United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
Great Plains Regional Office
115 Fourth Avenue S.E., Suite 400
Aberdeen, South Dakota 57401

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:
DESCRM
MC-208

MAY 09 2012

MEMORANDUM

TO: Superintendent, Fort Berthold Agency

FROM: Acting Regional Director, Great Plains Region

SUBJECT: Environmental Assessment Addendum and Finding of No Significant Impact

In compliance with the regulations of the National Environmental Policy Act (NEPA) of 1969, as amended, an Addendum has been completed and a Finding of No Significant Impact (FONSI) has been issued. The addendum authorizes land use for the conversion of the existing production well to a water disposal well on the Fort Berthold Indian Reservation.

All the necessary requirements of the National Environmental Policy Act have been completed. Attached for your files is a copy of the EA Addendum, FONSI and Notice of Availability. The Council on Environmental Quality (CEQ) regulations require that there be a public notice of availability of the (40 C.F.R. Section 1506.6(b)). Please post the attached notice of availability at the Agency and Tribal buildings for 30 days.

If you have any questions, please call Marilyn Bercier, Regional Environmental Scientist, Division of Environment, Safety and Cultural Resources Management, at (605) 226-7656.

Tim LaPointe

Attachment

cc: Tex Hall, Chairman, Three Affiliated Tribes (with attachment)
Elgin Crows Breast, Tribal Historic Preservation Officer (with attachment)
Derek Enderud, BLM, Bureau of Land Management (with attachment)
Mike Nash, Kodiak Oil
Jonathon Shelman, Corps of Engineers
Jeff Hunt, Fort Berthold Agency

Finding of No Significant Impact

Kodiak Oil & Gas (USA) Inc. - (Kodiak)

Addendum to
Kodiak Oil and Gas (USA), Inc.'s
Proposed Tall Bear #16-15H Well Location
Fort Berthold Indian Reservation
Dunn County, North Dakota

The U.S. Bureau of Indian Affairs (BIA) has received a proposal for an addendum for the conversion of a production well to a water disposal well, the construction of a storage yard with short access road, and the installation of a water line and electrical lines and related infrastructure on the Fort Berthold Indian Reservation to be located in Sections 15 and 22 of Township 147 North, Range 91 West regarding cultural resources, approvals of leases, rights-of-way and easements.

Potential of the proposed actions to impact the human environment is analyzed in the attached addendum to an existing Environmental Assessment (EA), as required by the National Environmental Policy Act. Based on the recently completed addendum to the EA, I have determined that the proposed project will not significantly affect the quality of the human environment. No Environmental Impact Statement is required for any portion of the proposed activities.

This determination is based on the following factors:

1. Agency and public involvement was solicited and environmental issues related to the proposal were identified.
2. Protective and prudent measures were designed to minimize impacts to air, water, soil, vegetation, wetlands, wildlife, public safety, water resources, and cultural resources. The remaining potential for impacts was disclosed for both the proposed action and the No Action alternative.
3. Guidance from the U.S. Fish and Wildlife Service has been fully considered regarding wildlife impacts, particularly in regard to threatened or endangered species.
4. The proposed actions are designed to avoid adverse effects to historic, archaeological, cultural and traditional properties, sites and practices. Compliance with the procedures of the National Historic Preservation Act is complete.
5. Environmental justice was fully considered.
6. Cumulative effects to the environment are either mitigated or minimal.
7. No regulatory requirements have been waived or require compensatory mitigation measures.
8. The proposed projects will improve the socio-economic condition of the affected Indian community.

Tim LaFromboise

Regional Director – Great Plains Regional Office

5-9-12

Date

ENVIRONMENTAL ASSESSMENT
ADDENDUM

United States Bureau of Indian Affairs

Great Plains Regional Office
Aberdeen, South Dakota

Kodiak Oil & Gas (USA) Inc.

Addendum to:
Kodiak Oil and Gas (USA), Inc.'s
Proposed Tall Bear #16-15H Well Location
Fort Berthold Indian Reservation
Dunn County, North Dakota

May 2011

For information contact:
Bureau of Indian Affairs, Great Plains Regional Office
Division of Environment, Safety and Cultural Resources
115 4th Avenue SE
Aberdeen, South Dakota 57401
605-226-7656

TABLE OF CONTENTS

Figures

Appendix

1. Purpose and Need for the Proposed Action

The Bureau of Indian Affairs issued a Finding of No Significant Impact (FONSI) on April 3, 2008, regarding Kodiak's Environmental Assessment for a single exploratory oil and gas well. In that document, Kodiak proposed to drill a single exploratory oil and gas well on the Fort Berthold Indian Reservation, to evaluate and possibly develop the commercial potential of natural resources. Developments have been proposed on land held in trust by the United States in Dunn County, North Dakota. The BIA is the surface management agency for potentially affected tribal lands and individual allotments. The BIA also holds title to subsurface mineral rights. The economic development of available resources and associated BIA actions are consistent with BIA's general mission. Leasing and development of mineral resources offers substantial economic benefits to both the Three Affiliated Tribes of the Mandan, Hidatsa, and Arikara Nation and to individual tribal members.

The purpose of the proposed action is to authorize the conversion of the existing production well to a water disposal well, the installation and use of a water line and electrical lines, to follow previously approved access roads, and to authorize the construction of a storage yard to facilitate the conversion of the existing well to a water disposal well at the previously approved surface location as further described in Section 3 of this document.

2. Authorities

Oil and gas exploration and development activities are conducted under authority of the Indian Mineral Leasing Act of 1938 (25 United States Code [USC] 396a, et seq.), the Gas Royalty Management Act of 1982 (30 USC 1701, *et seq.*), the Indian Mineral Development Act of 1982 (25 USC 2101, et seq.), the Energy Policy Act of 2005 (42 USC 15801, et seq.), and 25 Code of Federal Regulations (CFR) 169. BIA actions in connection with the proposed project are largely administrative and include approval of rights-of-way (ROW) and determinations regarding cultural resource effects. A new right-of-way and business lease will be required, and no construction or operation activities will be conducted prior to acquiring an approved Underground Injection Control (UIC) permit from the EPA and providing a copy of the approved permit to the BIA.

3. Legal Land Descriptions of Proposed Action

The Tall Bear 16-15H well has a surface location in the SE4 SE4 of Section 15, T147N-R91W. The access road for this surface location begins at BIA 20 in the NE4 of Section 22 (T147N-R91W) and proceeds northeast for a distance of approximately 3,390 feet (Figure 1). Both the well pad and access road to the pad were covered in the March 2008 EA and April 2008 FONSI. The water line and electrical lines will follow the current approved right of way with no additional surface disturbance. The proposed storage yard and associated access road will be located in the SW4 NE4 of Section 22, T147N, R91W, adjacent to BIA 20 and the currently existing access road (Figure 2). The proposed storage yard is approximately 300 feet by 300 feet in size and will require an access road of approximately 51 feet in length.

4. Scope of Work for Proposed Action

Kodiak proposes to install and use a water line and electrical lines along the previously approved access road right of way at its Tall Bear 16-15H surface location. All utilities, including electrical, will be installed underground. This action will require no additional surface disturbance. The proposed storage yard is approximately 300 feet by 300 feet in size and will include the construction of a short access road from the existing access road to the proposed pad of approximately 51 feet in length. The total surface area contained within the barbed wire security fence around the pad is approximately 3.15 acres.

Well Conversion

The Tall Bear 16-15-16H will be plugged back to the Inyan Kara disposal zone though the placement of three plugs as detailed below:

Plug #1. A cast-iron bridge plug will be set at a depth of 9,118' (above the top of the 4½" liner). The fluids in the casing will then be displaced by salt water with a density of 10.2 lbs/gallon. The CIBP will be capped with 25 sacks of class G cement with 35% silica flour (190'+). This plug serves to isolate any fluids from the Bakken formation and prevent their migration up-hole.

Plug #2. The Minnekahta/Minnelusa group will be isolated by either a 150' class G cement plug or a CIBP capped with 150' (from 6,480-6,330') of class G cement.

Plug #3. A 150' class G cement plug set from 5,827-5,677'. The top of this plug will be approximately 250' below base of the Inyan Kara.

After each plug is set, the casing will be pressure tested and remedial action will be taken to ensure zonal isolation in the event it does not hold 1000 psi. Any balanced plug (not set on top of a CICR) will be tagged with tubing to verify placement.

Inyan Kara Completion

The Inyan Kara (Cretaceous) is confined above by the Skull Creek Shale formation (Cretaceous) approximately 217' thick in the proposed well and confined below by the Swift Shale (Jurassic), approximately 152' thick while the Inyan Kara is approximately 708' thick containing approximately 126' effective injection sand.

The 7' casing will be perforated with four shots per foot in the Inyan Kara porosity zone from 5238-5284' and from 5125-5205' (126 net feet). A 7" retrievable Arrowset I type packer will be run on internal plastic coated 3½", 9.3#/ft, J-55 tubing. The casing/tubing annulus will be filled with fresh water inhibited packer fluid, and tested to 1000 PSIG.

The three attached well diagrams show the well in its current configuration, recompleted for water disposal, and permanently abandoned.

Injection Procedures

KOG plans to utilize a pump house complete with a closed system charge pump, filter system, J165 injection pump and six 400 BBL tanks. Pressure sensors will monitor injection pressure and shut the pump down at the maximum allowed injection pressure (MAIP). Water transported to the site for disposal will be logged onto a brine run ticket. The daily brine run tickets will be used to monitor the amount of fluid pumped. The average injection rate is anticipated to be 5000 BPD, with a maximum of 10,000 BPD. The average pressure estimated injection pressure is 600 PSIG; maximum 1375 PSIG.

Potential failures have been considered and mitigated by the design of the SWD well. These considerations include the 9 5/8" surface casing set below USDW and cemented to surface. The 7" intermediate string 29# L80 & 32# HCL80 with TOC cement at 1,926' is inside the 7" x 9 5/8" annulus protecting the base of the surface shoe. The pump facility and tubing annulus will

be monitored daily for pressure build up and the well shut-in immediately if such should occur. The tubing will be remediated as necessary, and the well returned to service. Surface facilities will include pressure safety switches that would shut down the pump in the event of high pressure or low suction. If need be, water from oil wells would be trucked to other facilities until the SWD well was returned to service. Additional details regarding the facility layout, tankage, secondary containment, spill/leak detection and response are addressed in the SPCC Plan included as an appendix to this document.

The average injection rate of 5000 BPD equates to approximately 50 truck trips per day. Though this will result in a localized increase in truck traffic, it will reduce traffic on roads more heavily traveled by the public by eliminating the need to haul water off the Fort Berthold Reservation for disposal.

5. Applicable National Environmental Policy Act (NEPA) Document(s)

Environmental Assessment: Kodiak Oil & Gas (USA), Inc.'s proposed Tall Bear #16-15H Well Location, Fort Berthold Indian Reservation, Dunn County, North Dakota, dated March 2008. The FONSI was signed on April 3, 2008.

6. NEPA Adequacy Criteria

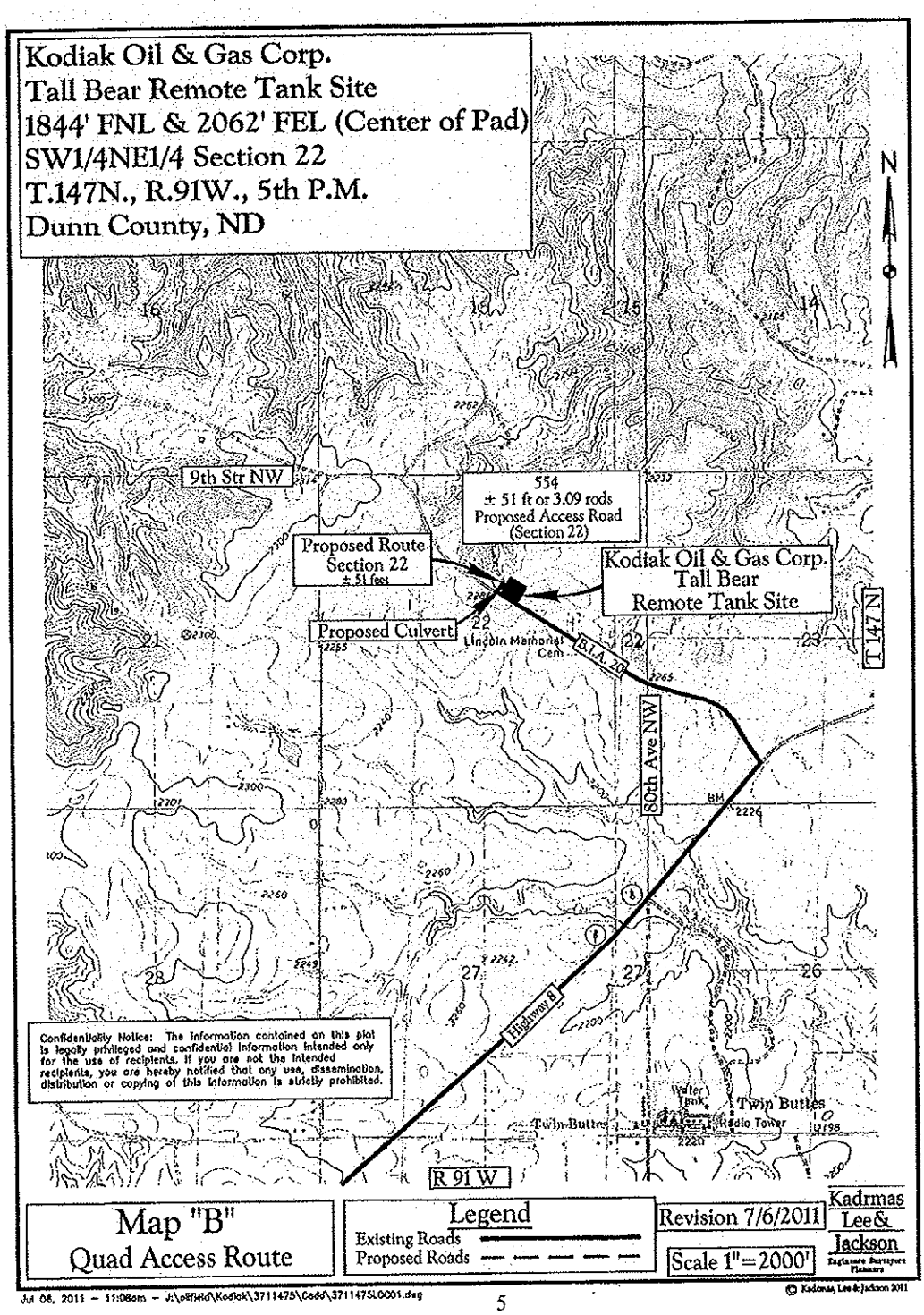
This document has identified a previously prepared NEPA document, *Environmental Assessment: Kodiak Oil & Gas (USA), Inc.: Proposed Tall Bear #16-15H Well Location (April 2008)*, which adequately describes the environmental consequences of the newly proposed action described herein, and meets the following NEPA Adequacy Criteria:

1. The proposed action is substantially the same action at the site specifically analyzed in the existing NEPA document.
2. The range of alternatives is reasonable with respect to the current proposed action in the existing NEPA document, which appropriately considers and analyzes current environmental concerns, interests, and resource values.
3. The existing analysis and conclusions are adequate in the existing NEPA document. The analysis is still valid in light of new studies or resource assessment information.
4. The methodology and analytical approach used in the existing NEPA document continues to be appropriate for the proposed action.
5. The direct and indirect impacts of the proposed action are unchanged from those identified in the existing NEPA document.
6. The cumulative impacts that would result from implementation of the proposed action are unchanged from those analyzed in the existing NEPA document.

7. Cultural Resources

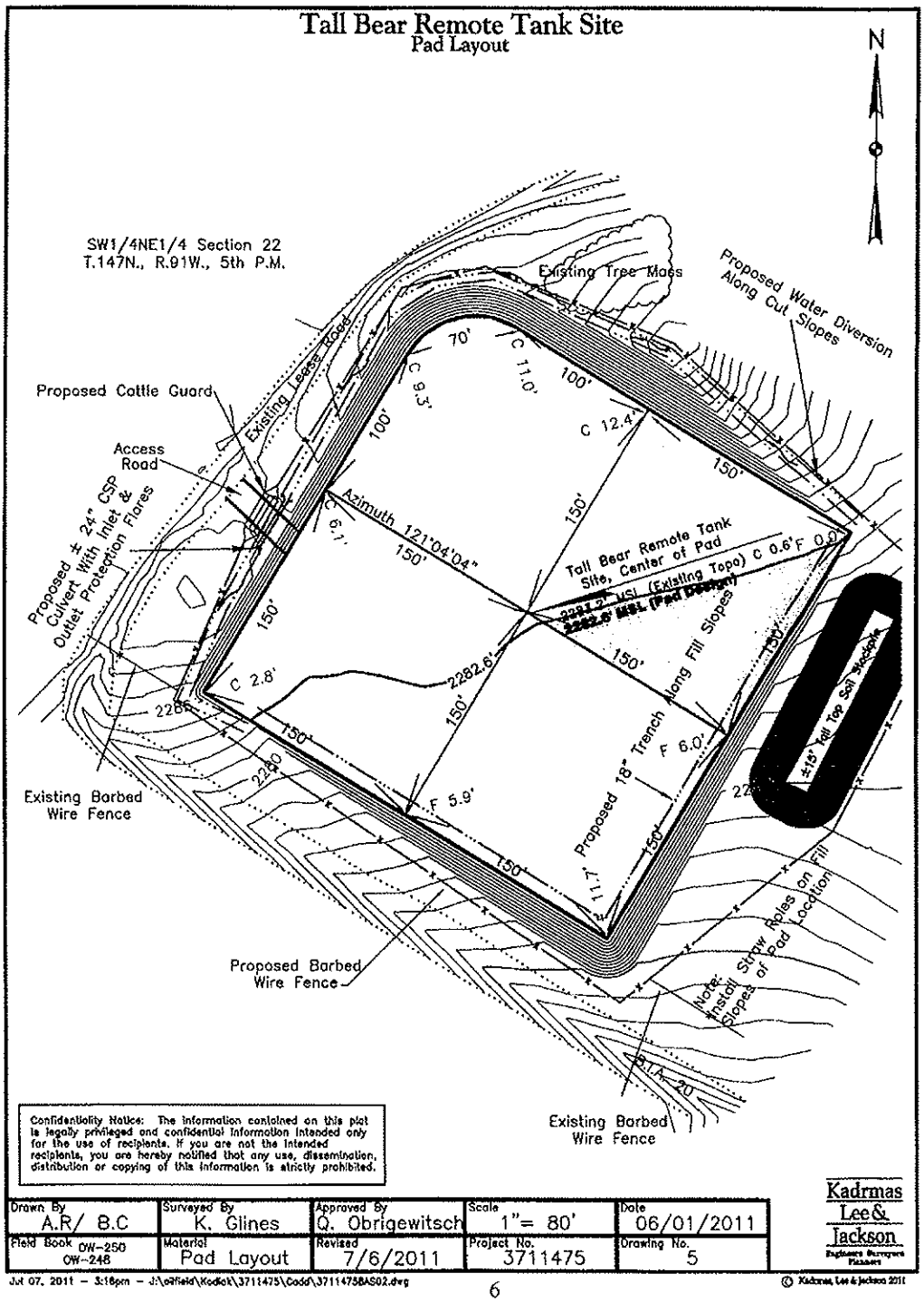
The proposed water line and electrical lines will not increase surface disturbance on the existing surface pad or access road, nor will it impact any cultural resources. Cultural resources inventories were conducted by personnel from Metcalf Archaeological Consultants, Inc. (MAC) on the Tall Bear 15-16H pad location and access road in August, 2007. An additional inventory was conducted by Juniper LLC on the new proposed storage yard and associated access road in June, 2011. The latter inventory consisted of approximately 5.8 acres around the proposed storage pad and access road. The Tall Bear pad Class III Cultural Resource

Inventory conducted by MAC included 10 acres centered on the pad, while the road corridor was 100 feet wide for the entire road length, approximately 8.2 acres, for a total of 18.2 acres (Bluemle, William J., 2007). A cultural site was identified in the vicinity of the surface pad by MAC; however the pad and the proposed expanded area are away from this site and will not encroach upon the site. No historic properties are affected by this pad and road.


Kodiak Oil & Gas Corp.
Tall Bear Remote Tank Site
1844' FNL & 2062' FEL (Center of Pad)
SW1/4NE1/4 Section 22
T.147N., R.91W., 5th P.M.
Dunn County, ND
N
9th Str NW
554
± 51 ft or 3.09 rods
Proposed Access Road
(Section 22)
Proposed Route
Section 22
± 51 feet
Kodiak Oil & Gas Corp.
Tall Bear
Remote Tank Site
Proposed Culvert
Lincoln Memorial Cem
B.I.A. 20
T147N
80th Ave NW
Highway 8
Water Tank
Twin Buttes
Radio Tower
Twin Buttes
R 91 W
Confidentiality Notice: The information contained on this plat is legally privileged and confidential information intended only for the use of recipients. If you are not the intended recipients, you are hereby notified that any use, dissemination, distribution or copying of this information is strictly prohibited.
Map "B"
Quad Access Route
Legend
Existing Roads
Proposed Roads
Revision 7/6/2011
Scale 1"=2000'
Kadrmas Lee & Jackson
Jul 08, 2011 – 11:08am – J:\oilfield\Kodiak\3711475\Cadd\3711475L0001.dwg
© Kadrmas, Lee & Jackson 2011

5

Figure 1


Tall Bear Remote Tank Site
Pad Layout
N
SW1/4NE1/4 Section 22
T.147N., R.91W., 5th P.M.
Existing Tree Mass
Proposed Water Diversion Along Cut Slopes
Proposed Cattle Guard
Existing Lease Road
Access Road
Proposed ± 24" CSP Culvert With Inlet & Outlet Protection Flares
Azimuth 121°04'04"
Tall Bear Remote Tank Site, Center of Pad
Existing Barbed Wire Fence
Proposed Barbed Wire Fence
Existing Barbed Wire Fence
Proposed 18" Trench Along Fill Slopes
Install Straw Bales on Fill Slopes at Pad Location
Note:
Confidentiality Notice: The information contained on this plot is legally privileged and confidential information intended only for the use of recipients. If you are not the intended recipients, you are hereby notified that any use, dissemination, distribution or copying of this information is strictly prohibited.
Drawn By A.R/ B.C
Surveyed By K. Glines
Approved By Q. Obrigewitsch
Scale 1"= 80'
Date 06/01/2011
Field Book OW-250 OW-248
Material Pad Layout
Revised 7/6/2011
Project No. 3711475
Drawing No. 5
Kadrmas Lee & Jackson
Jul 07, 2011 – 3:16pm – J:\oilfield\Kodiak\3711475\Cadd\3711475BAS02.dwg
© Kadrmas, Lee & Jackson 2011

6

Figure 2

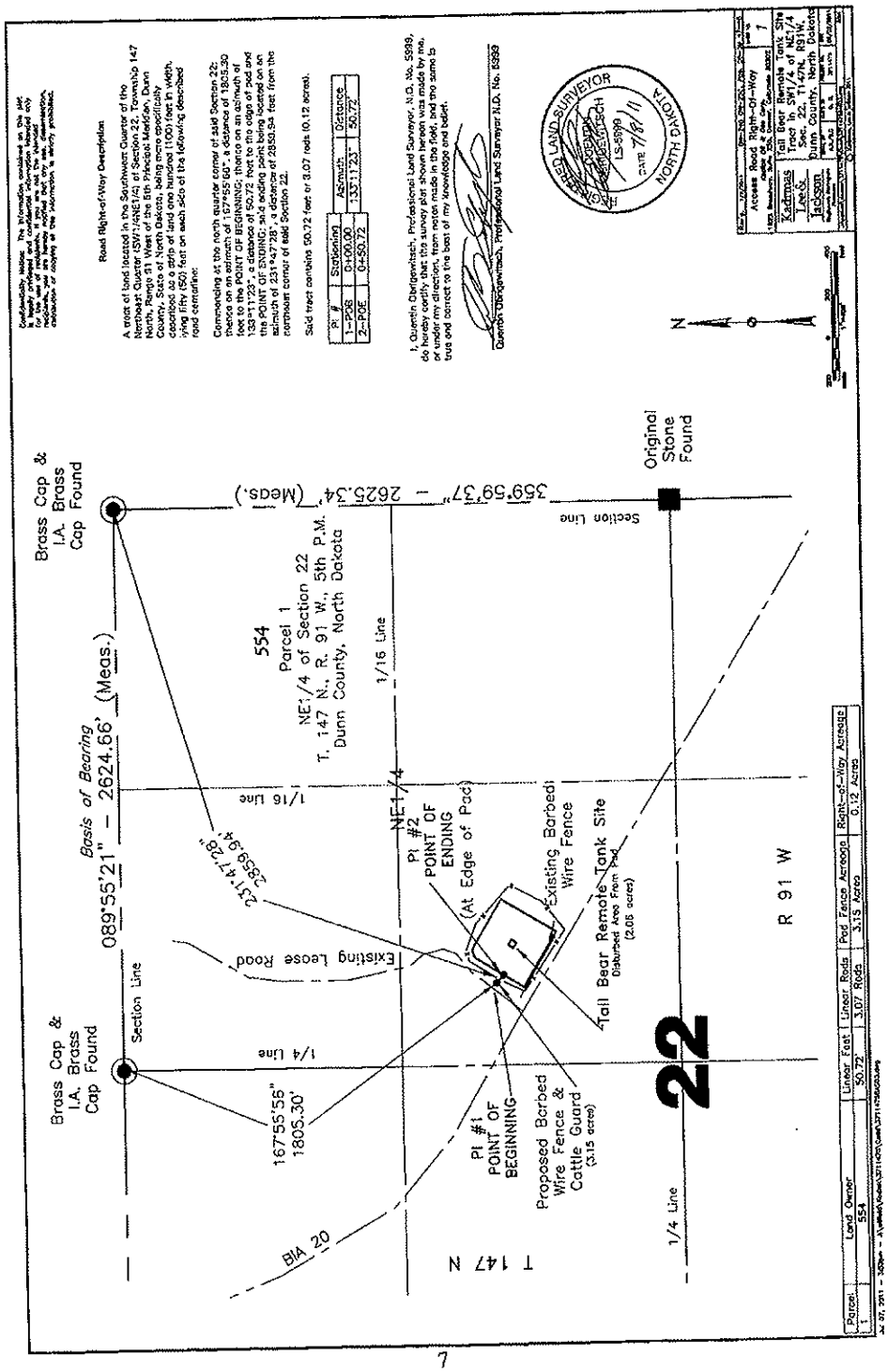

Road Right-of-Way Description
A strip of land located in the Southwest Quarter of the Northeast Quarter (SW1/4NE1/4) of Section 22, Township 147 North, Range 91 West of the 5th Principal Meridian, Dunn County, State of North Dakota, being more specifically described as a strip of land one hundred (100) feet in width, lying fifty (50) feet on each side of the following described road centerline:
Commencing at the north quarter corner of said Section 22; thence on an azimuth of 167°55'56", a distance of 1805.30 feet to the POINT OF BEGINNING; thence on an azimuth of 133°11'23", a distance of 50.72 feet to the edge of pad and the POINT OF ENDING; said ending point being located on an azimuth of 231°47'28", a distance of 2353.94 feet from the northern corner of said Section 22.
Said tract contains 50.72 feet or 3.07 rods 10.12 acres.
Pt #
Stationing
Azimuth
Distance
1--POB
0+00.00
133°11'23"
50.72
2--POE
0+50.72
Brass Cap & I.A. Brass Cap Found
Basis of Bearing
089°55'21" - 2624.66' (Meas.)
359°59'37" - 2625.34' (Meas.)
Original Stone Found
Section Line
1/16 Line
1/4 Line
554
Parcel 1
NE1/4 of Section 22
T. 147 N., R. 91 W., 5th P.M.
Dunn County, North Dakota
NE1/4
Pt #2
POINT OF ENDING
(At Edge of Pad)
Existing Barbed Wire Fence
Existing Loose Road
Tall Bear Remote Tank Site
Disturbed Area From Pad
(2.08 acres)
2353.94'
231°47'28"
1805.30'
167°55'56"
Pt #1
POINT OF BEGINNING
Proposed Barbed Wire Fence & Cattle Guard
(3.15 acres)
BIA 20
T 147 N
R 91 W
22
Parcel
Land Owner
Linear Feet
Linear Rods
Pad Fence Acreage
Right-of-Way Acreage
1
554
50.72'
3.07 Rods
3.15 Acres
0.12 Acres
Access Road Right-of-Way
Tall Bear Remote Tank Site
Tract in SW1/4 of NE1/4
Sec. 22, T147N, R91W,
Dunn County, North Dakota
Kadrmas Lee & Jackson
Quentin Oberlander
LS-5999
NORTH DAKOTA
LAND SURVEYOR
7/8/11
N
7

Figure 3

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Appendix A

SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN

FOR:

Tall Bear 16-15-16H Salt Water Disposal Tank Battery
Dunn County, North Dakota

February 2012

Prepared for:

Kodiak Oil & Gas (USA), Inc.
1652 Broadway, Suite 250
Denver, Colorado 80202

Prepared by:

LESAIR Environmental, Inc.
10354 W. Chatfield Ave., Ste. 200
Littleton, CO 80127

GENERAL INFORMATION

Field: **Fort Berthold Indian Reservation Area**

Facility Types: **Salt Water Disposal Facility**

Nearest City/Town: **Dickinson, North Dakota**

Distance and Direction to Nearest City/Town: **Approximately 50 to 60 miles North**

Name & Address of Owner/Operator:	**Kodiak Oil & Gas (USA), Inc.** **1625 Broadway, Suite 250** **Denver, Colorado 80202**
Facility or System Manager/Supervisor:	**Russell Branting**
Manager's/Supervisor's Address:	**Same as Owner/Operator - Above**
Phone Number:	**(303) 592-8036 (office)**

Person Responsible for Discharge Prevention (§ 112.7(f)(2)):

Jerry Myers, District Manager
Kodiak Oil & Gas (USA), Inc.
683 State Ave., Suite A
Dickinson, ND 58601

Phone Number: **(701) 483-6581 (office)**

(701) 690-1690 (cellular)

Field Office Location: **Kodiak Oil & Gas (USA), Inc.**
683 State Ave., Suite A
Dickinson, ND 58601

Contact at Field Office: **Jerry Myers, District Manager**

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APPROVAL

This Spill Prevention Control and Countermeasures (SPCC) Plan represents Kodiak Oil & Gas (USA), Inc. (Kodiak's) plan for compliance with SPCC regulations found in 40 CFR, Part 112 for the Onshore Disposal Facility detailed in this plan. This Onshore Disposal Facility (as defined in § 112.2) is applicable not only to the general SPCC requirements in § 112.7, but additionally are subject to § 112.9 that is specific to Onshore Disposal Facilities. This SPCC Plan is a carefully thought-out document, prepared in accordance with good engineering practices. A manager with the authority to commit resources necessary to implement the plan has approved and signed this SPCC Plan below.

Management Approval (§112.7):

This Spill Prevention Control and Countermeasure Plan will be implemented as herein described. Corrections or deficiencies found at Kodiak Oil & Gas (USA), Inc. (Kodiak) facilities that are included in this plan, will be corrected to meet the minimal containment dimensions and repairs.

Signature: _____

Name: _____

Title: Executive Vice Pres. Lt

Date: 5-3-2012

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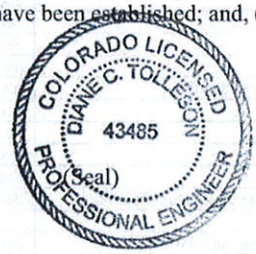
CERTIFICATION

This Spill Prevention Control and Countermeasures (SPCC) Plan represents Kodiak Oil & Gas (USA), Inc. (Kodiak's) plan for compliance with SPCC regulations found in 40 CFR, Part 112 for the Onshore Disposal Facilities detailed in this plan. This SPCC Plan is a carefully thought-out document, prepared in accordance with good engineering practices and with the requirements of the SPCC rule. This plan has been reviewed and certified by a registered professional engineer (P.E.) who is familiar with this type of oil and gas salt water disposal facility and with 40 CFR Part 112.

Professional Engineer's Certification (§112.3(d)):

I, hereby, certify that (i) I am familiar with the requirements of the SPCC rule (40 CFR, Part 112); (ii) my agent has visited and examined the facility; (iii) the plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards, and with the requirements of SPCC rule; (iv) procedures for required inspections and testing have been established; and, (v) the plan is adequate for each facility.



Signature: Diane Tolleson

Date: 2/20/12

Diane C. Tolleson
Printed Legal Name of Registered Professional Engineer

Registration No.: 43485
State of Registration: **Colorado**

Fort Berthoud Indian Reservation Area:

1. **Tall Bear 16-15-16H SWD Tank Battery**

CROSS REFERENCE TABLE

Current Rule	Previous Rule	Description of Rule	Location
§ 112.3 (d)	§ 112.3 (d)	Professional Engineer Certification	Pg. v
§ 112.3 (e)	§ 112.3 (e)	Location of SPCC Plan	Sec. 3.5
§ 112.4	n/a	Amendments to this Plan by an EPA Regional Administrator	n/a
§ 112.5	§ 112.5	Plan Reviews	Sec. 3.4
§ 112.5(a)	n/a	Material Changes	Sec. 3.4.1
§ 112.5(b)	n/a	5 Year Reviews	Sec. 3.4.2, Appendix A
§ 112.5(c)	n/a	P.E. Certification of Technical Amendments	Sec. 3.4.3
§ 112.7	n/a	Cross Reference Table	Pg. vi
§ 112.7	§ 112.7	Management Approval	Pg. iii
§ 112.7	§ 112.7	General requirements for SPCC Plans for all facilities and all oil types.	Sec. 1.0
§ 112.7(a)(1)	§ 112.7	Discussion of the Facility's Conformance	Sec. 2.2
§ 112.7(a)(2)	n/a	SPCC Plan Deviations	Sec. 2.3
§ 112.7(a)(3)	n/a	Facility Diagrams and Descriptions	Sec. 1.1
§ 112.7(a)(4)	n/a	Spill reporting	Sec. 11.2
§ 112.7(a)(5)	n/a	Discharge Response Procedures	Sec. 11.2, 11.3
§ 112.7(b)	§ 112.7(b)	Fault analysis	Sec. 2.0
§ 112.7(c)	§ 112.7(c)	Secondary containment	Sec. 2.1
§ 112.7(d)	§ 112.7(d)	Deviations from SPCC Requirements	Sec. 2.3
§ 112.7(d)(1)	§ 112.7(d)	Oil Spill Contingency Plan	Appendix I
§ 112.7(d)(2)	§ 112.7(d)	Written commitment of manpower, equipment and materials	Appendix B
§ 112.7(e)	§ 112.7(e)(8)	Inspections, tests, and records	Sec. 3.0, Appendix C
§ 112.7(f)(1)	§ 112.7(e)(10)	General Employee Compliance Training	Sec. 4.1
§ 112.7(f)(2)	§ 112.7(e)(10)	Designated Individual Responsible for SPCC Plan	Sec. 4.2
§ 112.7(f)(3)	§ 112.7(e)(10)	Discharge Prevention Briefings	Sec. 4.1
§ 112.7(g)	§ 112.7(e)(9)	Security (excluding oil production facilities)	n/a
§ 112.7(h)	§ 112.7(e)(4)	Facility Loading/unloading Racks (excluding offshore facilities)	n/a
§ 112.7(i)	n/a	Brittle fracture evaluation requirements	Sec. 8.0
§ 112.7(j)	§ 112.7(e)	Conformance with state requirements	Sec. 11.3
§112.7(k)	n/a	Qualified Oil-filled Operation Equipment	Sec. 7.2, 7.3
§ 112.9	§ 112.7(e)(5)	Requirements for onshore production facilities	Sec. 1.0
§ 112.9(a)	n/a	General Requirements and Requirements for Onshore Production Facilities	Sec. 1.0
§ 112.9(b)	§ 112.7(e)(5)(ii)	Oil production facility drainage	Sec. 5.0
§ 112.9(b)(1)	§ 112.7(e)(5)(ii)	Restraining Drainage from Diked Areas; Removing accumulated Oil	Sec. 5.0
§ 112.9(b)	n/a	Inspections of Field Drainage Systems	Sec. 5.0
§ 112.9(c)	§ 112.7(e)(5)(iii)	Oil Production Facilities – Bulk Storage Containers	Sec. 6.0, 7.0
§ 112.9(c)(1)	§ 112.7(e)(5)(iii)	Tank Design	Sec. 6.1
§ 112.9(c)(2)	§ 112.7(e)(5)(iii)	Secondary Containment Design	Sec. 6.2
§ 112.9(c)(3)	§ 112.7(e)(5)(iii)	Inspections of Containers and Foundations	Sec. 6.3
§ 112.9(c)(4)	§ 112.7(e)(5)(iii)	Bulk Storage Containers Engineered to Prevent Discharges	Sec. 6.3
§ 112.9(d)	§ 112.7(e)(5)(iv)	Facility Transfer Operations	Sec. 9.0
§ 112.9(d)(1)	§ 112.7(e)(5)(iv)	Examinations, Inspections and Maintenance	Sec. 9.1
§ 112.9(d)(2)	§ 112.7(e)(5)(iv)	Saltwater Disposal System Inspections	Sec. 9.2
§ 112.9(d)(3)	§ 112.7(e)(5)(iv)	Flowline Maintenance Program	Sec. 9.3, Appendix H
§ 112.10	§ 112.7(e)(6)	Requirements for Onshore Oil Drilling and Workover Facilities	Sec. 10.0
§ 112.10(a)	n/a	General and Specific Requirements	Sec. 10.0
§ 112.10(b)	§ 112.7(e)(6)(i)	Mobile Facilities	Sec. 10.0
§ 112.10(c)	§ 112.7(e)(6)(ii)	Secondary containment—Catchment Basins or Diversion Structures	Sec. 10.0
§ 112.10(d)	§ 112.7(e)(6)(iii)	Blowout Prevention (BOP)	Sec. 10.0
§ 109	n/a	Part 109 Contingency Plan	Appendix I

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TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF ATTACHMENTS

LIST OF ACRONYMS

ANSI	American National Standards Institute
API	American Petroleum Institute
ASME	American Society of Mechanical Engineers
bbls	Barrels
BOP	Blowout Preventer
BOPD	Barrels of Oil per Day
BOPH	Barrels of Oil per Hour
BPD	Barrels per Day
BPH	Barrels per Hour
BS&W	Basic Sediments and Water
BWPD	Barrels of Water per Day
BWPH	Barrels of Water per Hour
CFR	Code of Federal Regulations
CO_2	Carbon Dioxide
DOF	Direction of Flow
DOT	Department of Transportation
E&P	Exploration and Production
EH&S	Environmental Health & Safety
EPA	Environmental Protection Agency
ESP	Exchangeable Sodium Percentage
gal	Gallons
LACT	Lease Automated Custody Transfer
MCF	Thousand Cubic Feet
mg/kg	milligrams per kilogram
OCSRRS	Oil Contaminated Soil Remediation Ranking System
P.E.	Professional Engineer
SPCC	Spill Prevention Control and Countermeasure
SWD	Salt Water Disposal
TPH	Total Petroleum Hydrocarbons

Spill Prevention Control and Countermeasure Plan
Kodiak Oil & Gas (USA), Inc.
Tall Bear 16-15-16H SWD Tank Battery
February 2012

1.0 INTRODUCTION

The environmental and economic effects of oil spills can be best avoided by preventing and containing them in the first place. For more than two decades, the Environmental Protection Agency's (EPA) Spill Prevention, Control, and Countermeasures (SPCC) program, has worked at several hundred thousand oil storage facilities to prevent the discharge of all kinds of oil into the waters of the United States. The EPA's approach to preventing oil spills combines planning and enforcement measures. To prevent oil spills, the EPA requires owners or operators of certain oil storage facilities to prepare and implement SPCC Plans that detail the facility's spill prevention and control measures.

40 CFR Part 112 - Oil Pollution Prevention regulations establish procedures, methods, equipment and other requirements to prevent the discharge of oil from non-transportation-related onshore and offshore facilities into or upon the navigable waters of the United States or adjoining shorelines.

This SPCC Plan represents Kodiak Oil & Gas (USA), Inc. (Kodiak's) standard plan for compliance with SPCC regulations found in 40 CFR, Part 112 for Onshore Disposal Facilities. It is to be reviewed at least every 5 years, and updated and re-certified, if necessary, or when material changes occur. A record of these reviews is included in Appendix A. Any facility owned or operated by Kodiak must have an SPCC Plan unless it meets one of the following exceptions specified in 40 CFR, Part 112, § 112.1:

1. The equipment or operation of vessels or the facility is subject to authority and control of the U.S. Department of Transportation.

2. The facility has an aggregate storage of 1,320 gallons (31.4 bbls) or less of oil. "Storage" is defined as capacity of storage vessels and not actual stored volume. "Oil" is defined as oil in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil. Only containers with a capacity of 55 gallons or greater are included in this calculation.

3. The facility has a total underground storage capacity of 1,000 bbls or less.

4. The facility, due to its location, could not reasonably be expected to discharge into or upon navigable waters of the U.S. or adjoining shorelines, or waters of the contiguous zone, or in connection with activities under the Outer Continental Shelf Lands Act or Deepwater Port Act, or affecting certain natural resources. "Navigable waters" are defined in Public Law 92-500 as interstate waters; intrastate lakes, rivers, and streams (year-round or seasonal) which are utilized by interstate travelers for recreational or other purposes; and intrastate lakes, rivers, and streams (year-round or seasonal) from which fish or shellfish are taken and sold in interstate commerce.

1.1 Facility Description (§112.7(a)(3))

The onshore salt water disposal facility detailed in the attachments to this plan is typically manned for less than 24 hours and is used for storage and disposal of produced salt water produced from Kodiak's production facilities. This disposal facility operates continuously, 365 days per year, with periodic monitoring by trained operations personnel on a regular basis. A diagram of the physical layout of this facility is included as a plot plan in the site specific attachment.

At this salt water disposal facility, all produced water is physically transported to the facility by trucks. Trucks unload produced water to a fiberglass skim tank that utilizes an h leg pipe, to further separate any residual oil. This oil overflows from the skim tank to a steel oil storage tank. Water then flows to six fiberglass tanks. A seventh tank closest to the pump building feeds the charge pump, which discharges to a bag filter and injection pump feed tank. This tank feeds the injection pump which discharges the Tall Bear 16-15-16H salt water disposal (SWD) Tank Battery well. (**Note:** *The term 'oil' in this plan is used to denote produced hydrocarbon fluids, meaning either oil or gas condensate*).

1.2 Surrounding Land Use

Surrounding property consists primarily of agricultural land. Vegetation consists of various grasses for livestock grazing and various crops. The saltwater disposal facility is located on Fort Berthold Reservation Tribal lands.

1.3 Drainage Pathway and Distance to Navigable Waters

Drainage pathways and surface water bodies may be impacted by a release from these sites. A current plot plan and a topographic map for this salt water disposal facility is included in this Plan. These figures provide vital information including the direction of flow, and the location and proximity to nearby drainage pathways and surface water bodies. The direction of flow listed on plot plans indicates the direction that a discharge would flow immediately from the facility and the direction shown on topographic maps indicates where the discharge would ultimately flow as well as any nearby water bodies.

2.0 POTENTIAL FAILURE ASSESSMENT (§112.7(b))

The reasonably expected modes of failure or accidents, in which oil or produced water could be discharged from the various equipment at this disposal facility are presented in sections A through E below. These same sections are included in each "Potential Failure Assessment" portion of the attachments including site-specific details regarding possible discharges from the equipment at the facility. A brief discussion of the subjects covered in the three segments included in sections A though E are included below.

i. Rate of flow: The estimated discharge rate of fluids that would occur in the event of a leak or an overflow from a piece of equipment. Discharge rates for leaks or equipment failures are often described as variable because many factors could contribute to the severity of a discharge. Production rates, storage capacity, location of leak, and type of failure are all variables that could affect the magnitude of a discharge.

ii. The total quantity of oil that could be discharged: The maximum release volume that could be expected in the event of a leak or overflow from a piece of equipment. Detailed below are the possible release volumes from the different pieces of equipment that would be commonly found at a production facility. In some instances, the release volumes are stated as variable and are proportional to the time it takes to identify a discharge and the production rate of the fluids.

iii. Direction of Flow: The initial direction of flow of fluids in the event of a discharge is indicated on the Plot Plan included in the attachments. The ultimate direction of flow for a discharge once it has migrated off site is indicated on the topographic map included in this plan.

A. Storage Tank Leak and Failure

Failures may result from corrosion, non-secure joints, settling combined with deformation of the tank, or complete failure due to a fracture. Storage tanks include produced water tanks, a water-oil skim, and other potential onsite mobile fuel tanks.

i. Rate of flow: Variable – depends on the size and location of tank failure.
ii. Total quantity of oil that could be discharged: The total quantity of oil that could be discharged would not exceed the working capacity of the largest storage tank (See Table 1 of each attachment).
iii. Direction of flow: A spill from a tank leak or failure initially will be contained inside the secondary containment structure that surrounds the tank. (See secondary containment dimensions on plot plan of each attachment.) Should a release escape from the containment structure, the liquid would pool in the immediate vicinity and then if it is a large enough volume, would flow in the direction indicated on the plot plan and topographic map of each attachment.

B. Tank Overflow

Oil will be separated from the produced water in a skim tank where it will flow to an oil storage tank. Oil is removed from this salt water disposal facility on a regular basis. In the event that the fluids are not removed in a timely manner, production would accumulate and could potentially overfill the capacity of the storage tank(s).

i. Rate of flow: Rate is presented in Table 1 of each attachment, in barrels of oil per day (BOPD) or barrels of water per day (BWPD). These estimates are based on storage tank volumes.
ii. Total quantity of oil that could be discharged: Variable. The total quantity spilled is in proportion to the length of time the tank is overflowing.
iii. Direction of flow: A spill from a tank overflow will be contained initially inside the secondary containment structure that surrounds the tank. (See secondary containment dimensions on facility plot plan) Should a release escape from the containment structure, the liquid would pool in the immediate vicinity and then if it is a large enough volume, would flow in the direction indicated on the plot plan and topographic map of each attachment.

C. Oil/Produced Water Loadout/Transfer Area

Produced water is normally transported to the facility by truck. Skimmed oil from the oil storage tank is transported from the facility by truck. In the tank truck loading area, there is potential for the truck compartment to overflow during oil transfer. Another failure mode for both oil and produced water transfer could occur when loading system piping is parted or broken off during transfer from the tank to the truck compartment.

i. Rate of flow: The flow rate would be approximately 480 barrels of oil per hour (BOPH) in the event of a truck compartment overflow. The maximum rate of flow would be approximately 480 BOPH if a loading system component is accidently broken off while loading.
ii. Total quantity of oil that could be discharged: The total quantity of oil, which could be discharged, is the largest compartment on a tank truck, which is not expected to exceed 240 barrels for any oil hauling truck utilized in the operation (180 to 240 bbl compartments are anticipated by the trucks visiting these facilities).
iii. Direction of flow: The tank loading area is flat, thus oil spilled from a truck related failure would be released in and around the loading area. Load out operations are always observed by trucking personnel and thus a loading release would be noted immediately. Should a release occur, however, the liquid would pool in the immediate vicinity and then if it is a large enough volume then it would flow in the direction indicated on the plot plan and topographic map of each attachment. Due to loading operations being under constant supervision it is unlikely that a large volume spill would occur.

D. Piping Failure

Piping failures may result from general corrosion including pitting and flaking, deterioration of seals on valves, and poor piping connections. The majority of facility piping is either confined in secondary containment with the bulk storage containers or is below ground between the storage tanks and the SWD injection well.

i. Rate of flow: Variable, depending on size and location of a piping related failure. Maximum expected potential rate of flow is not anticipated to exceed the amount of total liquid per day presented in Table 1 of the attachments. Personnel routinely perform visual inspection of piping and buried flowline right-of-ways to detect any failures.
ii. Total quantity of oil that could be discharged: Variable, depends on the rate of flow and the location of the failure. The maximum potential release would not exceed the quantity noted in Table 1 of this facility (see site specific attachment).
iii. Direction of flow: See plot plan and topographic in the attachments.

2.1 Appropriate Containment and/or Diversion Structures (§112.7(c))

Table 2 for this facility attachment identifies bulk storage containers, production equipment, and a significant portion of the aboveground piping that are protected by appropriate secondary containment to prevent releases from entering or potentially entering navigable water and/or waters of the state. In addition, the plot plan in the facility attachment illustrates the shape and location of the secondary containment. The corresponding berm capacity calculations show that the constructed secondary containment has adequate storage capacity to hold the volume of the largest container plus sufficient free board to contain the maximum daily production rate as defined by the state or precipitation from a 25 year 24 hour precipitation event defined by the EPA.

2.2 Conformance with SPCC Requirements (§112.7(a)(1))

Whenever possible, steps have been taken to provide all vessels that contain oil with secondary containment to prevent oil from entering the navigable waters of the U.S. In order to contain a possible spill from any of the bulk storage containers and the majority of the above ground piping, a secondary containment structure has been constructed and is maintained to prevent discharges from reaching the waters of the U.S. More detailed information regarding the size, capacity and locations of these structures can be found in the attachments that are specific to the individual sites.

Whenever secondary containment has been determined impracticable as per §112.7(d) or instances where alternative measures are employed in lieu of secondary containment, as per §112.9(c), an Oil Spill Contingency plan (Emergency response plan) has been prepared as well as a commitment of manpower, equipment, and materials to contain and cleanup the discharge. Deviations from SPCC requirements are outlined in Section 2.3.

In addition to the placement of secondary containment structures, the following steps have been taken to prevent discharges of oil to the environment:

- Assessments of potential failures for bulk storage containers, transfer areas, pressure vessels, and piping have been made (see facility specific attachments, Table 1).
- Procedures for facility inspections and personnel training have been put in place; Commitment of Manpower in Appendix B.
- A list of emergency contacts and contractors is provided in Appendix G.

2.3 Deviations from SPCC Requirements (§112.7(a)(2))

2.3.1 Provisions Provided in lieu of Secondary Containment (§112.7(d))

Where secondary containment has been deemed impracticable, alternative measures have been taken to provide environmental protection from oil and produced water discharges. This section outlines all situations and equipment where the installation of secondary containment is impracticable and the grounds for this determination. Detailed below are the alternative measures taken in lieu of secondary containment:

- An Oil Spill Contingency Plan following the provisions of Part 109 of 40 CFR (Appendix I)
- A written commitment of manpower, equipment, and materials required to expeditiously control and remove any quantity of oil discharge that may be harmful (Appendix B).
- Flowline Maintenance Program: Visual inspections and/or tests for leaks; record keeping measures; assurance that the equipment is compatible with the production fluids (corrosively, volumes and operational pressures); corrective action and repairs associated with a discharge; prompt removal of oil accumulated during a discharge (Appendix H).
- Spill reporting procedures as outlined in Appendix F.

2.3.1.1 Loadout/Transfer Areas

Loadout/Transfer Areas: Secondary containment for the loading/unloading areas is impractical to install for the following reasons:

- Secondary containment including berms and drainage systems are impracticable because the Loadout/Transfer Area must be easily accessible to the tanker truck. Placement of berms and or drainage systems around the Loadout/Transfer Areas would act as physical barriers to access and could potentially become a safety issue.
- Berms established in the Loadout/Transfer Area could confine rain water, thereby impeding the Operator's ability to access the site.

- Active secondary containment in the form of sorbent materials, weirs, booms or other barriers is not a feasible option given that tanker truck operators may not be trained to handle oil cleanup.
- Loadout/Transfer areas are located on level, earthen ground and a minimal quantity of oil or produced water would be discharged during a transfer malfunction as such, the probability of a discharge to navigable waters as described in §112.1(b)(1) should be minimal.

2.3.1.2 Oil-Filled Operational Equipment (§112.7(k))

Oil-Filled Operational Equipment: Oil-filled operational equipment includes, but is not limited to, mechanical rotating equipment, hydraulic systems, lubricating systems (such as those for pumps and other rotating equipment), systems containing oil solely to enable the operation of the device. Secondary containment is impracticable for mechanical rotating equipment for the following reasons:

- Establishing passive secondary containment structures around oil-filled equipment would limit access to the equipment, therefore making maintenance operations unnecessarily difficult.
- Establishing active secondary containment around equipment may pose a safety hazard to operations personnel.
- Active secondary containment is not feasible because the facility is generally un-manned.

2.3.2 Alternative Measures Provided in Lieu of Secondary Containment

Providing all vessels at disposal facilities with sized secondary containment may not always be practical or safe. In these instances, alternative measures can be employed in lieu of secondary containment. This section describes these instances and the alternative measures taken to provide environmental protection.

2.3.2.1 Flowlines and Intra-facility Gathering Lines (§112.9(d)(3))

In most cases it is impracticable to provide secondary containment for flowlines and intra-facility gathering lines due to the potential impacts to the surrounding areas (public and agricultural lands). In lieu of secondary containment for flowlines and intra-facility gathering lines, the alternative measures described in section 2.3.1 have been provided.

2.3.2.2 Loadout/Transfer Areas:

In lieu of providing sized secondary containment for the loading/unloading areas the measures detailed in section 2.3.1 have been provided. In addition to the measures detailed in section 2.3.1 in the event of a transfer malfunction the probability of a discharge to navigable water is

minimal. The loadout/transfer areas are located on level, earthen ground and a minimal quantity of oil or produced water would be discharged. Truck operators monitor the loading and unloading operations and would be able to promptly cease transfer operations limiting a discharge to less than 60 gallons. Such a small quantity would be highly unlikely to reach navigable waters even under adverse weather conditions before it could be contained.

3.0 INSPECTION AND RECORDS (§112.7(e))

Examinations: Visual observations by field personnel and other qualified personnel.

Inspections: Appraisal of remaining equipment life by qualified/certified personnel.

3.1 Routine Operational Examinations (112.9(d)(2))

Routine operational examinations of tanks, separators, piping, supports, foundations, and saltwater injection equipment will be conducted. These examinations are performed by field operators during their routine on-site visits and are typically un-documented, unless an abnormality is observed. Refer to Appendix C "Guidance for Routine Operational Examinations" for further discussion on inspection items. This salt water disposal facility will be examined on a regular basis, particularly following a sudden change in atmorspheric temperatures to detect possible system upsets capable of causing a discharge.

3.2 Scheduled Examinations

In addition, a comprehensive visual examination of the equipment at each facility is performed based on frequency and level of detail of the applicable standards described in this section and further detailed in Appendix C. These examinations must be performed by a competent person and are documented according to the guidance documents found in Appendix C of this plan. The following items are examined for leaks and corrosion to minimize the potential for oil discharges from occurring:

- Bulk storage tanks;
- Storage containers;
- SWD Equipment; and
- Piping.

As these are visual examinations, no written records are kept unless a malfunction or leak is detected. Any records however, are maintained and available at the field office as listed on the General Information section (page i) of this Plan. If problems are identified, appropriate corrective actions will be noted on the inspection form and prompt action will be taken for repairs. If corrective actions are not sufficient, an unscheduled inspection, equivalent to the scheduled inspection detailed below, is required.

3.3 Scheduled Inspections

A comprehensive SPCC inspection will be performed annually at this facility. This inspection must be performed by a qualified inspector and will be documented according to the annual SPCC checklist found in Appendix C of this plan.

Inspection procedures are re-evaluated every 5 years during the SPCC plan review. A detailed description of the review process is detailed below in Section 3.4.1.

Records of annual inspections are kept in Appendix C of the plan and must be signed by the appropriate supervisor or qualified inspector. If problems are identified, appropriate corrective actions will be noted on the inspection form, and prompt action will be taken for repairs or replacement.

3.3.1 Annual Inspection Procedures

Outlined below are the typical procedures for conducting an annual SPCC inspection:

- Use inspection forms provided in Appendix C
- Conduct a walking inspection of the facility including but not limited to visual, external inspections of the following in accordance to the guidelines on the form in Appendix C:
    - Storage Tanks
    - Secondary Containment Structures
    - SWD Equipment
    - Piping
- Ensure that either the inspector or responsible party (listed in the General Information section of this plan – Page i) sign off on the inspection.
- File the inspection in Appendix C and document the date of the inspection.
- If corrective action needs to be taken, inform the responsible party (listed in the General Information section of this plan – Page i) of actions that need to be taken.
- Corrective action needs to be taken as soon as practical, but no later than six months from the date of the inspection.

3.3.2 Equipment Inspection Procedures

Whenever possible internal inspections of equipment need to be conducted (i.e. equipment is emptied for service, new/relocated equipment is installed). Forms for internal equipment inspections are provided in Appendix C. Unscheduled and frequent external examinations of equipment also will be conducted as outlined in Appendix C and may be documented with the forms also provided in Appendix C. Outlined below are procedures for internal and external equipment inspections:

- Ensure that conditions are safe to conduct inspections.
- Inspections include but are not limited to the following as outlined on the inspection form found in Appendix C.
    - Equipment Bottom
    - Equipment Shell
    - Equipment Roof
    - Appurtenances
- Ensure that either the inspector or responsible party (listed in the General Information section of this plan – Page i) sign off on the inspection.
- File the inspection in Appendix C and document the date of the inspection.

- If corrective action is necessary, inform the responsible party (listed in the General Information section of this plan – Page i) of actions that need to be taken.
- Corrective action needs to be taken as soon as practical, but no later than six months from the date of the inspection.

3.4 Plan Reviews

3.4.1 Plan Reviews Due to Material Changes (§112.5(a))

In addition to the scheduled reviews of the SPCC plan, the plan will be reviewed whenever a material change is made to the facility (any change that may affect the potential for a discharge). If a material change is made to the facility, the plan will be amended to reflect the changes, and will be recertified by a professional engineer. A record of these reviews can be found in Appendix A ('SPCC Plan Review Records – Site Modifications") and the recertification by a professional engineer can be found at the beginning of the plan (page v).

3.4.2 5 Year Plan Review (§112.5(b))

At least once every five years the SPCC plan will be reviewed and inspection procedures will be re-evaluated to verify they are adequate based upon changes in regulations, industry standards, personnel and administration, and appropriate technology. If problems are identified, appropriate corrective actions will be noted on the inspection form and prompt action will be taken for repairs or replacement.

3.4.3 P.E. Certification of Technical Changes (§112.5(c))

Whenever the SPCC plan is modified due to technical changes or inspection procedure amendments from the five year review of the plan it will be recertified by a P.E. A record of these reviews can be found in Appendix A ("5 Year SPCC Plan Review Record") and when necessary, documentation of the recertification of the plan by a P.E. can be found with the original certification at the beginning of the plan (page v).

3.5 Location of SPCC Plan (12.3(e))

Disposal facilities included in this plan are typically unmanned, and therefore the SPCC Plan is made available at the nearest field office during normal business hours. The address of the nearest field office is located in the General Information section at the beginning (page i) of this SPCC Plan.

4.0 PERSONNEL TRAINING AND SPILL PREVENTION PROCEDURES

4.1 Training of Oil Handling Personnel (§112.7(f)(1))

Facility personnel that will typically be involved in oil-handling operations are properly trained in the operation and maintenance of equipment and operating procedures to prevent oil discharges. Additionally oil-handling personnel are trained in the pollution control laws, rules and regulations and the contents of this SPCC plan.

4.2 Designated Individual Responsible for Implementation of SPCC Plan (§112.7(f)(2))

The individual responsible for implementing this SPCC Plan, who is accountable for discharge prevention, and who reports to facility management is indicated in the General Information section of this Plan (page i).

4.3 Discharge Prevention Briefings (§112.7(f)(3))

Company and contract personnel, including tank gaugers, pumpers, and any other operating personnel, attend in-house discharge prevention briefings on an annual basis to assure adequate understanding of the SPCC plan and associated issues for the disposal facilities.

Spill related topics are discussed at the briefings, including these topics:

- Known spill events;
- Malfunctioning equipment;
- Spill control equipment;
- Operation and maintenance of equipment to prevent discharges;
- Inspection of containment structures, vessels, tanks and piping;
- Spill response containment and clean-up;
- Company policies on reporting and responding to spills and specific SPCC Plans
- Applicable pollution control laws, rules and regulations, and
- Updates on state and federal regulations, company policy and procedures and spill reporting

Additional short briefing sessions are held as needed before and during certain jobs to review spill potential, necessary precautions and probable responses. Also included in the briefing is a review of known spill events or failures, malfunctioning components and recently developed precautionary measures. A copy of the Training Record Form is available in the corporate training records program.

5.0 FACILITY DRAINAGE (§112.9(b))

All secondary containment structures are inspected on a regular basis for damage and for accumulations of oil, produced water, and precipitation. No written record is kept of these routine operational examinations.

Generally, there are no installed provisions for drainage from the secondary containment structures. Devices penetrating containment structures intended for drainage are not installed due to possibility for an accidental discharge of fluids from within the containment structure. Minor accumulations of precipitation are allowed to evaporate. Large accumulations of precipitation and/or produced water may be removed with a vacuum truck and returned to the skim tank for treatment or removed to a permitted disposal facility for disposal.

Drainage ditches in and around the facilities and roadside ditches within the field are observed by the field operators during the routine operational examinations. If pollution or evidence of a spill is detected, the source will be found and stopped. The ditch will be isolated by constructing an earthen dam or other suitable containment and the oil or other pollutant will be removed or treated as appropriate. The applicable agency will be informed as required by regulation based on the type of fluid and volumes released.

6.0 BULK STORAGE TANKS (§112.9(c))

At these facilities, bulk storage tanks are utilized to store oil and produced water. The number and size of tanks at this site is presented in Table 1 of the facility attachments. Their approximate location and relationship to other onsite equipment is illustrated in the plot plan of the attachments.

6.1 Tank Design (§112.9(c)(1))

Oil storage tanks are vertical fixed roof tanks, cylindrical in shape, constructed of steel to API 12F specifications or equivalent. The tanks are painted to prevent corrosion. The total volume of the tanks is sufficient for normal inflow rates considering the time interval between operating personnel visits.

6.2 Secondary Containment Design (§112.9(c)(2))

Secondary containment is utilized for all bulk storage containers. Earthen material and steel structures are used to form barriers around all bulk storage containers. Earthen berms are constructed of locally available soil with side slopes of approximately 45°. Steel constructed structures are fabricated to contain oil and any joint or protrusions through the berm wall are also designed to retain fluids. The volume is sufficient to contain the volume of the single largest tank plus a sufficient freeboard to include volume associated with the greatest average daily fluid production, or allowance for precipitation, whichever is greatest.

6.3 Examinations, Inspections, and Recordkeeping (§112.9(c)(3))

Production operators perform routine operational examinations on each tank for indication of leaks, abnormalities, containment deterioration or equipment malfunctions during their daily visit to the facility. Should daily visits not be performed, routine operational examinations will be performed no less than monthly.

Unscheduled and scheduled examinations and inspections should be performed as directed in API RP 12R1. Any necessary maintenance or repairs also should follow the industry standard API RP 12R1, *Recommended Practice for Setting, Maintenance, Inspection, Operation, and Repair of Tanks in Production Service*. Examination and inspections checklists based on this standard are included in Appendix C. Additionally, inspection procedures are also outlined in Appendix C.

6.4 Tank Battery Design (§112.9(c)(4))

Tank battery installations are engineered in accordance with good engineering practices to prevent failures and discharges. Tanks are equipped with equalizer lines of adequate size for normal inflow rates and for overflow protection, where multiple tanks are present. Overpressure protection is also utilized in the form of a tank relief/vent valve and/or an API vacuum/vent gauge hatch. The API vacuum/vent gauge hatch also provides vacuum protection during load out.

7.0 ANNCILARY ONSITE EQUIPTMENT AND STRUCTURES

At this salt water disposal facility, all produced water is physically transported to the facility by trucks. Trucks unload produced water to a fiberglass skim tank that utilizes an h leg pipe, to further separate any residual oil. This oil overflows from the skim tank to a steel oil storage tank. Water then flows to six fiberglass tanks. A seventh tank closest to the pump building feeds the charge pump, which discharges to a bag filter and injection pump feed tank. This tank feeds the injection pump which discharges the Tall Bear 16-15-16H SWD Tank Battery well. (**Note:** *The term 'oil' in this plan is used to denote produced hydrocarbon fluids, meaning either oil or gas condensate*).

7.1 Facility Piping

7.1.1 Design and Maintenance

New piping is typically designed and installed to either ASME B31.3, 31.4 specifications. Existing piping is expected to have been installed to similar standards.

Maintenance of interconnecting piping at disposal facilities does not have a specific industry standard that applies. Therefore API 14E, *Design and Installation of Offshore Production Platform Piping Systems* is a reasonable standard to follow due to the applicability of the specific industry and processes. Section 6.9 of this standard states that API RP 510 contains guidelines on these topics (i.e., maintenance, inspection, and repair) which can also be applied to piping systems.

7.1.2 Secondary Containment (§112.7(c))

In most cases it is impracticable to provide secondary containment for flowlines and intra-facility gathering lines due to the potential impacts to the surrounding areas (public and agricultural lands). In lieu of secondary containment, the alternative measures described in Section 2.3.2 have been provided.

7.1.3 Examinations, Inspections, and Recordkeeping

Operators perform routine operational examinations on above ground interconnecting piping for indication of leaks, abnormalities, or equipment malfunctions during their routine visit to the facility. Should routine visits not be performed, routine operational examinations will be performed no less than monthly.

Unscheduled examinations and inspections will be performed as needed (refer to Appendix C). These additional examinations and inspections are typically warranted only when routine operational inspections indicate that a leak or malfunction has or could occur. Guidance on the items to address in these examinations and inspections has been included in Appendix C.

These guidance documents have been based on the industry best practices indentified in the *American National Standards Institute* (ANSI) and the *American Petroleum Institute's* (API's) Inspection Code 574, *Inspection Practices for Piping System Components*. It should be noted that the schedule, extent and recordkeeping practices may not be followed as prescribed in ANSI/API 510. As such, these programs for examination and inspection of process piping have been developed for these facilities to ensure that adequate environmental protection has been provided.

7.2 Oil-Filled Operational Equipment (§112.7(k))

Oil-filled operational equipment at this facility may include, but is not limited to, mechanical rotating equipment, hydraulic systems, lubricating systems (such as those for pumps and other rotating equipment), systems containing oil solely to enable the operation of the device.

7.2.1 Secondary Containment (§112.7(c))

Oil-filled operational equipment contains oil solely for the operation of the device. This equipment not designed to contain oil and therefore is not a bulk storage container and is not subject to the mandatory secondary containment design requirements of §112.9(c). It has been determined that secondary containment is impracticable for this equipment and in lieu of secondary containment, the measures outlined in section 2.3.1 have been taken to ensure possible discharges do not enter waters of the U.S.

7.2.2 Examinations and Inspections

Production operators perform routine operational examinations on the oil-filled operational equipment for indication of leaks, abnormalities, or equipment malfunctions during their daily visit to the facility. Should daily visits not be performed, routine operational examinations will be performed no less than monthly.

8.0 BRITTLE FRACTURE EVALUATION (§112.7(i))

Based on the material, construction, operational, and environmental parameters associated with the equipment located at these central tank battery installations, there is a very low risk of failure due to brittle fracture. The metal shell thicknesses of the heater treaters, free water knock outs, welded tanks and steel bolted tanks are not thick enough to be susceptible to brittle fracture in either field repair or initial manufacture.

It is recommended that a qualified welding inspector review any proposed field repairs that would require welding or cutting on any of the vessels or bulk storage containers to ensure the appropriate procedures are followed. Based on good engineering practice, the requirements for repairs, alterations, reconstruction, or change in service should be in accordance with the applicable API standard for repair of pressure vessels, steel welded tanks or steel bolted tanks (i.e., API RP 12R1, RP510).

8.1 Bulk Storage Containers

The steel storage tanks used at these facilities, which may have potential for brittle fracture failures, are vertical fixed roof tanks constructed to API 12F specifications. The thickest plate for an API 12 series tank is less than 0.5 inches, which is the necessary thickness in which brittle fracture could be induced. This critical wall thickness is confirmed from actual experience, as referenced in Appendix C of API RP 12R1. Thus brittle fracture is not a concern for API 12 series tanks unless they are operating in Arctic service. The environmental conditions for these facilities would not be considered arctic in nature though cold temperatures are experienced.

The steel bolted storage tanks used at these facilities due not have the potential for brittle fracture to be induced. However, to ensure that brittle fracture is not an issue should a field repair or alteration be required, a welding inspector should be consulted on the repair method and qualifications associated with tanks in this service.

8.2 Piping and Fittings

Typical piping and fittings used at these facilities would not be susceptible to brittle fracture failure due to the size, type of service and environmental conditions they are subjected to. Should piping of a greater thickness be required, appropriate stress reliving techniques would be utilized to minimize any potential for brittle fracture failure.

9.0 FACILITY TRANSFER AND PUMPING OPERATIONS (§112.9(d))

Truck loading/unloading operations are performed for oil and produced water at this disposal facility included in this plan. Transfer procedures meet the minimum requirements and regulation of the DOT. A copy of the Loading/Unloading Policy is provided to the contracted truck driver, and is included in Appendix D of this Plan.

9.1 Examinations, Inspections and Maintenance (§112.9(d)(1))

All aboveground valves and pipelines related to disposal facilities receive routine operational examinations by operating personnel at which time the general condition of items, such as flange joints, valve bodies, pipeline supports, locking of valves, and metal surfaces are assessed. When a pipeline is not in service for an extended time, the connection at the transfer point is capped or blank-flanged.

Buried piping installations have a protective wrapping and coating. Sections of buried line are carefully examined for deterioration in the event they are exposed. If corrosion damage is found, additional examination and corrective action is taken as indicated by the magnitude of the damage.

Pipe supports are kept to a minimum by keeping pipe runs short and use of pipe able to carry the span without support. If supports are necessary, they allow for applicable expansion and contraction while minimizing potential abrasive conditions.

Aboveground piping is guarded if it appears to be exposed to vehicular traffic hazards. Typically, piping is located within the bermed area or kept close to structures to minimize their exposure to vehicular traffic.

9.2 Salt Water Disposal Facility (112.9(d)(2))

Salt water disposal facility will be examined on a regular basis particularly following a sudden change in atmospheric temperature to detect possible system upsets capable of causing a discharge. All piping, injection pumps and ancillary equipment will receive routine operational examinations to assess the general condition of equipment, in accordance with procedures outlined in section 3.0.

9.3 Flowline Maintenance Program (§112.9(d)(3))

A Flowline Maintenance Program is in place to prevent discharges from flow lines and intra-facility gathering lines in addition to annual SPCC inspections, and routine operational examinations. The flowline maintenance program is composed of multiple practices, operations and policies that as a whole ensure the integrity and on-going upkeep of facility piping. The Flowline Maintenance Program is designed in accordance with the industry standards listed in Sections 8.1 and 8.3.

It has been assured that all valves and equipment are compatible with the type of fluid they will convey, appropriately selected for the fluid's corrosivity as well as the operational volumes and pressures reasonably expected to be found at this facility. Visual inspections and/or tests of the flowlines will occur on a periodic and frequent schedule and in instances where discharges are discovered, corrective action and repairs will be promptly taken and any accumulated oil will be stabilized and properly remediated.

Inspection records, procedures, and maintenance records associated with the Flow Line Maintenance Program are available at the nearest Field Office. The location of the Field Office is listed on the General Information section (page i) of this Plan. Some records and documentation may be the responsibility of multiple departments with the company and as such may be kept in variable locations.

9.4 Secondary Containment for Loadout/Transfer Areas (§112.7(c))

Loadout/Transfer areas are present at all Disposal Facilities and are intended to facilitate the transport or disposal of fluids. Loadout/Transfer areas are designed for fluid transport however, they are not Loading/Unloading Racks and are not subject to the secondary containment requirements of §112.7(h). Loading/Unloading Racks typically consist of permanent piping, assemblages, valves, loading arms, and pumping systems necessary to load or unload tank trucks or cars. In contrast, Production Tank Batteries typically utilize a single hose and connection to facilitate transfer of liquids from one bulk storage container to another container.

Although loading/unloading areas are not subject to the loading/unloading rack requirements of § 112.7(c) secondary containment is provided in the form of drip pans that are installed to prevent minor spills. Drip pans are placed directly beneath load line connections either within or just outside of the existing tank battery's secondary containment. The conditions of the drip pans are observed by field operators during routine operational examinations. If it is found that oil or significant quantities of rainwater have accumulated within the drip pan it will be removed with a vacuum truck for disposal.

10.0 DRILLING AND WORKOVER FACILITIES (§112.10)

Drilling and workover activities are subcontracted to third party well drilling and servicing companies. The afore-mentioned companies are responsible for complying with all applicable spill prevention regulations as described in §112.10 appropriate to their operations, if the total facility storage of petroleum products is greater than 1,320 gallons (31.4 bbls). At a minimum, the following provisions will be made:

- Drilling and workover equipment are positioned or located so as to minimize the potential of spilled oil, fuel, or oily drilling fluids from reaching navigable waters. If necessary, the use of catchment basins or diversion structures will be implemented.
- A blowout preventor (BOP) will be installed before drilling and workover operations, if required by well conditions and/or state regulations. The BOP assembly will be capable of controlling the expected wellhead pressure.

11.0 SPILLS/ACCIDENT CONTINGENCY PLANNING (§112.7(d))

11.1 Spill History

This facility was not in service prior to January 10, 1974 (effective date of 40 CFR, Part 112A); however, a Spill History Form is included in Appendix E of this SPCC Plan for purposes of spill recordkeeping at this facility. It is updated annually.

11.2 Spill Response

Spill prevention procedures consist primarily of proper operation of equipment at each facility. All personnel have extensive experience operating the equipment and the tanks are monitored daily. Additionally an Oil Spill Contingency Plan has been developed and is available in Appendix I of this Plan.

In addition to the primary containment provided for each facility (tank and separator containment berms) secondary containment measures have also been provided. Spill kits are maintained by the contract operator both at the Field Office and in individual pumper's vehicles. Small spill kits are maintained by the contract pumpers in their vehicles and are sufficient for spill up to six gallons. For larger spills large spill kits are kept at the Field Office and contain materials sufficient to control a spill up to thirty gallons. A basic inventory of the spill kits can be found in Appendix I as well.

11.3 Spill Notification

Any spill that enters a watercourse or threatens to enter a watercourse no matter the quantity is required to be reported to the EPA National Response Center at (800) 424-8802.

In the event of a spill or release, "the person responsible for discharge prevention" (see pg. i) shall be notified immediately. "The person responsible for discharge prevention" (see pg. i) shall determine what, if any, agencies need to be contacted. Provided in Appendix E is a Discharge Notification Form that should be filled out and submitted to "the person responsible for discharge prevention" (see pg. i) in the event of a discharge.

The following information must be available when reporting a spill:

- Facility name;
- Facility owner/operator;
- Legal description of location where spill or release occurred;
- Contact phone number;
- Date and time of spill/release;
- Description material spilled or released and source of discharged;
- Estimated quantity discharged as described in (§112.1(b));
- Cause of spill/release;

- Direction of flow of spill/release and distance traveled;
- Identification of any affected areas, including dry draws, and volume involved;
- Actions taken to control and/or contain spill/release;
- Number and type of injuries (if any);
- Any damages that occurred as a result of the release;
- Weather conditions at the incident location;
- Names of individual and/or organizations who have also been contacted; and
- Other pertinent information specific to the spill/release.

In the event of a spill/discharge of any size, refer to the spill reporting flowchart that is included in Appendix F for the required reporting procedures. Appendix F outlines the people, agencies and required forms that need to be notified and completed in response to spills/discharges of various sizes.

11.4 Cleanup of Oil Spills & Conformance with State Requirements (§ 112.7(j))

Kodiak Oil & Gas (USA), Inc. (Kodiak) does not maintain the equipment or supplies necessary to contain or cleanup a large oil spill. A list of contractors and suppliers to be contacted in the event of a spill is included in Appendix G of this SPCC Plan.

The responsible person (Section 4.2) must complete any approved corrective action by a regulatory agency for releases that endanger public health or the environment. Operators are also responsible for corrective action for non-reportable spills.

The North Dakota Industrial Commission, Oil and Gas Division and Department of Health provide guidance on determining sensitive areas and cleanup levels. This section is a brief overview of Kodiak's spill contingency plan; however, a more detailed process is presented on the North Dakota Department of Health's website, http://www.ndhealth.gov/WQ/GW/spills.htm.

11.4.1 Spills onto Soil

Mobile oil spills should be contained as soon as possible by the construction of earthen dams or by the placement of mechanical barriers. Free oil may be removed from the ground by the use of a vacuum truck. Sumps or trenches may be dug to intercept or drain free oil. Remaining free oil may be removed from the ground by the use of oil-absorbent materials.

When all free oil has been removed, the affected soils containing over 100 milligrams per kilogram (mg/kg or ppm) total petroleum hydrocarbon (TPH) should be delineated, both vertically and horizontally. All soil containing over 100 ppm by weight should then be brought to the surface by excavating with a backhoe or other similar device for remediation or disposal.

To prevent stormwater contamination, all impacted soils containing over 100 ppm by weight should be either removed to an approved disposal site, or removed to a secure interim storage location for future remediation or disposal, unless more immediate, on-site remediation techniques can be implemented. (Placing the contaminated soil on a sheet of visquene and covering it with a sheet of visquene is one acceptable method to prevent stormwater contamination).

All produced oil or water spills (mobile or stationary) should be contained as soon as possible. Free oil should be removed and the affected soils containing over 100 ppm TPH should be delineated. All soil containing over 100 ppm by weight should then be excavated for remediation or disposal. All impacted soils containing over 100 ppm should be either taken to an approved disposal site, or removed to a secure interim storage location unless more immediate, on-site remediation techniques can be implemented.

A final cleanup level of 100 ppm by weight should be achieved as soon as possible. Several methods are acceptable for the cleanup of oil-contaminated soil; regulatory agencies may specify which method to use for the cleanup. Bioremediation, a technically sound and reasonably economic method, is the process of allowing oil-feeding microbes to consume the oil. Bioremediation may be enhanced by the addition of commercially available microbes and nutrients to the contaminated soil and by roto-tilling the soil for aeration. If on-site bioremediation is selected as the remediation method, the impacted soil should be mixed with clean soil to achieve a uniform mixture no more than eighteen (18) inches deep.

11.4.2 Spills onto Water

Any spill that enters a watercourse or threatens to enter a watercourse, no matter the quantity is required to be reported to the EPA National Response Center at (800) 424-8802.

Oil spills onto surface waters of any quantity should be cleaned up to the satisfaction of the landowner and regulatory agencies. The spill should be contained as soon as possible by the use of floating booms or other mechanical barriers. Free oil may be removed from the water by the use of a vacuum truck or by the use of oil-skimming equipment. Remaining free oil may be removed from the water by the use of oil-absorbent materials such as spray-sorb or other materials. Oil-absorbent materials may also be used to remove oil, which has accumulated on shoreline soils, rocks, and vegetation. Oil contaminated shoreline materials may require removal to a suitable treatment site for cleanup, and may be cleaned as described in the Spills onto Soil Section above.

11.5 Emergency Response

In the event of an emergency, the following procedures will be followed. These procedures are based on the U.S. Department of Transportation (DOT) guidelines for such emergencies.

11.5.1 Fire

CAUTION: All these products have a very low flash point: Use of water spray when fighting fire may be inefficient.

Small Fires

- Dry chemical, CO_2, water spray or regular foam.

Large Fires

- Water spray, fog, or regular foam.
- Use water spray or fog; do not use straight streams.
- Move containers form fire area if you can do it without risk.

Fire Involving Tanks or Car/Trailer Loads

- Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.
- Cool containers with flooding quantities of water until well after fire is out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Always stay away from tanks engulfed in fire.
- For massive fire, use unmanned hose holder or monitor nozzles; if this is impossible, withdraw from area and let fire burn.

11.5.2 Spill or Leak

Small Spill

- Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area).
- All equipment used when handling the product must be grounded.
- Do not touch or walk through spilled material.
- Stop leak if you can do it without risk.
- Prevent entry into waterways, sewers, basements or confined areas.
- A vapor suppressing foam may be used to reduce vapors.
- Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
- Use clean non-sparking tools to collect absorbed material.

Large Spill

- Dike far ahead of liquid spill for later disposal.
- Water spray may reduce vapor; but may not prevent ignition in closed spaces.

11.5.3 First Aid

- Call 911 or emergency medical service.
- Move victim to fresh air.
- Apply artificial respiration if victim is not breathing.
- Administer oxygen if breathing is difficult.
- Remove and isolate contaminated clothing and shoes.
- In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.
- Wash skin with soap and water.
- Keep victim warm and quiet.
- Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

APPENDIX A
Certification by a Professional Engineer

Every time the SPCC plan is amended, the plan must be reviewed and whenever a technical change is made to the plan it must be recertified by a professional engineer. The most current and the valid certification by a professional engineer is located at the beginning of the plan (page v). Filed behind this page are the old certifications by the professional engineer that are now superseded by the current certification.

APPENDIX A
TECHNICAL PLAN AMENDMENTS

In February of 2012 a new SPCC Plan was prepared for Kodiak Oil and Gas (USA), Inc. (Kodiak) Tall Bear 16-15-16H Salt Water Disposal Tank Battery. Whenever this SPCC plan is modified due to technical changes or inspection procedure amendments, the plan will be recertified by a Professional Engineer (PE) is required. All changes in policy or practice made as a result of the revisions will be in place within six months from the modifications.

Technical Changes and Amendments:

_____

_____

_____

_____

_____

_____

_____

_____

_____

Professional Engineer's Certification of Technical Changes (§112.3(d)):

I, hereby, certify that (i) I am familiar with the requirements of the SPCC rule (40 CFR, Part 112); (ii) the Plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards, and with the requirements of SPCC rule; (iii) procedures for required inspections and testing have been established; and, (iv) the Plan is adequate for each facility; (v) I have completed review and evaluation of the Plan and as a result no amendments need to be made.

(Seal)

_____
Printed Legal Name of Registered
Professional Engineer

Signature: _____

Date: _____ Registration No.: _____

State of Registration: _____

APPENDIX A
5 YEAR SPCC PLAN REVIEW RECORD

The owner/operator must review this SPCC plan at least once every five years. The review must be documented below, and if the owner or operator amends the plan, a registered professional engineer must certify it. Any required amendments as a result of the review will be prepared within six months from the five year review.

Additionally, whenever technical changes are made to the plan, those changes are described and documented below. Any amendments to the SPCC plan will be implemented as soon as possible but no later than six months from the preparation of the amendment.

Review Results, Comments and Technical Changes:

_____

_____

_____

_____

_____

_____

_____

_____

Professional Engineer's Certification of Technical Changes (§112.3(d)):

I, hereby, certify that (i) I am familiar with the requirements of the SPCC rule (40 CFR, Part 112); (ii) the Plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards, and with the requirements of SPCC rule; (iii) procedures for required inspections and testing have been established; and, (iv) the Plan is adequate for each facility; (v) I have completed review and evaluation of the Plan and as a result no amendments need to be made.

(Seal)

_____
Printed Legal Name of Registered
Professional Engineer

Signature: _____

Date: _____

Registration No.: _____
State of Registration: _____

APPENDIX A
SPCC PLAN REVIEW RECORD – SITE MODIFICATIONS

Whenever a material change is made to the facility (modification that will affect the potential for a discharge) the SPCC plan must be amended to reflect those changes. After the plan has been amended it must be reviewed and a registered professional engineer must recertify it. Documented below are the modifications that have been made to the facility, the date of the modifications and the date that the plan was recertified by a professional engineer.

Description of site modifications: Date:_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Professional Engineer's Certification of Technical Changes (§112.3(d)):

I, hereby, certify that (i) I am familiar with the requirements of the SPCC rule (40 CFR, Part 112); (ii) the Plan has been prepared in accordance with good engineering practice, including consideration of applicable industry standards, and with the requirements of SPCC rule; (iii) procedures for required inspections and testing have been established; and, (iv) the Plan is adequate for each facility; (v) I have completed review and evaluation of the Plan and as a result no amendments need to be made.

(Seal)

_____
Printed Legal Name of Registered Professional Engineer

Signature: _____

Date: _____ Registration No.: _____

State of Registration: _____

APPENDIX B
COMMITMENT OF MANPOWER EQUIPMENT AND MATERIAL FOR SPILL CONTROL

Kodiak Oil and Gas (USA), Inc. (Kodiak) are committed to a strong antipollution and spill prevention program. We are committed to designing and operating our facilities in a manner that will minimize the size and occurrence of spills. We are committed to a strong, pro-active training and inspection program that should insure that our facilities are operated and maintained in a manner that will prevent or minimize the occurrence of spills.

In the event of a spill, Kodiak will use whatever manpower, equipment and material that will result in the spill being cleaned up in the minimum time, with a minimum of environmental damage and the maximum recovery of the spilled material practicable.

In accordance with the general and production facility specific portions of the SPCC rules, secondary containment (in the form of berms) are provided for all bulk storage containers. This equipment is noted in Section 2.1 and additionally is shown on the site specific plot plans in the corresponding facility attachments. Kodiak is dedicated to insuring that the secondary containment for the bulk storage containers are constructed, maintained, and function as designed.

Secondary containment or diversionary structures have been deemed impracticable for portions of the facilities as noted in Section 2.3. In lieu of secondary containment for these areas, Kodiak has prepared an Oil Spill Contingency Plan (found in Section 12.5) provided alternative measures for secondary containment (outlined in Section 2.3) as well as making the following provisions for spill response:

- Provided in Appendix G is a list of the local contractors, and their contact information that Kodiak has developed agreements with for general and emergency site work. This includes but is not limited to acquiring their services in the event of a discharge to stop progression of a spill and remediation of any contamination caused by a spill.
- In the event of a discharge:
    - Operations personnel, holding safety paramount, will make all reasonable efforts to stop further discharge once it is discovered.
    - When ever possible operations personnel will attempt to stop a discharge from migrating off site or to surface waters. When necessary, assistance from the contractors listed in Appendix G may be used to stop progression of a spill.
    - When a spill is contained, spill reporting procedures as outlined in Appendix F will be followed to notify management, as well as all applicable state, and federal agencies.
    - Contractors listed in Appendix G will be used to aid in the remediation of any contaminated areas following a discharge.
- Outlined in Section 12.5 are the materials made available for spill response and cleanup.

Spill Prevention Control and Countermeasure Plan
Kodiak Oil & Gas (USA), Inc.

APPENDIX C
INSPECTION & EXAMINATION PROCEDURES & GUIDANCE

EXAMINATION & INSPECTION PROGRAMS

The examination and inspection programs employed by Kodiak are generally aimed at preventing discharges of oil caused by leak, brittle fracture and other forms of container failure. As the facilities covered under this Plan are production facilities, they are exempt from the mandatory integrity testing requirements of §112.8. However programs for examination and inspection of bulk storage containers, pressure vessels, and flowlines have been developed for these facilities to ensure that adequate environmental protection has been provided.

Detailed below are the examination and inspection programs that Kodiak currently employs:

Routine Operational Examinations:

Routine visual operational examinations of tanks, separators, piping, supports, foundations, and saltwater injection equipment are conducted at each facility. These examinations are performed by field operators during their routine on-site visits and are un-documented, unless an abnormality is observed. In the event that an issue is detected the operator will take the appropriate actions to prevent a discharge as described in Section 12 of this Plan. A summary of the items addressed in these examinations has been provided in Appendix C.

Annual SPCC Inspections

At each site, a complete annual SPCC inspection will be performed in accordance with the standards discussed in the SPCC Plan and will include as a minimum the items listed in the SPCC Checklist. These inspections will be performed by a qualified inspector and documented using the annual SPCC checklist (see Appendix C). If problems are identified, appropriate corrective actions will be noted on the inspection form and prompt action will be taken for repairs or replacement.

Equipment Examinations & Inspections*

Examinations and inspections relating to specific equipment will be performed as per the standards stated in the SPCC Plan and their equipment specific guidance documents contained within Appendix C. If problems are identified, appropriate corrective actions will be noted on the inspection form and prompt action will be taken for repairs or replacement.

- External Condition Examination: *Examinations* - visual observations by field personnel
  - Unscheduled: An external condition examination is typically made by the operator when a routine operation examination reveals an abnormality.
  - Scheduled: As a part of the annual SPCC inspection, the external condition of bulk storage containers, pressure vessels and all visible piping will be examined.

- Internal Condition Examination: *Examinations* - visual observations by field personnel
  - Unscheduled: In the event that a potential leak is identified, an internal examination may be warranted if the vessel is taken out of service.
  - Scheduled: Internal examinations should be done whenever a piece of equipment is cleaned, moved, when operational service is changed or during any internal maintenance operation.

- Internal & External Inspections: *Inspections* – Appraisal of remaining corrosion life
  - Unscheduled: If routine operational examinations reveal a leak or severe corrosion, inspection may be warranted depending on the location of the flaw.
  - Scheduled: Industry best practices recommend inspections at a minimum whenever the minimum required plate thickness has been reached. A maximum of 15 years is recommended for tanks and 10 years for pressure vessels.

*NOTE: Industry best practices have been used as the basis of the examination/inspection programs. However, it should be noted that the detailed recordkeeping and measurement comparison records requirements of §112.8 do not apply. As such, Kodiak's integrity testing and associated inspections practices vary slightly from the industry best practices. In lieu of these more detailed records, an inventory of integrity testing is included here.

Recordkeeping

Records of examinations and inspections are maintained by Kodiak's Environmental Engineer and may be provided upon request. As the majority of the examinations are routine, visual and undocumented, the annual inspections that accompany this Plan are the documentation associated with these programs.

GUIDANCE FOR ROUTINE OPPERATIONAL EXAMINATIONS

Bulk storage containers including pressure vessels

General Condition

- Leaks
- Tank liquid level gauged
- Drip marks, leaks from weld seams, base of tank
- Puddles containing spilled or leaked material
- Corrosion especially at base (pitting, flaking)
- Cracks in metal
- Excessive soil or vegetation buildup against base

Foundation Problems

- Cracks
- Puddles containing spilled or leaked material
- Settling
- Gaps at base

Flowline Problems

- Evidence of leaks, especially at connection / collars
- Corrosion (pitting, flaking)
- Evidence of stored material seepage from valves or seals

Secondary Containment

- Evaluate the integrity of secondary containment

Wells

Leaks

- Evidence of oil seepage from pumping rod stuffing boxes, wellhead and wellhead flowlines, valves, and gages

ANNUAL SPCC CHECKLIST FOR PRODUCTION FACILITY

Facility Name:_____ Location: _____ Date:_____

County:_____ Lat: _____ Long: _____ Elv:_____ Inspector: _____

	Yes	No	N/A
1. Storage Tanks			
1.1. Are there any Process Leaks?	☐	☐	☐
1.2. Is the coating/painting deteriorating?	☐	☐	☐
1.3. Are the tanks insulated?	☐	☐	☐
1.3.1. Is the insulation in good condition?	☐	☐	☐
1.3.2. Is there broken/missing banding?	☐	☐	☐
1.4. Is there evidence of spills/contamination?	☐	☐	☐
1.5. Are drip pans missing at Loadout?	☐	☐	☐
2. Storage Tank's Secondary Containment			
2.1. Are there existing earthen berms?	☐	☐	☐
2.1.1. Are there any low spots?	☐	☐	☐
2.1.2. Are there any animal burrows?	☐	☐	☐
2.1.3. Is there biological growth?	☐	☐	☐
2.2. Are there existing metal berms?	☐	☐	☐
2.2.1. Are there any missing bolts?	☐	☐	☐
2.2.2. Are there missing/damaged panels?	☐	☐	☐
2.2.3. Are all protrusions sealed?	☐	☐	☐
2.2.4. Is there biological growth?	☐	☐	☐

Comments: _____

_____

_____

	Yes	No	N/A
3. Miscellaneous chemical storage			
3.1. Are there any 55 gallon drums on site?	☐	☐	☐
3.1.1. Contents: _____			
3.1.2. Is there secondary containment?	☐	☐	☐
3.2. Any containers larger than 55 gallons?	☐	☐	☐
3.2.1. Size: _____			
3.2.2. Contents: _____			
3.2.3. Is there secondary containment?	☐	☐	☐

Comments: _____

_____

	Yes	No	N/A
4. Pressure/Separation Vessels			
4.1. Are there any Process Leaks?	☐	☐	☐
4.2. Is the coating/painting deteriorating?	☐	☐	☐
4.3. Are the vessels insulated?	☐	☐	☐
4.3.1. Is the insulation in good condition?	☐	☐	☐
4.3.2. Is there broken/missing banding?	☐	☐	☐
4.4. Is there evidence of spills/contamination?	☐	☐	☐
5. Pressure/Separation Vessel's Secondary Containment			
5.1. Are there existing earthen berms?	☐	☐	☐
5.1.1. Are there any low spots?	☐	☐	☐
5.1.2. Are there any animal burrows?	☐	☐	☐
5.1.3. Is there biological growth?	☐	☐	☐
5.2. Are there existing metal berms?	☐	☐	☐
5.2.1. Are there any missing bolts?	☐	☐	☐
5.2.2. Are there missing/damaged panels?	☐	☐	☐
5.2.3. Are all protrusions sealed?	☐	☐	☐
5.2.4. Is there biological growth?	☐	☐	☐

Comments: _____

_____

_____

	Yes	No	N/A
6. Additional SPCC Requirements			
6.1. Is there evidence of a spill on site?	☐	☐	☐
6.2. Is there any above ground piping?	☐	☐	☐
6.2.1. Is it with in containment?	☐	☐	☐
6.2.2. Are any sections unsupported?	☐	☐	☐
6.2.3. Is it insulated & in good condition?	☐	☐	☐
6.3. Is the well head on site?	☐	☐	☐
6.4. Additional Equipment on site:			
_____			
_____			
Secondary Containment?	☐	☐	☐

- APPENDIX C - EXTERNAL CONDITION EXAMINATIONS

Storage Tanks & Process Vessels – Examination Guidance

This guidance has been designed to assist field operators in the examination of storage tanks, pressure vessels and other process equipment in order to prevent discharges of oil caused by leaks, brittle fracture and other forms of container failure. This guidance has been based on practices generally accepted by industry and has been customized to fit the operations in this development area.

External condition examinations are *visual examinations* of the equipment's exterior surface to check for leaks, shell deterioration and evidence of corrosion to determine the condition of the foundation pad, drainage, coatings, appurtenances and connections. External inspections are conducted on a periodic and regular (routine) schedule by field personnel as identified in Appendix C.

Items commonly assessed during an examination:

- Tank/Vessel foundation
- Tank/Vessel bottom
- Tank/Vessel shell & shell heads
- Tank roof deck
- Appurtenances (thief hatches, nozzels, valves & piping)
- Misc (walkways, warning signs, housekeeping, insulation, etc.)

Qualities assessed during an examination:

- Evidence of active leaks
- Evidence of historic leaks
- Equipment & support structural integrity
- Existence of severe corrosion and/or pitting
- Holes in shell or roof
- Vent seals air tight and properly functioning

As discussed previously in Appendix C, these examinations have been included in the annual SPCC inspection procedures and also may occur as the result of findings from a routine operation examination. The need for any additional, more detailed inspections and measurements will be evaluated as a result of the examinations. The routine operational examinations are typically undocumented; thus documentation of the findings associated with unscheduled examinations may not be kept in the same manner as scheduled examinations.

Guidance included in this Appendix are based on the *American Petroleum Institute's* publications for equipment in these services. While these documents have been included as guidance, they vary from the practices outlined in their associated guidance documents.

Based on API 12R1 – Recommended Practice for Setting, Maintenance, Inspection, Operation, and Repair of Tanks in Production Services

- APPENDIX C - EXTERNAL EXAMINATIONS

Process Piping – Inspection Guidance

This guidance has been designed to assist field operators in the internal and external inspection of process piping in order to prevent discharges of oil caused by leaks, misalignment, vibrations, corrosion and other forms of failure. This guidance has been based on practices generally accepted by industry and has been customized to fit the operations in this development area.

External condition examinations are *visual examinations* of the process piping to check for leaks, misalignment, vibration and evidence of corrosion to determine the condition of the piping, coatings, appurtenances and connections. External inspections are conducted on a periodic and regular (routine) schedule by field personnel as identified previously in Appendix C.

Items commonly assessed during an examination:

- Process piping
- Piping misalignment/restricted movement
- Expansion joint misalignment
- Threaded connections
- Pipe clamps and supports
- Pipe coatings and insulation
- Bolting support points
- Pipe banding

Qualities assessed during an examination:

- Excessive overhung weight
- Inadequate or loose supports
- Distortion or breakage
- Loose brackets
- Damage or penetrations to coatings or insulation
- Seal deterioration
- Bulging

As discussed previously in Appendix C, these examinations occur as the result of findings from a routine operational examination. The need for any additional, more detailed inspections and measurements should be evaluated as a result of the examinations. The routine operational examinations are typically undocumented; thus documentation of the findings associated with unscheduled examinations may not be kept in the same manner as scheduled examinations.

- APPENDIX C -
INTERNAL CONDITION EXAMINATIONS

Storage Tanks & Process Vessels – Examination Guidance

This guidance has been designed to assist field operators in the internal examination of storage tanks, pressure vessels and other process equipment in order to prevent discharges of oil caused by leaks, brittle fracture and other forms of container failure. This guidance has been based on practices generally accepted by industry and has been customized to fit the operations in this development area.

Internal condition examinations are *visual examinations* of the equipment's interior surfaces to check for evidence of leaks, deterioration and corrosion. Should an internal inspection be warranted, the equipment should be safely isolated, cleaned, and vented in accordance with the industry standards for the entering and cleaning of confined spaces. Internal inspections are conducted on a periodic and regular (routine) schedule by field personnel as identified previously in Appendix C.

Items commonly assessed during an examination:

- Tank/Vessel shell walls & shell heads
- Tank roof and floor
- Appurtenances

Qualities assessed during an examination:

- Evidence of active leaks
- Evidence of historic leaks
- Evidence of shell deterioration or corrosion
- Condition of any coating
- Equipment & support structural integrity

Internal examinations typically occur as the result of findings from a routine operation examination or when a piece of equipment changes service. The need for any additional, more detailed inspections and measurements will be evaluated as a result of the examinations. The routine operational examinations are typically undocumented; thus documentation of the findings associated with these examinations may not be kept in the same manner as scheduled examinations.

Guidance included with this appendix are based on the *American Petroleum Institute's* publications for equipment in these services. While these documents have been included as guidance, they vary from the practices outlined in their associated guidance documents.

Based on API 12R1 -- Recommended Practice for Setting, Maintenance, Inspection, Operation, and Repair of Tanks in Production Services

- APPENDIX C - INTERNAL & EXTERNAL INSPECTIONS

Storage Tanks & Process Vessels – Inspection Guidance

This guidance has been designed to assist field operators in the internal and external inspection of storage tanks, pressure vessels and other process equipment in order to prevent discharges of oil caused by leaks, brittle fracture and other forms of container failure. This guidance has been based on practices generally accepted by industry and has been customized to fit the operations in this development area.

Internal or external inspections are conducted to determine the corrosion rate life of the equipment, thus allowing for the appraisal of the suitability of service of that equipment. Inspections should include sufficient measurements to estimate the remaining corrosion rate life. Inspections occur when the findings from an internal or external examination have shown the existence of a leak, when shell thickness is calculated to be less than ¾ of the predicted thickness or when a piece of equipment changes service and inspections have not been done.

Integrity testing is required only for those bulk storage containers for which secondary containment has been deemed impracticable. Secondary containment has been provided for all bulk storage containers; should it be deemed that integrity testing is required, inspection guidance provided by the *American Petroleum Institute* and their recommended practices will be followed.

Kodiak are committed to a strong antipollution and spill prevention program and is committed to operating these facilities in a manner that will minimize the occurrence of spills. As such, *a voluntary integrity testing program is being developed and is currently in the initial stages of implementation.* Records of the inspections associated with this testing program may be kept in various locations and as such a summary of actions taken has been provided in this Appendix.

Should an internal inspection be warranted, the equipment will be safely isolated, cleaned, and vented in accordance with the industry standards for the entering and cleaning of confined spaces. Inspections are conducted on a periodic and regular schedule by qualified personnel as identified previously in Appendix C. Examples of common inspection items and qualities are provided below:

<u>Items assessed during an inspection:</u>

- Tank/Vessel foundation and supports
- Tank/Vessel bottom and seams
- Tank/Vessel shell walls & shell heads
- Appurtenances (thief hatches, nozzles, valves & piping)

Based on API 12R1 – Recommended Practice for Setting, Maintenance, Inspection, Operation, and Repair of Tanks in Production Service
API 510 – Pressure Vessel Inspection Code: In-service Inspection, Rating, Repair, and Alteration

Qualities assessed during an inspection:

- Location of active or historic leaks
- Integrity of shell patches, cracks and seams
- Condition of shell abnormalities, deterioration or corrosion
- Structural integrity of equipment & supports
- Condition of any coating or insulation
- Severe corrosion and/or pitting
- Ultrasonic thickness measurements
- Results from other integrity testing (hammer test, vacuum test, dye test, etc.)

Guidance included in this Appendix are based on the *American Petroleum Institute's* publications for equipment in these services. While these documents have been included as guidance, they vary from the practices outlined in their associated guidance documents.

Based on API 12R1 – Recommended Practice for Setting, Maintenance, Inspection, Operation, and Repair of Tanks in Production Service
API 510 – Pressure Vessel Inspection Code: In-service Inspection, Rating, Repair, and Alteration

APPENDIX D
CRUDE OIL LOADING GUIDANCE

Guidance Objectives:

This guidance provides safety and spill prevention rules to be observed by crude oil transporters (Transporter) when they are loading crude oil or condensate from the production facilities of Kodiak Oil and Gas (USA), Inc. (Kodiak). Loading operations are defined, as any time the load line valve of a stock tank is open to transfer crude oil or condensate to a transport truck.

Guidance Guidelines:

Transporter should keep the stock tanks clean of any drips or spills caused by gauging of the tanks. Crude oil sampling, BS&W, API gravity, and any other testing are to be done either before or after loading operations. Run tickets are to be filled out after loading operations are completed.

Prior to the commencement of loading operations, the loading truck and the loading valve must be connected to a ground, and wheel chocks will be placed in proper position to prevent vehicles from departing before complete disconnection of flexible or fixed oil transfer lines. In addition, before filling and departure of any tank car or tank truck, Transport will closely inspect the lowermost drain and all outlets of such vehicles for discharges, and if necessary, ensure that they are tightened, adjusted, or replaced to prevent liquid discharge while in transit.

During the loading operations, the Transporter should stay out of the truck cab, except during adverse weather conditions, and in the immediate vicinity of the load valve, and tank trailer. (During LACT loading, transporter must be stationed within easy reach of the on/off switch on the LACT unit.) Drip buckets and absorbent should be used to collect all drips and small spills that may occur when connecting and disconnecting the loading line or hose. Transporter will provide the drip buckets and absorbent pads. When loading operations are completed and if Kodiak provides the hose, Transporter will place the load line or hose inside the proper container or cap the open hole and place it within the tank containment area.

Kodiak must be notified promptly if a spill of crude oil or condensate occurs onto the ground surface. If a reportable spill has occurred, the Transporter should immediately shut the loading valve or turn the LACT unit switch to off. Kodiak must be telephoned immediately for spill notification. Transporter must describe the quantity, location, time of occurrence, and any other applicable details to Kodiak. Unless absolutely necessary, Transporter should not attempt to clean up the spill and should not disconnect the loading lines until a Kodiak representative has inspected the facility and has given his approval to proceed.

When leaving a production facility, all gates must be secured and locked (if applicable) unless prior approval has been obtained from a Kodiak manager to leave a gate unlocked.

All trash, refuse, and used absorbent pads that are generated by Transporter at Kodiak production

facilities will be removed from the facility by Transporter and properly disposed when generated.

Guidance Implementation:

It is the responsibility of Kodiak's management to insure that this guidance is implemented. Copies of this guidance should be distributed to all Transporters of Kodiak's crude oil and condensate. The transporter will be instructed to inform their personnel of this guidance and its requirements.

APPENDIX E
CURRENT SPILL HISTORY

Kodiak Oil & Gas (USA), Inc. (Kodiak) retains detailed spill and discharge records that are not maintained within the SPCC plan. Rather, spill and discharge records are maintained as independent documentation from the SPCC plan. The spill and discharge records are maintained by Kodiak at the field office. To obtain any official discharge or spill records contact the person responsible for discharge prevention (listed in the General Information section of this plan – Page i). Records of such discharges are kept for a period of no less than three (3) years and can be obtained from Kodiak's Environmental Engineer.

Discharge: Any spilling, leaking, pumping, pouring, empting or dumping of oil and oil products in quantities that may be harmful (any quantity that may create a sheen on the water's free surface) into or upon the navigable waters of the United States or adjoining shoreline (i.e. any discharge of any size that reaches live water).

Any spill that enters a watercourse or threatens to enter a watercourse, no matter the quantity, is required to be reported to the EPA National Response Center at (800) 424-8802.

In the event of a spill/discharge of any size, operators will refer to the spill reporting flowchart that is included in Appendix F for the required reporting procedures. Appendix F outlines the people, agencies and required forms that need to be notified and completed in response to spills/discharges of various sizes.

APPENDIX E
CURRENT SPILL HISTORY

FACILITY/ DATE	CAUSE OF RELEASE/SPILL	VOLUME RELEASED	CORRECTIVE ACTION

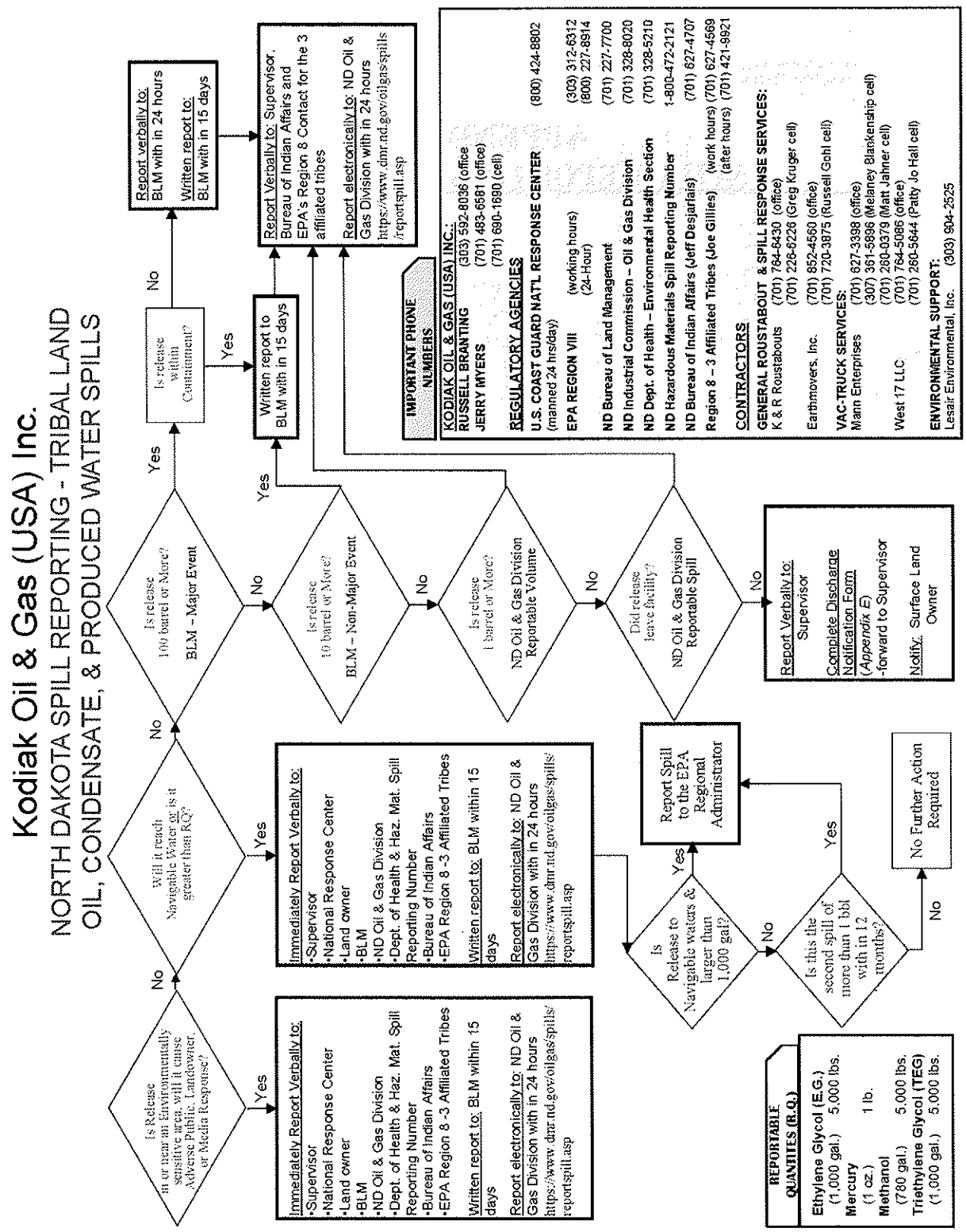
Copy Form as Needed.

APPENDIX E
DISCHARGE NOTIFICATION FORM

DESCRIPTION OF DISCHARGE		
RELEASE DATE		
RELEASE TIME		
DISCOVERY DATE		
DISCOVERY TIME		
REPORTING INDIVIDUAL NAME WORK PHONE		
LOCATION OF DISCHARGE FACILITY NAME		
EQUIPMENT SOURCE	PIPING FLOWLINE WELL LOAD LINES UNKNOWN	DESCRIPTION:
PRODUCT	CRUDE OIL PRODUCED WATER OTHER	OTHER:
APPEARANCE & DESCRIPTION		
ENVIRONMENTAL CONDITIONS	WIND DIRECTION: WIND SPEED:	PRECIPITION:
QUANTITY	RELEASED:	RECOVERED:
RECEIVING MEDIUM & SPILL DIRECTION	WATER LAND OTHER	RELEASE CONFINED TO FACILITY RELEASE OUTSIDE FACILITY **IF WATER, INDICATE EXTENT AND BODY OF WATER:
DESCRIBE CIRCUMSTANCES		
ASSESSMENT OF IMPACTS AND REMEDIAL ACTIONS		
DISPOSAL METHOD FOR RECOVERED MATERIAL		
ACTION TAKEN TO PREVENT INCIDENT FROM REOCURRING		
SAFETY ISSUES	INJURIES FATALITIES EVACUATION	

Copy Form as Needed.

APPENDIX F
SPILL REPORTING FLOWCHART


Kodiak Oil & Gas (USA) Inc.
NORTH DAKOTA SPILL REPORTING - TRIBAL LAND
OIL, CONDENSATE, & PRODUCED WATER SPILLS
Is Release in or near an Environmentally sensitive area, will it cause Adverse Public, Landowner, or Media Response?
Yes
No
Immediately Report Verbally to:
•Supervisor
•National Response Center
•Land owner
•BLM
•ND Oil & Gas Division
•Dept. of Health & Haz. Mat. Spill Reporting Number
•Bureau of Indian Affairs
•EPA Region 8 -3 Affiliated Tribes
Written report to: BLM within 15 days
Report electronically to: ND Oil & Gas Division with in 24 hours https://www.dmr.nd.gov/oilgas/spills/reportspill.asp
Will it reach Navigable Water or is it greater than RQ?
Yes
No
Immediately Report Verbally to:
•Supervisor
•National Response Center
•Land owner
•BLM
•ND Oil & Gas Division
•Dept. of Health & Haz. Mat. Spill Reporting Number
•Bureau of Indian Affairs
•EPA Region 8 -3 Affiliated Tribes
Written report to: BLM within 15 days
Report electronically to: ND Oil & Gas Division with in 24 hours https://www.dmr.nd.gov/oilgas/spills/reportspill.asp
Is release 100 barrel or More?
BLM - Major Event
Yes
No
Is release within Containment?
Yes
No
Written report to BLM with in 15 days
Report verbally to: BLM with in 24 hours
Written report to: BLM with in 15 days
Is release 10 barrel or More?
BLM – Non-Major Event
Yes
No
Report Verbally to: Supervisor, Bureau of Indian Affairs and EPA's Region 8 Contact for the 3 affiliated tribes
Report electronically to: ND Oil & Gas Division with in 24 hours https://www.dmr.nd.gov/oilgas/spills/reportspill.asp
Is release 1 barrel or More?
ND Oil & Gas Division Reportable Volume
Yes
No
Did release leave facility?
ND Oil & Gas Division Reportable Spill
Yes
No
Report Verbally to:
Supervisor
Complete Discharge Notification Form (Appendix E)
-forward to Supervisor
Notify: Surface Land Owner
Is Release to Navigable waters & larger than 1,000 gal?
Yes
No
Report Spill to the EPA Regional Administrator
Is this the second spill of more than 1 bbl with in 12 months?
Yes
No
No Further Action Required
REPORTABLE QUANTITES (R.Q.)
Ethylene Glycol (E.G.) (1,000 gal.) 5,000 lbs.
Mercury (1 oz.) 1 lb.
Methanol (780 gal.) 5,000 lbs.
Triethylene Glycol (TEG) (1,000 gal.) 5,000 lbs.
IMPORTANT PHONE NUMBERS
KODIAK OIL & GAS (USA) INC.:
RUSSELL BRANTING (303) 592-8036 (office
JERRY MYERS (701) 483-6581 (office)
(701) 690-1690 (cell)
REGULATORY AGENCIES
U.S. COAST GUARD NATL RESPONSE CENTER (800) 424-8802
(manned 24 hrs/day)
EPA REGION VIII (working hours) (303) 312-6312
(24-Hour) (800) 227-8914
ND Bureau of Land Management (701) 227-7700
ND Industrial Commission – Oil & Gas Division (701) 328-8020
ND Dept. of Health – Environmental Health Section (701) 328-5210
ND Hazardous Materials Spill Reporting Number 1-800-472-2121
ND Bureau of Indian Affairs (Jeff Desjarlais) (701) 627-4707
Region 8 – 3 Affiliated Tribes (Joe Gillies) (work hours) (701) 627-4569
(after hours) (701) 421-9921
CONTRACTORS
GENERAL ROUSTABOUT & SPILL RESPONSE SERVICES:
K & R Roustabouts (701) 764-6430 (office)
(701) 226-8226 (Greg Kruger cell)
Earthmovers, Inc. (701) 852-4560 (office)
(701) 720-3875 (Russell Gohl cell)
VAC-TRUCK SERVICES:
Mann Enterprises (701) 627-3398 (office)
(307) 361-5896 (Melaney Blankenship cell)
(701) 260-0379 (Matt Jahner cell)
West 17 LLC (701) 764-5086 (office)
(701) 260-5644 (Patty Jo Hall cell)
ENVIRONMENTAL SUPPORT:
Lesar Environmental, Inc. (303) 904-2525

APPENDIX G
CONTRACTOR LIST

Roustabout & Spill Response Contractors:

K & R Roustabouts
Greg Krueger
P.O. Box 210
Killdeer, ND 58640
(701)-764-6430 (office)
(701)-226-6226 (cell)

Earthmovers, Inc.
Russell Gohl
1225 S Broadway
Minot, ND 58701
(701)-852-4560 (office)
(701)-720-3875 (cell)

Vac-Truck Services:

Mann Enterprises LLC
Box 812
New Town, ND 58763
(701)-627-3398 (office)

Melaney Blankenship
(307)-631-5896 (cell)
Matt Jahner
(701)-260-0379 (cell)

West 17 LLC
Patty Jo Hall
P.O. Box 687
Killdeer, ND 58640
(701) 764-5086 (office)
(701) 260-5644 (cell)

Environmental Support:

Lesair Environmental, Inc.
10394 W. Chatfield Av., Suite 100
Littleton, CO 80127-4299
(303) 904-2525

APPENDIX H
FLOWLINE MAINTENANCE PROGRAM

A Flowline Maintenance Program is in place to prevent discharges from flowlines and intra-facility gathering lines. This is in addition to annual SPCC inspections, routine operational examinations, commitment of manpower and materials, as well as Kodiak's Oil Spill Contingency Plan to prevent discharges from reaching waters of the U.S.

At this salt water disposal facility, all produced water is physically transported to the facility by trucks. Trucks unload produced water to a fiberglass skim tank that utilizes an h leg pipe, to further separate any residual oil. This oil overflows from the skim tank to a steel oil storage tank. Water then flows to six fiberglass tanks. A seventh tank closest to the pump building feeds the charge pump. Which discharges to a bag filter and injection pump feed tank. This tank feeds the injection pump which discharges the Tall Bear 16-15-16H salt water disposal (SWD) Tank Battery well.

This program has been put in place to ensure the integrity of the piping that is used throughout the facility.

Compatibility:

Kodiak constructs all of their new facilities so that valves and equipment are compatible with the type of fluid they will convey and have been appropriately selected for the fluid's corrosivity. Additionally all equipment is designed to be compatible with the operational volumes and pressures reasonably expected to be found at this facility. Any modifications or additions to the facility's equipment and piping will also be designed to be compatible as described above.

Examination Procedures:

As a part of the operator's routine observational examinations, the flowline routes will be observed to identify if any discharge that has or is occurring. As the examinations will be conducted on a frequent basis, they will allow for the implementation of Kodiak's Oil Spill Contingency Plan in instances where discharges are found. Additional visual examinations and/or tests of the flowlines will occur on a periodic and frequent (routine) schedule.

Corrective Action & Spill Clean-up Response:

In instances where discharges are discovered, corrective action and repairs will be promptly taken. Accumulated oil will be contained (stabilized) and properly remediated. Reporting procedures as outlined in Appendix F will be followed to properly notify the appropriate personnel.

Records:

Examination and maintenance records associated with the Flow Line Maintenance Program are maintained by Kodiak's by the person responsible discharge prevention on the General Information section of this Plan (page i).

APPENDIX I
OIL SPILL CONTINGENCY PLAN

Table of Contents

1.0 PURPOSE AND SCOPE

This Oil Spill Contingency Plan is prepared in accordance with 40 CFR 112.7(d) to address areas of the facility where secondary containment is impracticable, as documented in Section 2.3 of this Plan.

The purpose of this Oil Spill Contingency Plan (Contingency Plan) is to define procedures and tactics for responding to discharges of oil into navigable waters or adjoining shorelines of the United States, originating more specifically from the following types of equipment:

- Underground piping, buried flowlines, and any above ground piping not already surrounded by equipment secondary containment
- Oil and produced water loadout/transfer areas
- Natural gas handling equipment
- Mechanical rotating equipment

The objective of procedures described in this Contingency Plan is to protect the public, company personnel, and other responders during oil discharges. In addition, the Contingency Plan is intended to minimize damage to the environment, natural resources, and facility installations from a discharge of oil. The Contingency Plan complements the prevention and control measures presented in this Plan by addressing areas of the facility that have less than sized secondary containment and possible impacts that may result from a discharge of oil.

The Contingency Plan follows the content and organization of 40 CFR part 109 and describes the distribution of responsibilities and basic procedures for responding to an oil discharge and performing cleanup operations.

2.0 DISTRIBUTION OF RESPONSIBILITIES (§109.5(A))

Kodiak has the primary responsibility for providing the initial response to oil discharge incidents originating from facilities included in this Plan. To accomplish this, the individual that is Responsible for Discharge Prevention (as listed in the General Information section of this plan, page i) has been designated as the qualified Oil Discharge Response Coordinator (RC) in the event of an oil discharge. The RC is responsible for coordinating agencies and personnel in the response effort. Additionally, a list of agencies, spill response contractors, company personnel and their associated duties is located in Appendix G as well as later in this section.

3.0 NOTIFICATION AND ACTIVATION PROCEDURES (§109.5(B))

Pumper personnel conduct routine visits to production facility sites to perform routine maintenance and inspections. In the event of a discharge, operations personnel would likely be first on scene. Other potential responders include other operators, landowners and emergency response personnel. Listed in Appendix F are the contact numbers of the appropriate personnel that would be contacted in the event of an emergency. After company personnel are notified, a designated person in the field will assess the situation and relay observations to the RC. The RC will assess the actions that should be taken.

4.0 CRITICAL WATER USE AREAS (§109.5(B)(1))

Topographic maps, inclusive of the land area associated with each facility, are provided with the Contingency Plan to insure that critical water use areas can easily be identified near each facility in the event of an oil discharge emergency. This will ensure that spill responders can determine points where the discharge could potentially be contained by spill response personnel. Response efforts will focus first on the primary water body that could be contaminated and if multiple water bodies could be threatened, attempts will be made to stop the spread of the oil to additional water bodies.

5.0 DISCHARGE NOTIFICATION CONTACTS (§109.5(B)(2))

Any spill that enters a watercourse or threatens to enter a watercourse no matter the quantity is required to be reported to the EPA National Response Center at (800) 424-8802.

The RC has the authority to commit all necessary services and equipment to respond to the discharge and to request assistance from the local fire department, sheriff's department, and spill response contractors, as appropriate. Additionally the RC must ensure that the details are recorded on the Discharge Notification Form provided in Appendix E.

Appendix F contains a spill reporting flowchart that details what agencies and personnel need to be notified in the event of a discharge. Additionally, provided in Appendix G is a complete list of names, numbers and addresses for commonly used contractors. Listed below are responsible persons and agencies (other than are specified in Appendix F) that may need to be contacted in the event of a discharge to navigable waters:

Response Coordinator:
Person Responsible for Discharge Prevention
(as stated in General Information, page i)

Local Emergency Planning Commission

Dunn County
Denise Brew
PO Box 104
205 Owens Street
Manning, ND 58642
(701) 573-4612
dbrew@nd.gov

McKenzie County
Jerry Samuelson
PO Box 1036
Waterford City, ND 58854
(701) 444-6853
jsamuelson@co.mckenzie.nd.us

Emergency Response Contractor:
(as stated in Appendix G of this Plan)

6.0 COMMUNICATIONS AVAILABLE FOR DISCHARGE NOTIFICATION (§109.5(B)(3))

Operations personnel conduct routine visits to production facility sites and in the event of a discharge would likely be first on scene. The majority of operations personnel are equipped with cellular phones that would provide the most reliable means of communications for spill notification. Once the RC is notified of a discharge, the appropriate State and National authorities then could be contacted by the RC, if necessary.

7.0 PROCEDURE FOR REQUESTING ASSISTANCE (§109.5(B)(4))

Supplied in Section 12.5.4 are contact names and numbers necessary to request additional assistance in the event of a major disaster or if a discharge exceeds the capabilities of the regional authority.

8.0 DISCHARGE RESPONSE RESOURCES (§109.5(C)(1))

In the event of a minor discharge, adequate personnel and equipment are available. At a minimum two employees, shovels and access to a backhoe can easily be made available to address minor discharges. If a larger response is necessary, supplied in Appendix G is a list of commonly used contractors and their contact information.

This equipment and manpower is sufficient to respond to most minor discharges and to initially contain a major discharge while waiting for additional material and support. If additional supplies are necessary to clean up and/or contain an oil spill, cleanup supplies are available from the following regional dealer:

9.0 RESPONSE TO THE MAXIMUM PROBABLE DISCHARGE (§109.5(C)(2))

For emergency planning purposes, the worst case discharge would be the volume of the single largest storage tank at a facility. Indicated in Table 1 of each attachment is the total release volume of the largest storage tank. If there was a breach in the secondary containment structures, then this volume could have the ability to migrate off site.

The equipment and materials necessary to respond to such a discharge may be procured from the commonly used contractors listed in Appendix G. However, it may become necessary to contact the Emergency Response Contractor listed in Section 12.5.4 to address this larger spill.

10.0 CLEANUP AGREEMENTS & ARRANGEMENTS FOR SPILL RESPONSE (§109.5(C)(3))

To respond to large discharges and ensure the removal and disposal of cleanup debris, the Emergency Response Contractor listed in Section 5.0 can be contacted. This contractor has immediate access to all supplies including trucks, response equipment, response trailers, boats, oil recovery systems, vacuum trucks, and an inventory of oil spill sorbent materials.

11.0 DISCHARGE RESPONSE OPERATING TEAM (§109.5(D)(1))

In response to a discharge, the RC will have the ability to create an oil discharge response operating team including operations personnel and any additional personnel from third party contractors that are necessary to prevent a discharge from reaching navigable waters. Individuals composing the response operating team are trained and prepared to address an oil discharge.

12.0 RESPONSIBILITY OF THE OIL DISCHARGE RESPONSE COORDINATOR (§109.5(D)(2))

The Response Coordinator as indicated in Section 5.0 is charged with the responsibility and has the authority to direct response operations and can request assistance from Federal authorities when necessary. The RC is responsible for communicating the status of the response operations and for sharing relevant information with involved parties, including local, state, and federal authorities.

In the event that local response agencies, state authorities, or a federal On Site Coordinator (OSC) assumes Incident Command, the RC will function as the facility representative in the Unified Command structure.

13.0 LOCATION FOR DISCHARGE RESPONSE OPERATIONS CENTER (§109.5(D)(3))

A central coordination center will be utilized in the event of a major discharge that would require the organization and mobilization of multiple contractors and personnel. The coordination center is equipped with a variety of communications equipment including telephones, fax machines, cell phones, and access to internet service to ensure continuous communication with management, third party contractors, emergency response personnel, authorities, and other significant parties. The location of the central coordination center is listed below:

Central Coordination Center
Kodiak Field Office
683 State Ave. Suite A
Dickinson, ND 58601

14.0 DEGREES OF DISCHARGE RESPONSE (§109.5(D)(4))

In the event of a discharge the individual notified per Appendix F determines the degree of spill response and has the ultimate authority regarding response actions. In the event that an alternative contact is the only available spill response personnel (until the primary responder is available) only primary spill response efforts will be made (i.e. will not contact Emergency Response Contractor)

15.0 PRIORITY OF DISCHARGE PROTECTION (§109.5(D)(5))

The primary priority of discharge protection efforts will be in the immediate vicinity of the facility. All possible efforts will be made to prevent a discharge from reaching navigable waters. In the event that a discharge reaches live water, response efforts will focus first on the primary water body that could be contaminated and if multiple water bodies could be threatened, attempts will be made to stop the spread of the contamination to additional water bodies.

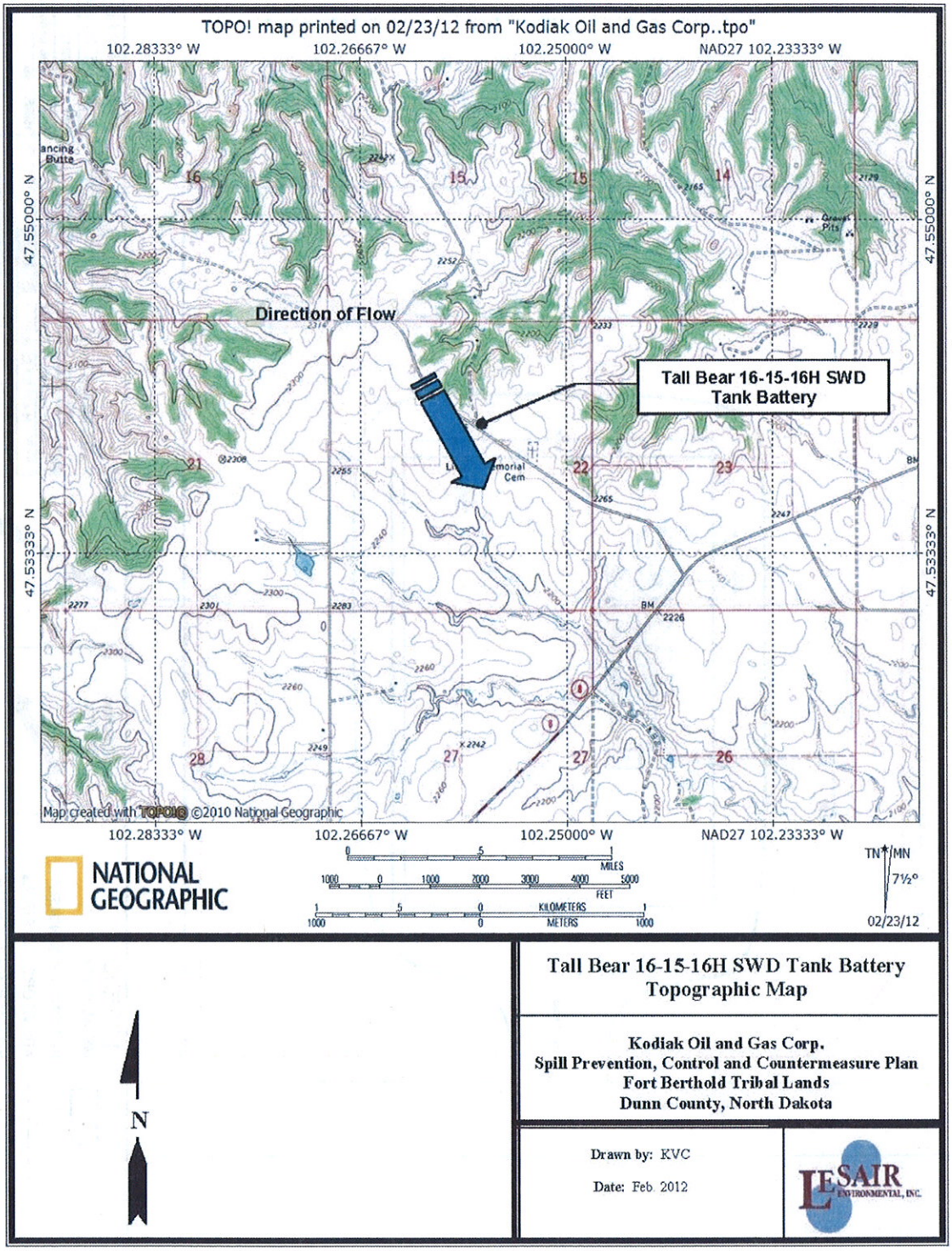
Following this contingency plan are topographic maps specific to the facilities covered by this plan. These topographic maps will allow responders and the RC to determine the critical water areas near the facilities. This will ensure that spill responders can determine points where the discharge could potentially be contained by spill response personnel.

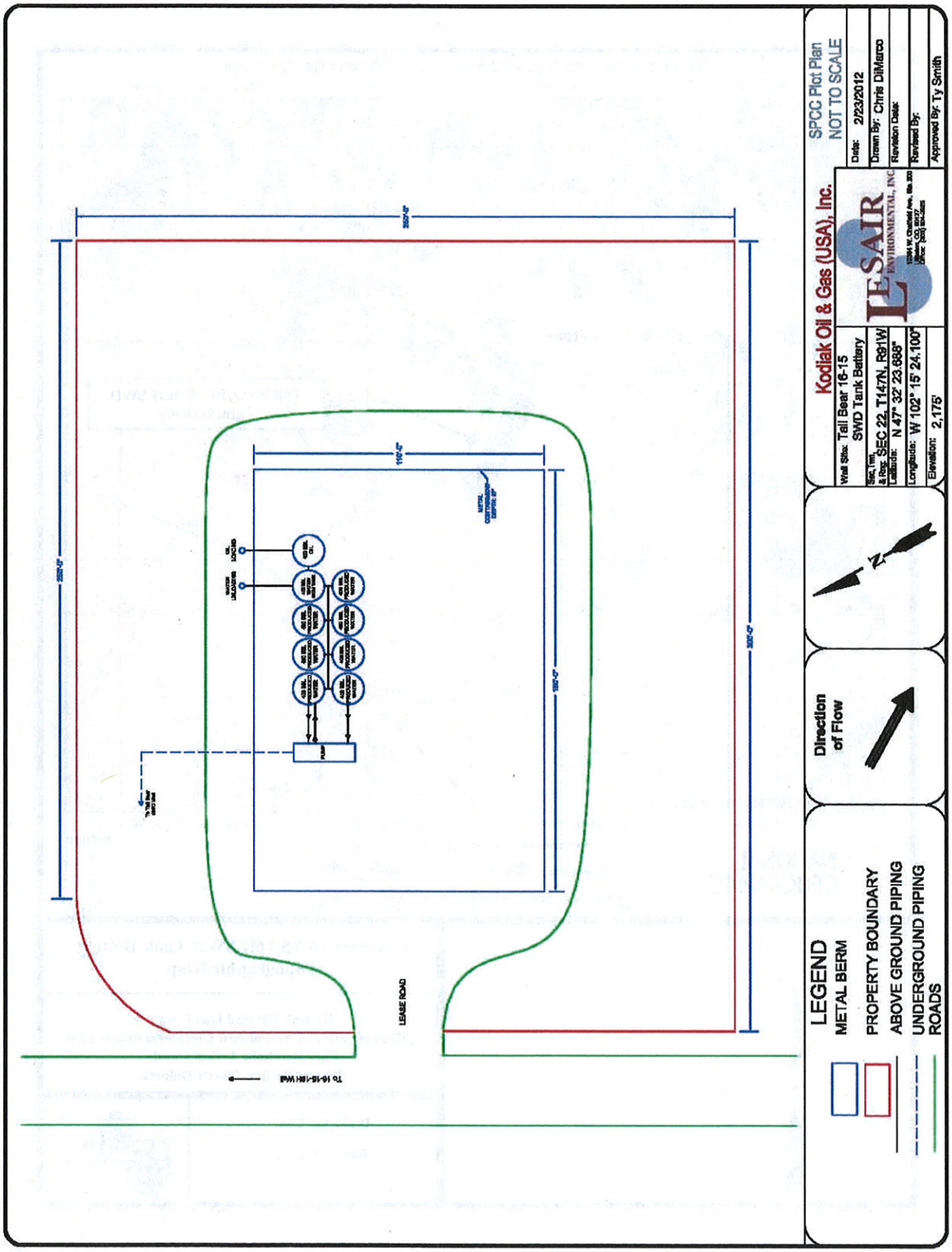
Tall Bear 16-15-16H

Salt Water Disposal Tank Battery

SW NE SEC 22 T147N R91W
Dunn County

Kodiak Oil & Gas (USA), Inc.
SPCC Plan-Facility Specific Attachment
February 2012


TOPO! map printed on 02/23/12 from "Kodiak Oil and Gas Corp..tpo"
102.28333° W
102.26667° W
102.25000° W
NAD27 102.23333° W
47.55000° N
47.53333° N
Direction of Flow
Tall Bear 16-15-16H SWD
Tank Battery
Map created with TOPO! ©2010 National Geographic
NATIONAL GEOGRAPHIC
MILES
FEET
KILOMETERS
METERS
TN MN
7½°
02/23/12
N
Tall Bear 16-15-16H SWD Tank Battery
Topographic Map
Kodiak Oil and Gas Corp.
Spill Prevention, Control and Countermeasure Plan
Fort Berthold Tribal Lands
Dunn County, North Dakota
Drawn by: KVC
Date: Feb. 2012
LESAIR ENVIRONMENTAL, INC.


SPCC Plat Plan
NOT TO SCALE
Kodiak Oil & Gas (USA), Inc.
Well Site: Tall Bear 16-15 SWD Tank Battery
Sec, Twp, & Rge: SEC 22, T147N, R91W
Latitude: N 47° 32' 23.688"
Longitude: W 102° 15' 24.100"
Elevation: 2,175'
LESAIR ENVIRONMENTAL, INC.
Date: 2/23/2012
Drawn By: Chris DiMarco
Revision Date:
Revised By:
Approved By: Ty Smith
Direction of Flow
N
LEGEND
METAL BERM
PROPERTY BOUNDARY
ABOVE GROUND PIPING
UNDERGROUND PIPING
ROADS
LEASE ROAD
TO 16-15H WELL

POTENTIAL FAILURE ASSESSMENT
(§112.7(b))

As described in Section 2.0 of this SPCC Plan, Table 1 summarizes the major potential failure scenarios at the Tall Bear 16-15-16H SWD Tank Battery. For each failure scenario, the direction, rate of flow and total quantity of oil released is specified in the table.

TABLE 1
Potential Failure Assessment

Release Source	Type of Failure	Direction of Release	Rate of Flow*	Total Release Volume
(1) 400 bbl Oil Tank(s)	Failure/Leak	N/A – Contained	Variable	400 bbls
	Overflow	N/A – Contained	168 BOPD	Variable – proportional to spill duration
(8) 400 bbl Water Tank(s)	Failure/Leak	N/A – Contained	Variable	400 bbls
	Overflow	N/A – Contained	320 BWPD	Variable – proportional to spill duration
Truck Loading	Overflow	See Topographic Map & SPCC Plot Plan	480 BPH	180 bbls (oil transfer) –or- 150 bbls (water transfer)
Piping	Failure/Leak	See Topographic Map & SPCC Plot Plan	640 BPD	Variable sum of the single well rates (combining condensate and produced water)
Chemical and/or Mobile Fuel Tanks (various types)**	Failure/Leak	N/A – Contained	≤ 1,000 gal	Variable – proportional to spill duration
	Overflow	N/A – Contained		

*Rate of flow for storage tanks is calculated using 80% of the storage tank volume. This value is the estimated maximum facility throughput for that release source.
**Chemical and or mobile fuel tanks may be present at any facility and may be placed or removed at any time

Appropriate Containment and/or Diversion Structures
(§112.7(c))

As described in Section 2.1 of this SPCC Plan, Table 2 identifies the appropriate containment and/or diversionary structures found at the Tall Bear 16-15-16H SWD Tank Battery to prevent releases from entering or potentially entering navigable water and/or waters of the state.

TABLE 2
Containment/Diversion Structures

Release Source	Containment and/or Diversion Structure	Comment
(1) 400 bbl Oil Tank(s)	Metal Berm	Metal berm sized to contain volume of the largest tank plus sufficient freeboard to include 6,000 BBLs of volume as approved by the State of North Dakota.
(8) 400 bbl Water Tank(s)	Metal Berm	Metal berm sized to contain volume of the largest tank plus sufficient freeboard to include 6,000 BBLs of volume as approved by the State of North Dakota.
Truck Loading	Drip pan	Drip pans are located at the loading connection. In addition, the process is constantly observed by truck loading personnel.
Piping	None	Typical Failure is a pinhole leak under pressure; this type of failure is not likely to be contained by a berm. However, the majority of piping is located underground, and a portion of the above ground piping is located within bulk storage secondary containment.
Chemical and/or Mobile Fuel Tanks*	Poly-Drum Pan or Other Existing Secondary Containment	Portable containment with capacity sufficient to contain liquid between routine site visits by operator personnel, reducing contamination and the risk of slip and fall injuries. If pans are not available the drums will be placed inside other existing secondary containment at that facility.

*Chemical and or mobile fuel tanks may be present at any facility and may be placed or removed at any time

BERM CAPACITY CALCULATIONS

FACILITY NAME: Tall Bear 16-15-16H SWD Tank Battery

Shaded cells require input

TANK INFORMATION

	Tank 1	Tank 2	Tank 3	Tank 4	Tank 5
Capacity (Bbl)	400	400	400	400	400
Capacity (Gal)	16,800	16,800	16,800	16,800	16,800
Tank Diameter (ft)	12.0	12.0	12.0	12.0	12.0
Tank Height (ft)	20.0	20.0	20.0	20.0	20.0
Displacement(Gal/ft)	840.0	840.0	840.0	840.0	840.0

	Tank 6	Tank 7	Tank 8	Tank 9	Tank 10
Capacity (Bbl)	400	400	400	210	0
Capacity (Gal)	16,800	16,800	16,800	8,820	N/A
Tank Diameter (ft)	12.0	12.0	12.0	10.0	12.0
Tank Height (ft)	20.0	20.0	20.0	15.0	0.0
Displacement(Gal/ft)	840.0	840.0	840.0	588.0	0.0

Berm Width (ft)	110.0	* See drawing below
Berm Length (ft)	160.0	
Berm Height (in)	27	2.3 Total Height (ft)

FREEBOARD INFORMATION

Freeboard (in)	3.6	** Freeboard requirement based on 25 YR, 24 HR precipitation event

CONTAINMENT VOLUME

	Gross	Displacement/Ft	Net
Volume (Cu Ft)	34320.0	673.8	32804.0
Volume (Bbls)	6112.6	120.0	5842.6
Volume (Gal)	256730.7	5,040.0	245390.7

TEST

Net Containment (barrels)	< or >	Largest Tank (barrels)
5,842.6	>	400

Containment is sufficient

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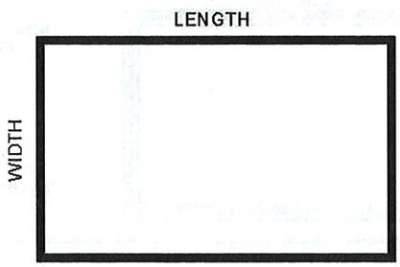


BERM CAPACITY CALCULATIONS

FACILITY NAME: Tall Bear 16-15-16H SWD Tank Battery

Shaded cells require input

TANK INFORMATION

	Tank 1	Tank 2	Tank 3	Tank 4	Tank 5
Capacity (Bbl)	400	400	400	400	400
Capacity (Gal)	16,800	16,800	16,800	16,800	16,800
Tank Diameter (ft)	12.0	12.0	12.0	12.0	12.0
Tank Height (ft)	20.0	20.0	20.0	20.0	20.0
Displacement(Gal/ft)	840.0	840.0	840.0	840.0	840.0

	Tank 6	Tank 7	Tank 8	Tank 9	Tank 10
Capacity (Bbl)	400	400	400	210	0
Capacity (Gal)	16,800	16,800	16,800	8,820	N/A
Tank Diameter (ft)	12.0	12.0	12.0	10.0	0.0
Tank Height (ft)	20.0	20.0	20.0	15.0	N/A
Displacement(Gal/ft)	840.0	840.0	840.0	588.0	0.0

CONTAINMENT INFORMATION

Berm Width (ft)	110.0	* See drawing below
Berm Length (ft)	160.0	
Berm Height (in)	27	2.3 Total Height (ft)

AVERAGE DAILY PRODUCTION INFORMATION

Average Daily Production (bbl/Day)	6000	** Rate of saltwater injection

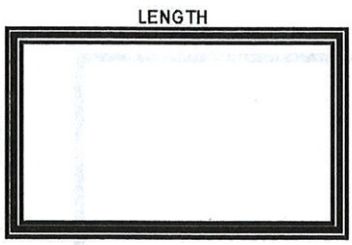
CONTAINMENT VOLUME

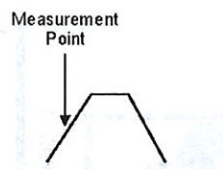
	Gross	Displacement/Ft	Net
Volume (Cu Ft)	39600.0	864.7	37654.4
Volume (Bbls)	7053.0	154.0	6706.5
Volume (Gal)	296227.7	6,468.0	281674.7

TEST

Net Containment (barrels)	< or >	Largest Tank + Greatest Avg. Daily Production (barrels)
6,706.5	>	6,400.0

Containment is sufficient





"Berm Measurement Detail"

LESAIR ENVIRONMENTAL, INC.

CERTIFICATION OF SUBSTANTIAL HARM DETERMINATION FORM

Owner/Operator: Kodiak Oil and Gas (USA), Inc.
Facility: Tall Bear 16-15-16H SWD Tank Battery
Location: Sec. 22: T 147N; R 91W;
Latitude: 47 ° 32'23.688"
Longitude: 102°15'24.100"
Altitude: 2,283.2 ASL

Does the facility have a maximum storage capacity greater than or equal to 42,000 gallons and do the operations include over water transfers of oil to and from vessels?

Y (N)

Does the facility have a maximum storage capacity greater than or equal to one million (1,000,000) gallons and is the facility without secondary containment or area sufficiently large to contain the capacity of the largest aboveground storage tank within the storage area?

Y (N)

Does the facility have a maximum storage capacity greater than or equal to one million (1,000,000) gallons and is the facility located at a distance (as calculated using appropriate formula or an alternative formula considered acceptable by the Regional Administrator) such that a discharge from a facility could cause injury to an environmentally sensitive area.

Y (N)

Does the facility have a maximum storage capacity greater than or equal to one million (1,000,000) gallons and is the facility located a distance (as calculated using the appropriate or alternative formula considered acceptable by the Regional Administrator) such that a discharge from the facility would shutdown a public drinking water intake?

Y (N)

Does the facility have a maximum storage capacity greater than or equal to one million (1,000,000) gallons and within the past five years; has the facility experienced a reportable spill in an amount greater than or equal to 10,000 gallons?

Y (N)

If an alternate formula is used, documentation of the reliability and analytical soundness of the alternative formula must be attached to this form.

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	Environmental Consultant Title
Ty J. Smith Name (print)	February 14 2012 Date

T-1

Appendix B

Resolution No. 11-142-VJB

RESOLUTION OF THE GOVERNING BODY OF THE THREE AFFILIATED TRIBES OF THE FORT BERTHOLD INDIAN RESERVATION

A Resolution entitled, "Acknowledgment and Acceptance of Twin Buttes Community residents approval and support for the proposed Kodiak Oil & Gas Corp. Salt Water Disposal Well."

WHEREAS, This Nation having accepted the Indian Reorganization Act of June 18, 1934, and the authority under said Act and having adopted a Constitution and By-Laws pursuant to said Act; and

WHEREAS, Article III of the Constitution of the Three Affiliated Tribes of the Mandan Hidatsa and Arikara (the "MHA Nation") provides that the Tribal Business Council is the governing body of the MHA Nation; and

WHEREAS, Articles I and VI of the Constitution grants the MHA Nation jurisdiction over all lands and persons within the Fort Berthold Indian Reservation, and generally authorizes and empowers the Tribal Business Council to engage in activities on behalf of and in the interest of the welfare and benefit of the MHA Nation and of the enrolled members thereof; and

WHEREAS, Article VI, Section 5 (l) of the Constitution provides that the Tribal Business Council has the power to adopt Resolutions regulating the procedure of the Tribal Business Council and other Tribal agencies and Tribal officials on the Reservation; and

WHEREAS, Kodiak Oil & Gas Corp. did have informational meetings with the Community on August 2, 2011 and August 18, 2011 in Twin Buttes to inform residents of their desire to develop the existing Tall Bear well into a Salt Water Disposal Well to be utilized by Kodiak Oil & Gas exclusively to help to alleviate the financial burden of trucking the salt water to another disposal well site located off the Reservation and thereby increasing new oil development; and

WHEREAS, There are already numerous salt water disposal wells located on the Fort Berthold Indian Reservation in other area segments so the concept is not new and is part of the oil development process; and

WHEREAS, Kodiak Oil & Gas Corp. has completed all the required due diligence to establish the proposed salt water disposal well and have received favorable recommendations; and

Resolution No. 11-142-VJB

WHEREAS, The majority of the South Segment residents in the community of Twin Buttes that were present at a duly called meeting of the Twin Buttes Community Association on August 10, 2011, did approve and support the Kodiak Oil & Gas Corp. Salt Water Disposal Well as proposed to encourage more oil development in the area.

NOW, THEREFORE BE IT RESOLVED, The Tribal Business Council does hereby acknowledge and accept the approval recommendation of the Twin Buttes residents regarding the development of the Kodiak Oil & Gas Corp. Salt Water Disposal Well as proposed to encourage further oil development in the Twin Buttes area, subject to the following conditions:

1. Kodiak Oil & Gas Corp. shall maintain the Indian Reservation Roads utilized by haul vehicles for access to and from the Salt Water Disposal Well, as well as any other access road to the Salt Water Disposal Well;

2. Kodiak Oil & Gas Corp. shall obtain all required tribal and/or federal permits, and shall comply with all tribal and federal laws, applicable to the construction and operation of the Salt Water Disposal Well, including but not limited to laws protecting historical and cultural sites and resources; and

3. Kodiak Oil & Gas Corp. or its affiliate shall make periodic payment(s), in the form of a fee or contribution, to mitigate the community impacts from increased truck traffic and associated activity in and around the Twin Buttes Community, to be negotiated and approved by both parties prior to the commencement of construction.

Resolution No. 11-142-VJB

CERTIFICATION

I, the undersigned, as Secretary of the Tribal Business Council of the Three Affiliated MHA Nations of the Fort Berthold Indian Reservation hereby certify that the tribal Business Council is composed of seven (7) members of whom five (5) constitute a quorum, 5 were present at a Regular Meeting thereof duly called, noticed, convened and held on the 14th day of December, 2011, that the foregoing Resolution was duly adopted at such meeting by the affirmative vote of 5 members, 0 members opposed, 0 members abstained, 0 members not voting, and that said Resolution has not been rescinded or amended in any way.

Chairman [X] Voting. [ ] Not Voting

Dated this 14th day of December, 2011

ATTEST:

Tribal Secretary, V. Judy Brugh
Tribal Business Council
Three Affiliated MHA Nations

Tribal Chairman, Tex G. Hall
Tribal Business Council
Three Affiliated MHA Nations

Notice of Availability and Appeal Rights

Kodiak Oil and Gas: Addendum to: Kodiak Oil and Gas (USA), Inc.'s Proposed Tall Bear #16-15H Well Location Fort Berthold Indian Reservation Dunn County, North Dakota

The Bureau of Indian Affairs (BIA) is planning to issue administrative approvals related to an Addendum to authorize the conversion of the existing production well to a water disposal well, the installation and use of a water line and electrical lines, to follow previously approved access roads, and to authorize the construction of a storage yard to facilitate the conversion of the existing well to a water disposal well at the previously approved surface location on the on the Fort Berthold Reservation as shown on the attached map. Construction by Kodiak is expected to begin in 2012.

An environmental assessment (EA) determined that proposed activities will not cause significant impacts to the human environment. An environmental impact statement is not required. Contact Earl Silk, Superintendent at 701-627-4707 for more information and/or copies of the EA and the Finding of No Significant Impact (FONSI).

The FONSI is only a finding on environmental impacts – it is not a decision to proceed with an action and *cannot* be appealed. BIA's decision to proceed with administrative actions *can* be appealed until June 7, 2012, by contacting:

United States Department of the Interior
Office of Hearings and Appeals
Interior Board of Indian Appeals
801 N. Quincy Street, Suite 300, Arlington, Va 22203.

Procedural details are available from the BIA Fort Berthold Agency at 701-627-4707.

Project locations.