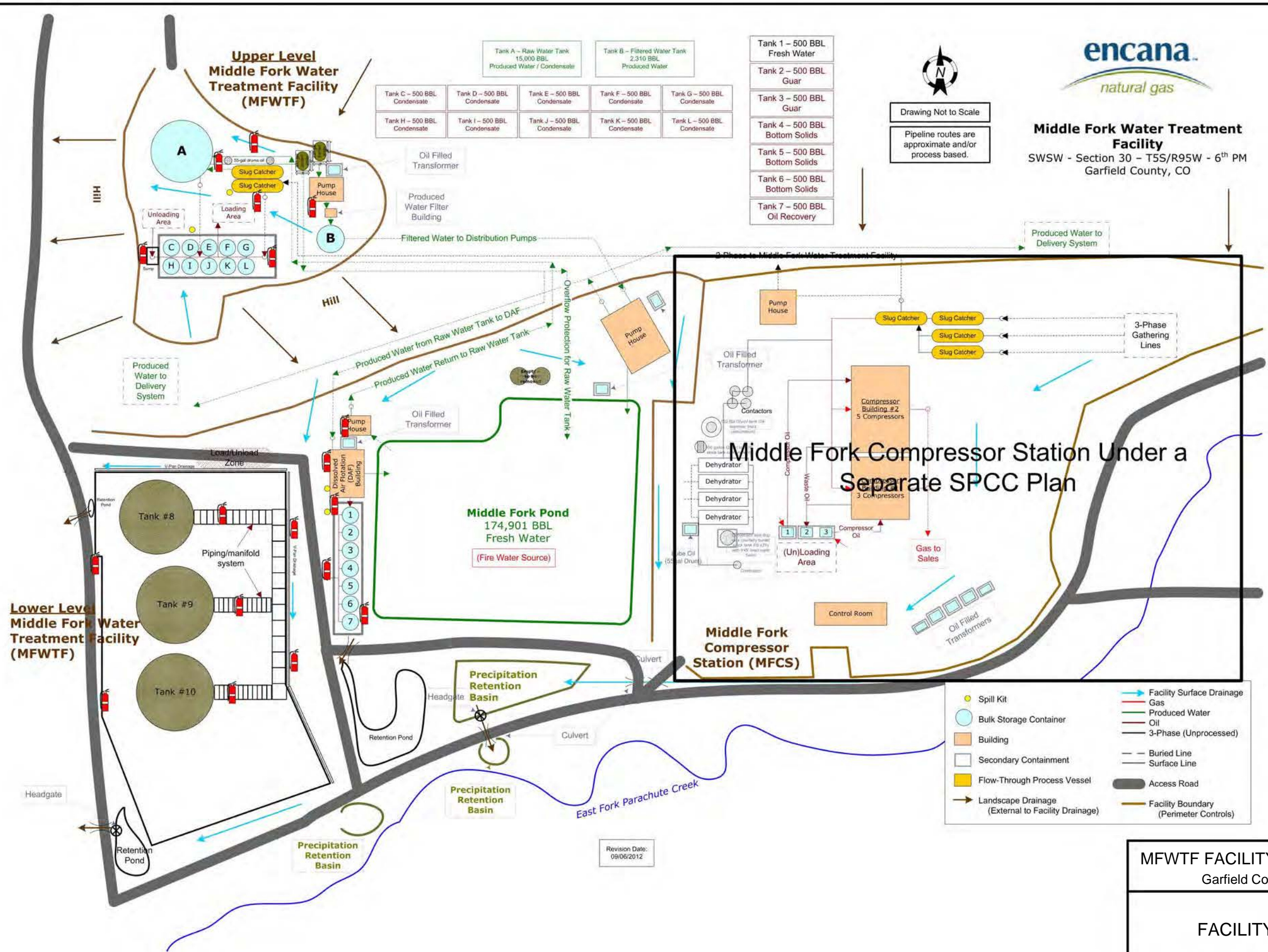
SITE PLAN DIAGRAM

Geosyntec
consultants

FIGURE D-2
EC-0729

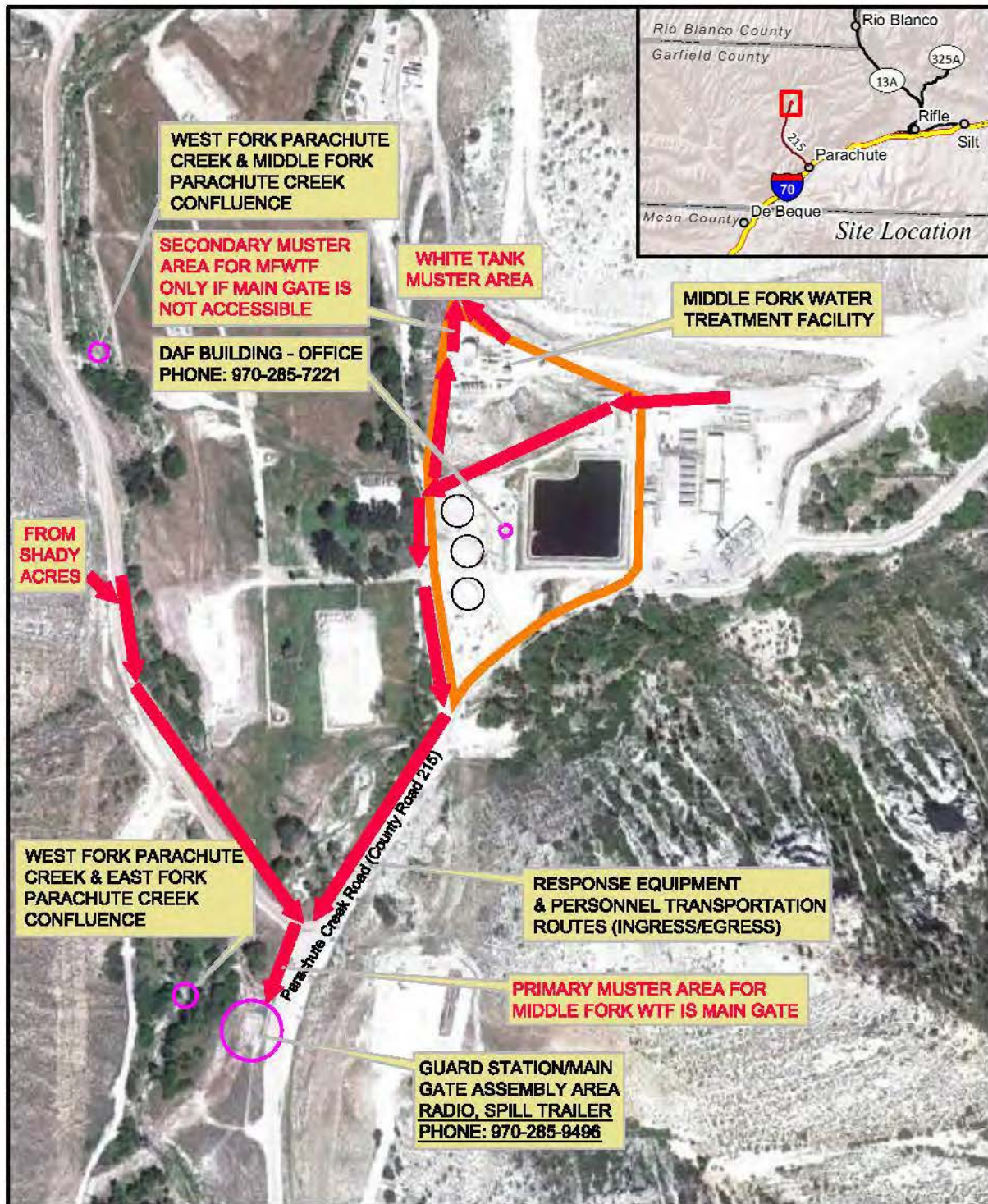
APR. 2014

Figure D-3
Facility Diagram



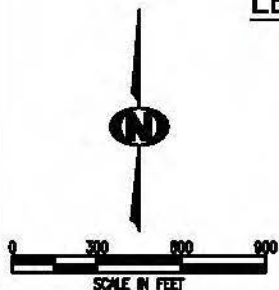
Revision Date:
09/05/2012

Figure D-4
Site Evacuation Plan Diagram



LEGEND:

 **EVACUATION ROUTE**



MFWTF FACILITY RESPONSE PLAN
Garfield County, Colorado

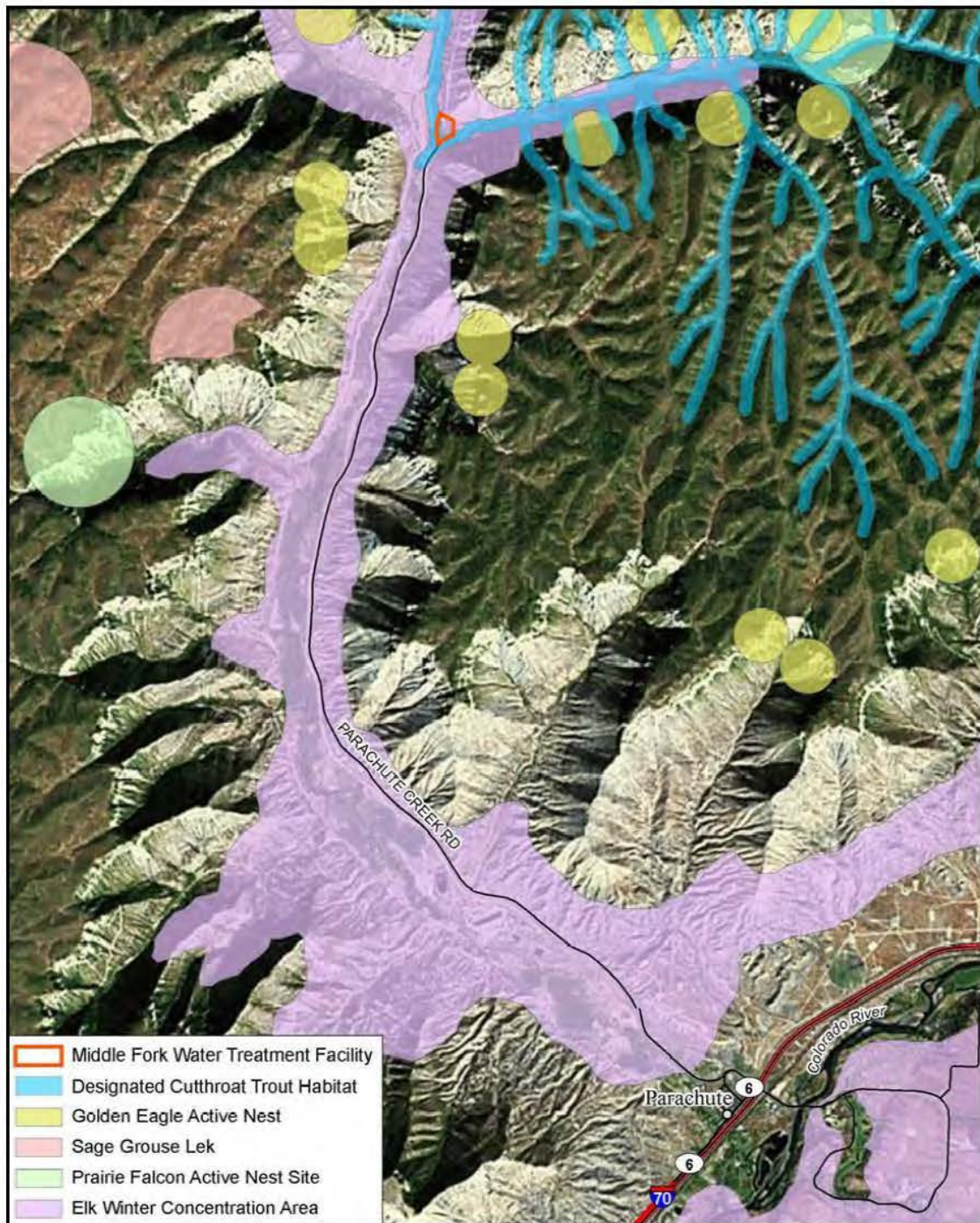
SITE EVACUATION PLAN DIAGRAM

Geosyntec
consultants

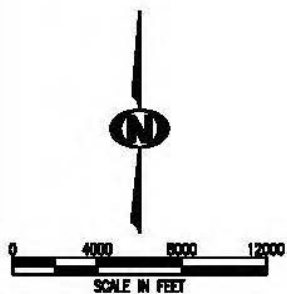
FIGURE D-4
EC-0729

APR. 2014

Figure D-5
Sensitive Wildlife Habitats



Source: Walsh Environmental, January, 2011.



MFWTF FACILITY RESPONSE PLAN

Garfield County, Colorado

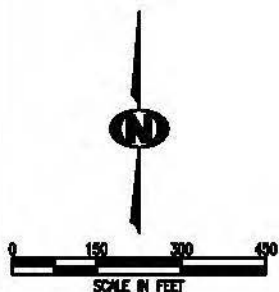
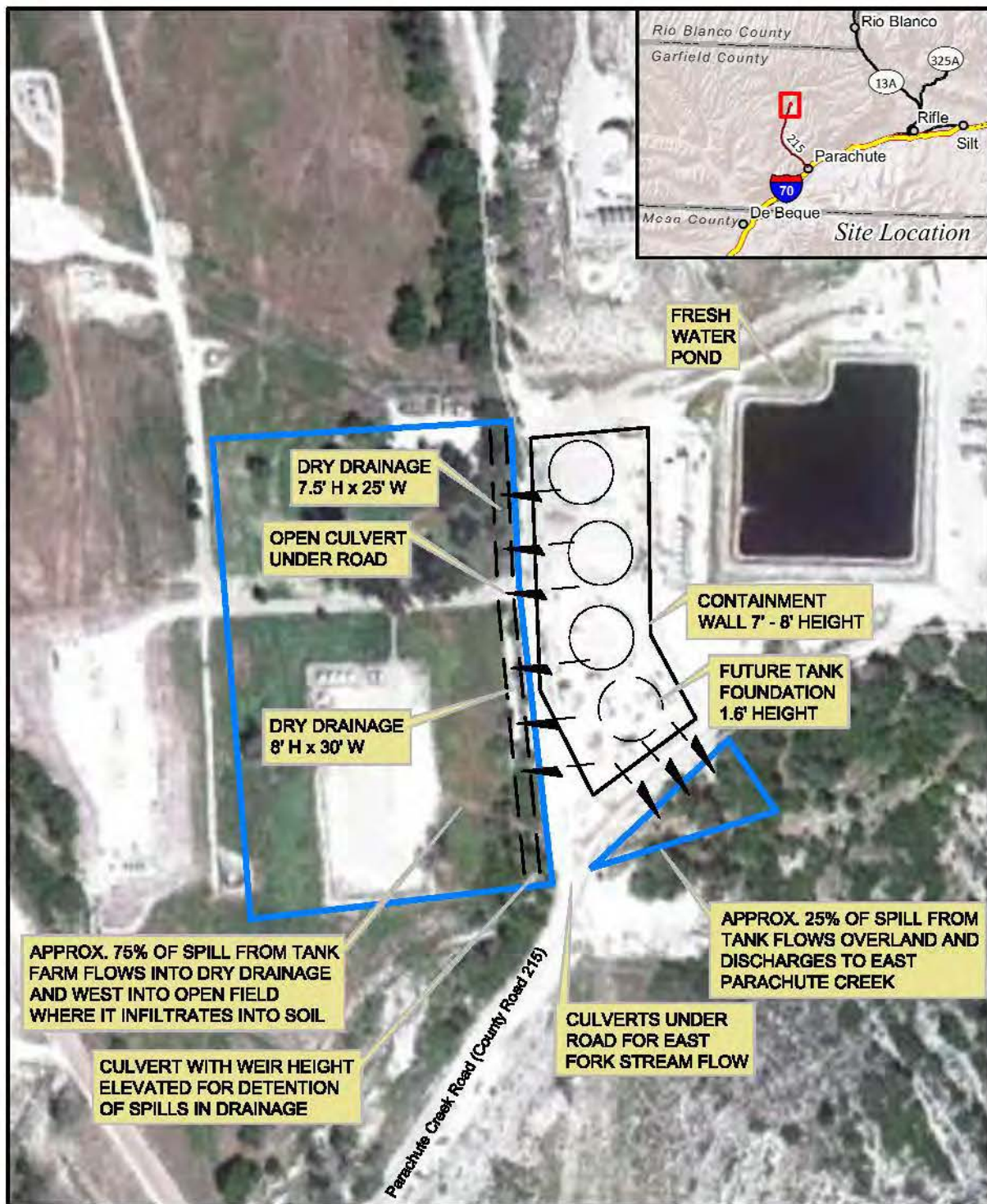
WILDLIFE SENSITIVE HABITATS

Geosyntec
consultants

FIGURE D-5
EC-0729

APR. 2014

Figure D-6
Worst-case Spill Scenario



MFWTF FACILITY RESPONSE PLAN Garfield County, Colorado

WORSE-CASE SPILL SCENARIO

Geosyntec
consultants

FIGURE D-6
EC-0729

APR. 2014

Appendix E – Oil Spill Response Agreements

The Oil Spill Response Agreements are a part of Encana's overall Master Services Agreement contracts with outside consultants. The MSAs cover construction and environmental consultants which support SPCC and FRP requirements. MSA agreements are available for inspection at the Encana Parachute office address below:

Charles H. Jensen, Jr., P.G., C.P.G.
EHS Environmental Group/Hydrogeologist/Special Projects
Encana Oil & Gas (USA) Inc.
143 Diamond Avenue
Parachute, CO 81635
(970) 285-2735 office
(970) 309-1022 mobile
(970) 285 2705 fax
charles.jensen@encana.com

Response Contractors are also required to be trained on, and comply with, the Contractor Expectations Manual (relevant sections are attached).

Contractor Expectations Manual for Environmental, Health, Safety, & Security

Encana Oil & Gas (USA) Inc.

March 2012
Version 3.0
Document No.: 03-002

and that the company contact information is kept current, so that you can be contacted if needed.

Any log-in, password, or other website issues should be directed to PEC: 1.800.892.8179.

3.4 Drugs & alcohol

Encana prohibits the use, possession, distribution, and sell of illegal drugs, drug paraphernalia, and alcoholic beverages as well as the misuse of prescription and over-the-counter medications on its sites. Encana expects the contractor to develop, implement, maintain, and enforce a substance abuse policy consistent with this prohibition.

All contractors must be members of DISA Inc. or another Encana-approved drug & alcohol consortium. Encana will provide information to the contractor for DISA Inc. and Encana-approved equivalents. It is the contractor's responsibility and obligation to keep its employee rosters updated and to ensure employees are current on random tests. New employees must not be allowed on Encana property until their initial pre-employment drug test has cleared as negative. Any personnel found to be in violation of this policy will be asked to leave location. At all times, your company's testing forms shall be kept on location in numbers sufficient to test your site crew(s).

Encana expects the contractor to prohibit any worker from entering or remaining on an Encana site while their ability to work is affected by alcohol or drugs. The possession or use of these substances on an Encana site will result in severe action, up to and including dismissal. Any personnel found in violation of this requirement, or who refuses to cooperate with the searches and tests included in this program or the contractor's policy, shall be *permanently* removed by the contractor from Encana property and from performing work for Encana. Companies who refuse to cooperate with Encana's drug and alcohol requirements may be subject to termination of their contract.

Contractor employees are required to notify their supervisors of any medication they are taking that may affect their work performance.

On property owned or leased by Encana, Encana reserves the right to search or inspect contractors, sub-contractors, and their property at any time, at our discretion, and with or without notice. Such searches may include personal effects and vehicles.

3.5 Emergency response

Encana expects the contractor to develop, implement, and enforce its own emergency response plans for work it performs. However, it is critical that the contractor provide "bridging documents" and understand their responsibilities under Encana's Emergency Response Plan, both for site-specific and area-specific incidents. The contractor will be briefed by the Encana Representative regarding Encana's site-specific Emergency Response

Plan. Some sites use the Site-Specific Evacuation Plan, which will be made available upon request.

The contractor is expected to have available all emergency responders' contact information in addition to all pertinent Encana emergency contact names and numbers. Availability of cell phone coverage should be determined prior to job start. If no cell phone coverage is available, personnel shall be appointed to drive to the closest cell phone coverage area to make the emergency phone call. This shall be addressed as a part of the JSA.

Encana expects the contractor to ensure that all essential emergency equipment (fire extinguishers, eye wash stations, etc.) on the site is proper for the work to be performed, readily accessible, in good working condition, and regularly restocked or refilled. All individuals working on the site must know the location and proper use of this equipment.

Any media inquiries related to an incident will be directed to the on-site Encana Incident Commander. No photos or videos shall be taken on any Encana site (including with personal electronic devices [PEDs]) without explicit Encana permission. PEDs may be confiscated if such media is found.

3.6 Fitness for duty

Encana expects the contractor to ensure the fitness of their workers to perform their job functions. Encana expects contractor's supervisors to be alert to such impairments as fatigue, physical disability, emotional state, cold/heat-related conditions, drugs or alcohol, and hours worked, which may only be noticed by closely working with or supervising workers. Drive time should always be factored into the work day and consideration made for the amount of time it will take for return trip.

3.7 Hazard alerts

Periodically, Encana will issue alerts related to an EHS&S hazard or incident that has occurred in our operating area. These alerts are a knowledge-sharing or lessons learned effort and we expect that you share these with all workers.

3.8 Hazard identification

Contractors shall use a Hazard Identification (HazID) program. Serious or frequent identified hazards should be brought to the attention of the Encana Representative. Encana's form can be made available for contractor's use on our sites.

6.2 Sanitary and washing facilities

The contractor is responsible for ensuring that all required approvals, including permits and licenses, are in place for septic, water diversion, and waste disposal systems associated with its facilities including “gray water” discharge. The contractor must design and maintain facilities to protect surface water and potable groundwater resources. All sanitary facilities shall be properly secured or anchored. All leaks and sewage discharges are considered a spill and must be reported to the Encana Representative immediately upon discovery.

See Section 5.9 for health requirements for sanitary and washing facilities.

6.3 Spill Prevention, Control, and Countermeasure (SPCC)

The Spill Prevention, Control, and Countermeasure (SPCC) regulation (Federal Clean Water Act) requires secondary containment for hydrocarbon-containing fluids in certain quantities. Contractors will obtain permission before making any temporary opening in a fire wall(s), berm(s), or dike(s). A firewall, berm, or dike must not be left open overnight without prior knowledge and permission from the Encana Representative. Any damage to secondary containment (e.g., backing into steel or earthen berms) will be considered a motor vehicle incident with property damage that will be repaired at the contractor’s expense.

NOTE: Drilling and some completions operations require an SPCC plan or other spill control measures. Please contact your area Encana Representative if you need assistance making the determination for plan requirements.

6.4 Spill reporting and response

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, and storage sack), excluding beverages, food items, unused hydraulic fracturing sand (non-coated and natural), and fresh (including potable) water under specified circumstances.

All spills on Encana property must be reported to the Encana Representative immediately. Contractors are expected to have available all emergency responders’ contact information in addition to all pertinent Encana emergency contact names and numbers. Timely and consistent spill reporting enables Encana to minimize and monitor our impact on the environment and to comply with all regulatory requirements.

All spill response activities must be conducted according to Section 3.11. Encana expects contractors to be responsible for the clean-up of any spills they cause, at the contractors’ expense. Clean-up must not occur until the Encana Representative has been contacted.

NOTE: Ensure spill response and clean-up personnel have the appropriate task-specific Hazardous Waste Operations and Emergency Response (HAZWOPER) training.

6.5 Vegetation management

Encana expects all contractors to follow environmentally acceptable practices and meet regulatory requirements in its vegetation management program. All herbicide contractors must be trained or certified according to regulatory requirements. Encana has designated Surface Land Managers who specialize in location design and mitigation of erosion concerns. If you notice areas of missing vegetation with erosion issues, washouts, etc., please contact the area's Encana Representative for direction.

6.6 Water usage & groundwater protection

Contractors will obtain all necessary approvals, licenses, and permits needed to use water (i.e., surface water for drilling and groundwater wells) before performing work. Prudent use of water resources is expected. Notify the Encana Representative if potential contamination to soil or water is identified.

NOTE: To protect surface water, no water will be discharged without prior approval by the Encana Representative, which includes approval by the surface landowner and proper testing or permit (e.g., rainwater and hydrotest water).

6.7 Wildlife awareness

6.7.1 General wildlife

While working for Encana, you may encounter various species of wildlife. Do not approach, feed, intimidate, or otherwise harass wildlife. Report any encounters immediately to your Encana Representative. Many species are protected; harming or killing wildlife could result in state or federal prosecution. Violation of this expectation may result in limited access to Encana locations or other disciplinary action up to and including termination of the MSA.

6.7.2 Migratory birds

Encana has implemented protective practices to minimize harm to migratory birds. These practices include monitoring pits and ponds during drilling and completions operations. For the life of the site (production operations), Encana will have in place protective measures (e.g., fire tube covers, cellar covers, and secondary containment netting) to mitigate harm to migratory birds. The unlawful "taking" (causing harm of any kind to the bird/eggs/nest) can result in fines starting at \$5,000 with the possibility of imprisonment. Your cooperation is expected.

Appendix F – FRP Calculations

This appendix provides the comparable assumptions, calculations and results of the evaluation of substantial harm to drinking water, fish, wildlife and sensitive environments, as a result of a worst-case discharge scenario from a spill of produced water at the MFWTF facility, as required by 40 CFR 112, Subpart D-FRP Response Requirements. Table F-1 and Figure D-6 provide supporting information and data.

The responses to requirements of Subpart D are summarized below, and are certified by the PE responsible for preparation of the FRP and SPCC for the MFWTF:

1. Worst-case Discharge Planning Volume (40 CFR 112, Subpart D, Appendix D)

The worst-case discharge planning volume for the MFWTF is from a catastrophic collapse of the largest produced water tank, which may enter the nearby Parachute Creek in a volume estimated to be 446,250 gallons, containing approximately 150 parts per million of dissolved hydrocarbons, including 10 parts per million of dissolved benzene, the primary contaminant of concern, with the remaining 99.985% being water. No floating oil is anticipated to be present.

2. Planning Distance and Substantial Harm Criteria (40 CFR 112, Subpart D, Appendix C)

- a. It is estimated that a “worst-case” discharge of produced water from the facility could cause injury to fish (aquatic life) for a ten minute period within 0.2 miles of the downstream Parachute Creek;
- b. It is estimated that a “worst-case” discharge of produced water from the facility could cause injury to wildlife and sensitive environments for a two hour period throughout the 14 miles of Parachute Creek, but not beyond the confluence with the Colorado River;
- c. It is estimated that a “worst-case” discharge of produced water from the facility would not exceed water quality standards or shut down a public drinking water intake, at the nearest water treatment plant on the Colorado River 12.7 miles downstream of Parachute Creek, at DeBeque.

The calculations for the worst-case discharge scenario are outlined below, and illustrated in Table F-1 and Figure D-6:

- A worst-case discharge is assumed from a total collapse of the single largest produced water tank, 3,570,000 gallons, and this discharge may occur over a relatively short period, estimated to be seven minutes;
- Based on modeling of tank ruptures at other sites, approximately 50% of the produced water may overtop the containment wall, with 50% being contained and available for recovery. Accordingly, 1,785,000 gallons may overtop the wall;
- Again based on modeling of tank ruptures at other sites, it is assumed that the discharge overtopping the wall proceeds in a radial pattern, i.e., 25% each to the north, east, west and south. Due to the topography of the site, 75% of this discharge to the north, east and

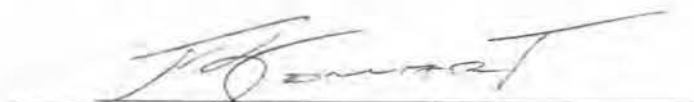
west will be captured in natural drainage swales, ditches and flat areas, whereas 25% may proceed overland to the south toward Parachute Creek. Accordingly, approximately 446,250 gallons of produced water may enter the creek over a period of seven minutes;

- The primary contaminant of concern in the discharge, benzene, has been analyzed extensively in produced water at the MFWTF, and averages less than 10 mg/l;
- Based on USGS stream gauging data, Parachute Creek can be characterized with median values of: 30 cubic feet per second flow rate, 3.74 feet depth, 29 feet width, and velocity of 4.98 feet per second; accordingly as the 446,250 gallons of spill becomes mixed with 395,731 gallons of downstream creek water (total of 841,981 gallons of spill/creek mix), the benzene concentration will dilute from 10.0 to 5.3 mg/l over approximately 0.2 miles. Since the acute aquatic life toxicity of benzene is 5.3 mg/l, Parachute Creek is no longer impaired for aquatic life beyond approximately 0.2 miles downstream of the MFWTF. The estimated time for the spill to reach 0.2 miles is 0.1 hours;
- Similarly as the 841,981 gallons of spill/creek mix becomes further diluted with 21,470,000 gallons of downstream creek water (total of 22,312,000 gallons of spill/creek mix), the benzene concentration will dilute from 5.3 to 0.2 mg/l over approximately 4.7 miles. Since the Drinking Water Health Advisory-One Day for benzene is 0.2 mg/l, Parachute Creek is no longer impaired as a drinking water supply beyond approximately 4.7 miles of the 12.7 miles downstream of the MFWTF. The estimated time for the spill to reach 4.7 miles is 0.8 hours;
- Finally, the estimated benzene concentration in the Colorado River at the DeBeque drinking water intake is estimated to be less than 0.005 mg/l for less than two hours of spill impact from the MFWTF. Conversely, the benzene concentration would need to be greater than 0.005 mg/l over 30 years to exceed the chronic Drinking Water MCL. The estimated time for the spill to reach DeBeque is 4.8 hours

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 Facility Response 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 Facility Response 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

4/11/14
Date

JAMES B. COWART 10/31/15
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.

Table F-1: Alternative (comparable) Calculations for Substantial Harm and Planning

Alternative (comparable) Calculations for Substantial Harm and Planning Distance (40 CFR 112, Subpart D)**Facility Response Plan****Encana Middle Fork Water Treatment Facility****Scenario for Worst-Case Produced Water Discharge****Criteria for benzene concentration standard of 5.3 ppm CDPHE Regulation 31 for Aquatic Life-Acute****Criteria for benzene concentration standard of 0.2 ppm USEPA Drinking Water Health Advisory-One Day Child****Criteria for benzene concentration standard of 0.005 ppm USEPA Drinking Water MCL**

Quantity	Units	Benzene (ppm)	Assumptions and Calculations
Worst-case Discharge Planning Volume			
10,710,000	gallons		Total volume of three produced water tanks
3,570,000	gallons		Volume of largest tank
	ppm	10.0	Benzene concentration in largest tank
1,785,000	gallons	10.0	Assume from modeling that 50% of the discharge overtops the containment wall
446,250	gallons	10.0	25% of worst-case discharge flows South toward Parachute Creek over seven minutes; 75% flows to East, North & West and is detained in swales, ditches, ponds and flat areas not connected to surface water
Distance downstream from facility where benzene from spill equals Aquatic Life-Acute criteria of 5.3 ppm			
841,981	gallons	5.3	Volume of creek needed to dilute benzene to standard for Aquatic Life Acute
0.2	miles	5.3	Distance in creek needed to dilute benzene to standard via complete mixing @29'W and 3.74'H
0.1	hours		Time for spill to reach distance
Distance downstream from facility where benzene from spill equals EPA Drinking Water Health Advisory for One Day of 0.2 ppm			
22,312,500	gallons	0.2	Volume of creek needed to dilute benzene to standard for Drinking Water One Day
4.7	miles	0.2	Distance in creek needed to dilute benzene to standard via complete mixing @29'W and 3.74'H
0.8	hours		Time for spill to reach distance
Concentration of benzene in Parachute Creek prior to mouth of Colorado River			
59,969,877	gallons	0.074	Volume of Parachute Creek prior to mouth of Colorado River
14	miles	0.074	Length of Parachute Creek prior to mouth of Colorado River
2.1	hours		Time for spill to reach distance
Concentration of benzene in Colorado River at nearest drinking water intake at DeBeque			
817,643,795	gallons	0.005	Volume of Colorado River from Parachute Creek to DeBeque
12.7	miles		Distance along Colorado River from Parachute Creek to DeBeque
4.8	hours		Time for spill to reach distance

Appendix G

FRP Training Program Guidelines

The FRP Training Program guidelines and records are maintained at the Encana Parachute office. Encana initiates an FRP roll-out meeting for the oil-handling personnel with an annual refresher. Facility personnel are involved in the drill and exercise program outlined in Appendix H. Training guidelines and records are available for inspection at the Encana Parachute office address below:

Charles H. Jensen, Jr., P.G., C.P.G.
EHS Environmental Group/Hydrogeologist/Special Projects
Encana Oil & Gas (USA) Inc.
143 Diamond Avenue
Parachute, CO 81635
(970) 285-2735 office
(970) 309-1022 mobile
(970) 285 2705 fax
charles.jensen@encana.com

When the annual SPCC awareness is rolled out to the various “oil handling” personnel, the awareness training is specific to the group and what is covered on their locations regarding SPCC (i.e., primary, secondary, and tertiary containments). When conducting the awareness with the staff related to the Middle Fork WTF, the requirements of the FRP are also discussed. The staff are actively participating in the tabletops, especially generating the scenarios.

The documentation (i.e., sign-in sheets) for the annual awareness is available upon request.

Appendix H

FRP Drill and Exercise Program

MFWTF Drill & Exercise Schedule		
Drill/Exercise Type	Required # of Drills/Exercises in 3-year Cycle	Scheduled # of Drills/Exercises per year
Qualified Individual	12	4
OSRT Tabletop	3	1
Facility Equipment Deployment	6	2
Contractor Equipment Deployment	3	1
Unannounced*	3	1

* The unannounced performance of any of the drills/exercises listed in the table (with the exception of the QI/SC Exercise) will also satisfy this requirement to conduct an unannounced drill/exercise.

Latest Tabletop exercise: 3/12/2014 at the facility. Scenario: Rock slide from point of Long Ridge has encroached upon the White Tank pad striking a 12" gathering line to the separators. Line is struck and ruptured on northeast side of pad where it emerges from ground running to inlet of separators. Summary of response and exercise is available upon request.

Latest Drill or deployment exercise: 8/6/2013 at the facility. Actual Response. A bobtail vacuum truck lost 50 bbls of oil sludge due to a broken site glass on the truck. Full response to mitigate spill, including the use of vacuum trucks and two spill kits. BMPs on location contained the spill. Received closure from the state agency. Summary of incident available upon request. No impacts offsite.

Appendix I

Regulatory Cross-Reference

Model Facility-Specific Response Plan FRP Outline from EPA (APP F to Part 112)		Encana FRP	
		0.0	Introduction
		0.1	Purpose and Scope
		0.2	FRP Format
1.1	Emergency Response Action Plan	1.0	Emergency Response Action Plan
1.2	Facility Information	2.0	Facility Information
		2.1	Facility Description
	Facility Name and Location	Table A-1	Facility Information Form
	Latitude and Longitude	Table A-1	Facility Information Form
	Facility Area	Table A-1	Facility Information Form
	Wellhead Protection Area, Protected Waterways and Environmentally Sensitive Areas	Figure D-5	Sensitive Wildlife Habitats
		1.8.2	Potential Spills and Response Actions by Geographic Source Area
		1.8.1	Potential Environmental Setting of a Spill
	Owner/Operator	Table A-1	Facility Information Form
	Qualified Individual	1.1	Qualified Individual Information
	Date of Oil Storage Start-Up	Table A-1	Facility Information Form
	Current Operation	2.1	Facility Description
	Dates and Type of Substantial Expansion	Table A-1	Facility Information Form
1.3	Emergency Response Information	3	Emergency Response Information
		1.8	Immediate Actions
1.3.1	Notification	1.2	Emergency Notification Phone List
		1.3	Spill Response Notification
		1.3.1	Spill Response Notification Form
		1.3.2	Follow-up Reporting Requirements
1.3.2	Response Equipment List	1.4	Response Equipment List and Locations
1.3.3	Response Equipment Testing/Deployment	1.5	Response Equipment Testing and Deployment
1.3.4	Personnel	1.6	Facility Oil Spill Response Team
		1.6.1	Oil Spill Response Personnel
		1.6.2	Emergency Response Contractors
		1.6.3	Oil Spill Response Team
1.3.5	Evacuation Plans	1.7	Evacuation Plan
		1.7.1	Facility Evacuation During Normal Working Hours
		1.7.2	Facility Evacuation During Off-shift Hours
		1.7.3	Community Evacuation

Model Facility-Specific Response Plan FRP Outline from EPA (APP F to Part 112)		Encana FRP	
1.3.6	Qualified Individual's Duties	1.1.1	Qualified Individual Duties
		1.8	Compatibility with Local, Area, and National Response Plans
1.4	Hazard Evaluation	3.0	Hazard Evaluation
1.4.1	Hazard Identification	3.1	Hazard Identification
		3.1.1	Aboveground Storage Containers
		3.1.2	Upper Level
		3.1.3	Lower Level – Produced Water Storage Tanks and DAF Unit
		3.1.4	Produced Water Storage Tanks
		3.1.5	Mobile Storage Containers
		3.1.6	Loading/Unloading of Transportation Vehicles
		3.1.7	Daily Operations
		3.1.8	Secondary Containment
		3.1.9	Normal Monthly Throughput
1.4.2	Vulnerability Analysis	3.2	Vulnerability Analysis
		3.2.1	Analysis of Potential Impacts of an Oil Spill on Residents
		3.2.2	Analysis of Potential Impacts of an Oil Spill on the Environment
1.4.3	Analysis of the Potential for an Oil Spill	3.3	Analysis of the Potential For an Oil Spill
		3.3.1	Analysis of Equipment Failure
		3.3.2	Natural Disaster Potential
1.4.4	Facility Reportable Spill History	3.4	Facility Reportable Oil Spill History
1.5	Discharge Scenarios	4.0	Discharge Scenarios
1.5.1	Small and Medium Discharges	4.1	Small and Medium Discharge Scenarios
		4.1.1	Facility-Specific Spill Scenarios
		4.1.2	Factors that Affect Response Efforts
1.5.2	Worst-Case Discharge	4.2	Worst-Case Discharge
		4.2.1	Worst-Case Discharge Volume
		4.2.2	Facility-Specific Spill Scenarios
		4.2.3	Factors that Affect Response Efforts
1.6	Discharge Detection Systems	5.0	Discharge Detection Systems
1.6.1	Discharge Detection by Personnel	5.1	Discharge Detection by Personnel
1.6.2	Automated Discharge Detection	5.2	Automated Discharge Detection
1.7	Plan Implementation	6.0	Plan Implementation
1.7.1	Response Resources for Small, Medium and Worst-Case Spills	6.1	Spill Response Resources for Small, Medium, and Worst-Case Discharges
		6.1.1	Operations Personnel Actions

Model Facility-Specific Response Plan FRP Outline from EPA (APP F to Part 112)	Encana FRP	
	6.1.2	Oil Spill Response Team Actions
	6.1.3	Higher Level Personnel Actions
1.7.2 Disposal Plans	6.2	Disposal Plans
1.7.3 Containment and Drainage Planning	6.3	Containment and Drainage Planning
	6.4	FRP Plan Maintenance
1.8 Self Inspection, Drills/Exercises and Response Training	7.0	Self Inspection, Drills/Exercises and Response Training
1.8.1 Facility Self-Inspection	7.1	Facility Self-Inspection
1.8.1.1 Tank Inspection	7.1.1	Aboveground Container and Secondary Containment Inspections
1.8.1.2 Response Equipment Inspection	7.1.2	Response Equipment Inspections
	7.1.3	Inspection Documentation and Management of Deficiencies
1.8.1.3 Secondary Containment Inspection	3.1.8	Secondary Containment
1.8.2 Facility Drills/Exercises	7.2	Facility Drills and Exercises
1.8.2.1 Qualified Individual Notification Drill Logs	7.2.1	Spill Coordinator Notification Drill
1.8.2.2 Spill Management Team Tabletop Exercise Logs	7.2.2	Oil Spill Response Team Tabletop Exercise
	7.2.3	Equipment Deployment Exercises
	7.2.4	Unannounced Exercises
	7.2.5	External Exercises
1.8.3 Response Training	7.3	Response Training
1.8.3.1 Personnel Response Training Logs	7.3.1	Personnel Spill Response Training Logs
1.8.3.2 Discharge Prevention Meeting Logs	7.3.2	Discharge Prevention Meeting Logs
1.9 Diagrams	8.0	Facility Diagrams
	Appendix D	Facility Diagrams
1.10 Security	9.0	Security
2.0 Response Plan Cover Sheet	Cover Sheet	
3.0 Acronyms	Preamble	
4.0 References	Appendix J	
FRP Cross reference to Regulations	Appendix I	

Appendix J

References

Colorado Division of Emergency Management

<http://www.colorado.gov/cs/Satellite/DOLA-Main/CBON/1251590375261>

Colorado Emergency Planning Commission

<http://www.coloradoepc.org/p/about-us.html>

Colorado Oil and Gas Conservation Commission

<http://cogcc.state.co.us/>

Colorado Department of Public Health and Environment

<http://www.colorado.gov/cs/Satellite/CDPHE-Main/CBON/1251583470000>

Water Quality Control Division (WQCD)

<http://www.colorado.gov/cs/Satellite/CDPHE-WQ/CBON/1251583425927>

Hazardous Materials and Waste Management Division (HMWMD)

<http://www.colorado.gov/cs/Satellite/CDPHE-HM/CBON/1251615544534>

Encana Spill Prevention Control and Countermeasures Plan – Middle Fork Water Treatment Facility, November, 2012

Encana Oil Spill Contingency Plan – Parachute Colorado Facilities, August, 2011

Encana Training Guidelines, 2012

Encana Emergency Response Plan, May, 2012

EPA National Oil and Hazardous Substance Pollution Contingency Plan

www.epa.gov/oem/content/lawsregs/ncpover.htm

EPA Region 8 Regional Contingency Plan June 2010

http://www.rrt8.nrt.org/production/NRT/RRTHome.nsf/Web+Pages/rrt_viii_ricp.htm

EPA 40 CFR 112 Subpart D – Response Requirements

EPA 40 CFR 112 Appendix C – Substantial Harm Criteria

EPA 40 CFR 112 Appendix F – Facility-Specific Response Plan

Electronic Code of Federal Regulations – eCFR: <http://ecfr.gpoaccess.gov/>

Federal Register – www.gop.gov/fdsys

Garfield County Emergency Operations Plan

www.garcosheriff.com/emergency_management.html

USGS Stream gaging information

<http://waterdata.usgs.gov/nwis>

Appendix K
Revision History

Date	Rev. No.	Made By	Revisions
Feb 2013	01		Original Issue
April 2014	02		Revised per EPA comments