

DECISION RECORD
Storm Cat Energy (USA) Operating Systems Westway II (POD)
Categorical Exclusion 3 (CX3), WY-070-390CX3-14-293 to 294, WY-070-390CX3-15-12
Section 390, Energy Policy Act of 2005
Bureau of Land Management, Buffalo Field Office, Wyoming

DECISION. The BLM approves the applications for permit to drill (APDs) from Storm Cat Energy (USA) Operating Systems (Storm Cat) to drill 3 gas wells and construct their associated infrastructure as described in the consolidated CX3 analysis, WY-070-390CX3-14-293 to 294 and WY-070-390CX3-15-12, incorporated here by reference.

Compliance. This decision complies with or supports:

- Federal Land Policy and Management Act of 1976 (FLPMA) (43 USC 1701); DOI Order 3310.
- National Environmental Policy Act of 1969 (NEPA) (42 USC 4321).
- National Historic Preservation Act of 1966 (16 USC 470).
- Endangered Species Act of 1974 (16 USC 1531).
- Powder River Basin Oil and Gas Project Final Environmental Impact Statement (FEIS), 2003.
- Buffalo Resource Management Plan (RMP) 1985, Amendments 2001, 2003, 2011.

A summary of the details of the approval follows. The CX3 analysis, WY-070-390CX3-14-293 to 294, WY-070-390CX3-15-12 includes the project description, including site-specific mitigation measures which are incorporated by reference into that worksheet from earlier analysis.

Approvals. BLM approves the following APDs and associated infrastructure:

Well Name/ Well #	Qtr	Sec	Twp	Rng	Lease	CX Number
Odegard Fed 13-18-5576	SWSW	18	55N	76W	WYW146302	WY-070-390CX3-14-293
Odegard Fed 3-13-5577	NENW	13	55N	77W	WYW146332	WY-070-390CX3-14-294
Odegard Fed 15-1-5577	SWSE	1	55N	77W	WYW151180	WY-070-390CX3-15-12

BLM approves the following *primary and secondary* Water Management Infrastructure:

FACILITY Name / Number	STRUCTURE TYPE	QQ	SEC	TWN	RNG	CAPACITY (Acre Feet)
*Odegard 6-12-55-77	Existing Reservoir	SENE	12	55	77	19.60
*Direct Discharge Outfall WY0094277 (001)	Existing Outfall	SWNE	11	55	77	Assimilative Capacity
**Odegard 1-14-55-77	Proposed Reservoir	NENE	14	55	77	35.26
**Odegard 14-11-55-77	Proposed Off-Channel Pit	SESW	11	55	77	48.28
**Green 11-11-55-77	Proposed Off-Channel Pit	NESW	11	55	77	52.16

*Existing and previously approved Westway POD facility, primary containment.

**Direct discharge point into reservoir or pit via outfall, secondary containment.

Upon approval, the following Water Management Infrastructure *will be deferred* from constructing until the adequate reclamation bond amount has been submitted: Odegard 1-14-55-77, Odegard 14-11-55-77 and the Green 11-11-55-77.

THE FINDING OF NO SIGNIFICANT IMPACT (FONSI). Congress, the Department of Interior and BLM affirmed there was no significant impact of a like-structured project when they created this CX3 and its limiting parameters. Thus a FONSI and an EIS is not required.

Limitations. See the conditions of approval (COAs).

COMMENT OR NEW INFORMATION SUMMARY. Since receiving these APDs proposal BFO received a clarified policy on determination of bond adequacy.

DECISION RATIONALE. The approval of this project is because:

1. Mitigation measures and conditions of approval (COAs), analyzed in the CX3, in environmental impact statements or environmental analysis to which the CX3 tiers or incorporates by reference, will reduce environmental impacts while meeting the BLM's need.
2. The approved project conditioned by its design features and COAs, will not result in any undue or unnecessary environmental degradation. The impact of this development cumulatively contributes to the potential for local Greater Sage Grouse (GSG) extirpation yet its effect is acceptable because it is outside priority habitats and is within the parameters of the PRB FEIS/ROD and current BLM and Wyoming GSG conservation strategies. There are no conflicts anticipated or demonstrated with current uses in the area. This decision approving the West Way II POD complies with the Energy Policy Act of 2005, Section 390, 43 CFR 1610.5, 40 CFR 1508.4, and 43 CFR 46.215.
3. Approval of this project conforms to the terms and the conditions of the 1985 Buffalo RMP (BLM 1985) and subsequent update (BLM 2001) and amendments (BLM 2003, 2011). This project complies with the breadth and constraints of CX3, Energy Policy Act of 2005, and subsequent policy.
4. The proposal will help meet the nation's energy need, revenues, and stimulate local economies by maintaining workforces.
5. The operator committed in their POD to the following:
 - Comply with all applicable federal, state, and local laws and regulations.
 - Identify all wells within the 1 mile radius, either by list or on the map and offer water well agreements to the owners of record for permitted water wells within 0.5 mile of a federal producing well in the POD (PRB FEIS ROD, p. 7).
 - Provide water analysis from a designated reference well in each coal zone.
6. The project is clearly lacking in wilderness characteristics because it is amidst mineral development.
7. This decision does not foreclose the lessee or operator to propose a new or supplementary plan for developing the federal oil and gas lease(s) in this project area, including submission of additional APDs to drain minerals in accord with lease rights and law. This decision does not foreclose the lessee or operator to propose using external pumping units via a sundry application process.
8. Storm Cat certified there is a surface use access agreement with the landowners.
9. This approval is subject to adherence with all of the operating plans, design features, and mitigation measures contained in the master surface use plan of operations, drilling plan, water management plan, and information in individual APDs.

ADMINISTRATIVE APPEAL: This decision is subject to administrative appeal in accord with 43 CFR 3165. Request for administrative appeal must include information required under 43 CFR 3165.3(b) (State Director Review), including all supporting documentation. Such a request must be filed in writing with the State Director, Bureau of Land Management, P.O. Box 1828, Cheyenne, Wyoming 82003, no later than 20 business days after this Decision Record is received or considered to have been received. Any party who is adversely affected by the State Director's decision may appeal that decision to the Interior Board of Land Appeals, as provided in 43 CFR 3165.4.

Field Manager: /s/ Duane W. Spencer

Date: 2/27/15

Categorical Exclusion 3 (CX3), WY-070-390CX3-14-293 to 294, WY-070-390CX3-15-12
Section 390, Energy Policy Act of 2005
Storm Cat Energy (USA) Operating Systems Westway II (POD)
Bureau of Land Management, Buffalo Field Office, Wyoming

Description of the Proposed Action.

The proposal is to explore for and develop coalbed natural gas (CBNG) reserves in geologic formations currently leased by Storm Cat Energy (USA) Operating Systems (Storm Cat) 7 miles NE of Arvada, Sheridan County Wyoming (see Table 1.1). The West Way II POD (plan of development) proposal has 3 APDs. Storm Cat proposes to drill and complete 3 wells, commingling the Smith, Anderson, Canyon, Cook, Wall, Pawnee and any other Ft. Union coals as they are present.

Table 1 Proposed Wells

Well Name/ Well #	Qtr	Sec	Twp	Rng	Lease	CX Number
Odegard Fed 13-18-5576	SWSW	18	55N	76W	WYW146302	WY-070-390CX3-14-293
Odegard Fed 3-13-5577	NENW	13	55N	77W	WYW146332	WY-070-390CX3-14-294
Odegard Fed 15-1-5577	SWSE	1	55N	77W	WYW151180	WY-070-390CX3-15-12

Affected Surface Owners:

Odegard Land, LLC,
 Anthony Green

For contact information see Master Surface Use Plan (MSUP) pg. 6

Table 1.2. Summary of Surface Disturbance

Facility	Surface Disturbance
Engineered Pad*	1 @ ~1.6 acres
Two other locations consist of an eyebrow location (level) off an existing oil/gas road, and a non-constructed pad,	~0.10 acre of disturbance will be required for both locations, mowed, topsoil will be removed for the pit (~12'x24')
Road Upgrades w/ Utility Corridors (water, gas, electric)	2.9 miles @ 25' corridor (0.86 acres)
Power Drops	2
**Impoundments (off-channel)	2 @ 6.6 acres
**Impoundments (on-channel)	1 @ 1.2 acres
Discharge points	3 @ 0.06 acres
Total Acre Disturbance	10.5

*Other locations consist of an eyebrow location (level) off an existing oil/gas road, and non-constructed pad, ~0.10 acre will be required for both locations.

**Proposed Impoundments may only be constructed if needed and will be approved as secondary containment. Upon POD approval, the impoundments will be deferred until the required bond information is submitted.

For more details on project area access, design features, construction practices, drilling/completion practices of the proposed action and details regarding reclamation refer to the MSUP (pp. 1-8) in the POD. The plan was written and reviewed to ensure that environmental impacts to both surface and subsurface resources are minimized. Also see the individual APDs for a map showing the existing roads and well location. In addition, see Storm Cat Energy's West Way POD EA, WY-070-EA10-234, formerly approved under J.M. Huber, sections 2, 3, and 4 for specifics regarding project area, general construction/reclamation practices.

Plan Conformance, Compliance, and Justification with the Energy Policy Act of 2005.

The Energy Policy Act of 2005, Section 390(a) subjects oil or gas exploration or development to a rebuttable presumption that the use of a categorical exclusion under the National Environmental Policy Act (NEPA) applies. Thus BLM must use an Energy Policy Act, Section 390(b), CX unless BLM rebuts the presumption. This consolidated CX3 analysis is NEPA compliance categorically excluded from an EA or EIS or their analysis; it is not an exclusion from all analysis. (40 CFR 1508.4 and BLM H-1790, p. 17.) The proposal conforms with the terms and conditions of the approved Resource Management Plan (RMP) for the public lands administered by the BLM, BFO, 1985, and the Powder River Basin Final Environmental Impact Statement (PRB FEIS) Record of Decision (ROD), 2003. The West Way II project area is clearly lacking in wilderness characteristics as it is amidst extensive natural gas development. BLM finds that the conditions and environmental effects found in the senior EA and PRB FEIS remain valid. The applicable categorical exclusion from the Energy Policy Act of 2005, Section 390, is exclusion number (b) (3) which is *drilling an oil or gas well within a developed field for which an approved land use plan or any environmental document prepared pursuant to NEPA analyzed such drilling as a reasonably foreseeable activity, so long as such plan or document was approved within 5 years prior to the date of spudding the well.*

BLM has 3 requirements to use a Section 390 CX3, (BLM H-1790, Appendix 2, #3, p. 143):

- 1) The proposed APD is in a developed oil or gas field (any field with a completed confirmation well).

Table 1.3 is a list of existing/approved PODs that are overlapping to the Westway II project area. This information shows the reader that BLM conducted analysis.

Table 1.3. Overlapping Oil & Gas NEPA Analyses that Account for Reasonable Foreseeable Activity and Completed within 5 Years of Spudding the West Way II Proposal

POD Name	NEPA Document	# Wells / Type and # Drilled
West Way	WY-070-EA10-234	13/ CBNG / 8

- 2) There is an existing NEPA document (and the RMP) containing reasonably foreseeable activity scenario for this action. There are several existing NEPA documents that reasonably foresaw activity to spud additional wells to fill in 80 acre well-spacing. BLM also notes from Table 1.3, above, that of the 13 analyzed APDs, at this time, only 8 are drilled; thus 5 undrilled, analyzed APDs contribute to the available reasonably foreseeable activity. BLM reviewed these documents and determined they considered the potential environmental effects associated with the proposed activity at a site specific level. In addition, all approved EAs tier into the PRB FEIS. The PRB FEIS analyzed foreseeable development in the PRB. The PRB foreseeable development included drilling CBNG wells on 80 acre-spacing resulting in about 51,000 CBNG wells and 3,200 oil wells. The West Way II wells are in the foreseeable activity or development scenario that was analyzed in the EA in Table 1.3 and in the PRB FEIS's Appendix A.
- 3) The tiered NEPA documents were finalized or supplemented within 5 years of spudding (drilling) the proposed well. The West Way II CX3 tiers to the EA listed above in Table 1.3, approved July 30, 2010.

In summary, the EA in Table 1.3 analyzed in detail the anticipated direct, indirect, residual, and cumulative effects that would result from the approval of these APDs. The West Way II POD proposal is similar to both the qualitative and quantitative analysis in the above mentioned West Way POD. The BFO reviewed the corresponding EA and found that the EA considered potential environmental effects associated with the proposal at a site specific level. The West Way II wells will share infrastructure with the West Way development; see, WY-070-EA10-234, respectively, both incorporated here by reference.

Plan of Operations.

The proposal conforms to all Bureau standards and incorporates appropriate best management practices, required and designed mitigation measures determined to reduce the effects on the environment. BLM reviewed and approved a surface use plan of operations describing all proposed surface-disturbing activities pursuant to Section 17 of the Mineral Leasing Act, as amended. This CX3 analysis also incorporates and analyzes the implementation of committed mitigation measures contained in the MSUP, drilling plan, in addition to the Standard COAs found in the PRB FEIS ROD, Appendix A. This CX3 also incorporates by reference the oil and gas drilling practices described and analyzed throughout the West Way EA, WY-070-EA10-234. BLM highlights sections in Table 1.4.

Table 1.4 Section and Pages Incorporated by reference in this CX3

West Way II POD Sections Incorporated by reference from	West Way EA, WY-070-EA10-234
Soil/Vegetation	Pgs. 13-19
Wetlands/Riparian	Pg. 30
Invasive Species	Pgs. 19-20

Wildlife

Land uses and other disturbances occurring within the proposed project area include, livestock grazing, ranching operations, overhead power lines, conventional oil and gas, and improved and unimproved roads. Habitats within the proposal are comprised of sagebrush grassland and mixed-grass prairie. The dominant vegetation is Wyoming big sagebrush and the understory is a mix of pasture grasses (needleandthread, prairie junegrass, blue gramma, Sandberg bluegrass, threadleaf sedge, and cheatgrass). The habitat is similar in nature to the habitats (sagebrush obligate migratory birds and Greater sage-grouse habitat) discussed in the Lance Sahara POD EA, WY-070-EA13-72, incorporated here by reference.

BLM reviewed the proposed APDs and determined that the proposed APDs, combined with the COAs (and design features), are: (1) consistent with the PRB FEIS, the RMP and the above tiered NEPA analyses; and (2) consistent with the programmatic biological opinion (ES-6-WY-02-F006), Appendix K. The environmental effects for wildlife are discussed in, and anticipated to be similar to the Lance Sahara POD EA, WY-070-EA13-72, incorporated here by reference.

Site specific information is described below for known species suspected to occur in the project area as depicted in Table W.1.(Summary of Sensitive Species Habitat and Project Effects) and Table W.2. (Summary of Threatened and Endangered Species Habitat and Project Effects) (See AR).

Migratory Birds

The proposed well pads are in migratory bird habitat. The PRB FEIS discussed direct and indirect effects to migratory birds on pp. 4-231 to 4-235. BLM analyzed the effects to migratory birds from surface disturbing and disruptive activities associated with development of oil and gas wells in the Lance Sahara POD EA, WY-070-EA13-72, 2013, Section 4.6.2.2, pp. 31-33, incorporated here by reference. Effects and mitigation associated with this project are similar in nature, with the following additional site-specific information. During the onsite, the BLM biologist identified suitable nesting habitat present for several BLM sensitive sagebrush obligates. Construction of all of the well pads within the proposal and associated infrastructure will remove habitat and could kill BLM sensitive migratory birds, or destroy eggs, if the habitat is removed during the nesting season.

Heater treaters, and similar facilities with vertical open-topped stacks or pipes, can attract birds. Facilities without exclusionary devices pose a mortality risk. Once birds crawl into the stack, escape is difficult and

the bird may become trapped (U.S. v. Apollo Energies Inc., 611 F.3d 679 (10th Cir. 2010); see also Colorado Oil and Gas Commission, Migratory Bird Policy, accessed February 13, 2012). To minimize these effects, the operator will equip all open-top pits, tanks, and pipes containing hydrocarbons with nets, screens, or other avian exclusion devices to prevent injury or death to migratory birds.

No removal of occupied sagebrush obligate migratory bird habitat will be authorized during the breeding season (May 1- July 31), unless a pre-construction nest survey (within approximately 10 days of construction planned May 1-July 31) is completed. The operator will follow “2012 Sage-brush BLM Sensitive Migratory Bird Nest Protocol” found at the following web address:

http://www.blm.gov/wy/st/en/field_offices/Bufalo/wildlife.html

Raptors

The affected environment for raptors will be similar to those analyzed in Section 3.7.2.1, from the Sahara POD EA, WY-070-EA13-72. Four nests utilized by red-tailed hawks, American kestrels, and great-horned owls are located within 0.5 mile and out of line of sight from the proposed Odegard Fed 3-13-5577 well. To reduce the risk of decreased productivity or nest failure, the BLM BFO will apply a 0.5-mile radius timing limitation during the breeding season (February 1 – July 31) around active raptor nests for surface disturbing activities associated with construction of the proposed Odegard Fed 3-13-5577 well.

Water Resources

Storm Cat submitted a revised Water Management Plan (WMP); Westway II POD WMP, which incorporates and replaces the approved Westway POD WMP, (WY-070-EA10-234). The WMP incorporates sound water management practices, monitoring of downstream impacts within the Upper Powder River watershed and commitment to comply with Wyoming State water laws/regulations. It also addresses potential impacts to the environment and landowner concerns. Qualified hydrologists, in consultation with the BLM, developed the water management plan. Adherence with the plan, in addition to BLM applied mitigation (in the form of COAs), would reduce project area and downstream impacts from proposed water management strategies.

The project area is within the Lynn Draw and Cross H Creek watersheds, which are tributaries to the Powder River within the Upper Powder River drainage system. Lynn Draw and Cross H Creek drainages consist of moderately steep coniferous/shrubland ridges and draws descending towards the flat flood plains of the Powder River. These drainages and their tributaries are ephemeral streams flowing only during precipitation event or snowmelt runoff. The overall drainages volume is dependent upon the amount and duration of these precipitation events in the tributary streams. These draws transition to well-vegetated channels as they approach the proposed reservoir locations and the Powder River.

Produced water from the Westway and Westway II Federal POD (WW PODS) may be discharged into any of the four (4) existing or proposed on/off-channel facilities listed below. In addition, Storm Cat will discharge water through a direct discharge point into the Powder River, utilizing the assimilative capacity credits program. Storm Cat has requested that three (3) proposed water management facilities be designated as secondary use and will delay bonding for the facilities until construction is deemed necessary for the purpose of water management. The Odegard 1-14-55-77, Odegard 14-11-55-77 and the Green 11-11-55-77, will only be constructed if limits described in the WYPDES permit are exceeded and the existing, approved, facilities are not able to provide containment.

FACILITY Name / Number	STRUCTURE TYPE	QQ	SEC	TWN	RNG	CAPACITY (Acre Feet)
*Odegard 6-12-55-77	Existing Reservoir	SENE	12	55	77	19.60
*Direct Discharge Outfall WY0094277 (001)	Existing Outfall	SWNE	11	55	77	Assimilative Capacity
**Odegard 1-14-55-77	Proposed Reservoir	NENE	14	55	77	35.26
**Odegard 14-11-55-77	Proposed Off- Channel Pit	SESW	11	55	77	48.28
**Green 11-11-55-77	Proposed Off- Channel Pit	NESW	11	55	77	52.16

*Existing and previously approved Westway POD facility.

**Direct discharge point into reservoir or pit via outfall. Status for use is designated secondary.

Produced water may also be discharged into stock tanks located throughout the project area which have been sized and located with input from the surface owner(s). For a list of the locations and map see the submitted Westway II WMP, pages 3-4, Appendix 3 and Map C.

The maximum water production is predicted to be 20 gpm per well or 400 gpm (0.89 cubic feet per second (cfs) or 647 acre-feet per year) for this POD. The PRB FEIS projected the total amount of water that was anticipated to be produced from CBNG development per year (Table 2-8 Projected Amount of Water Produced from CBM Wells under Alternatives 1, 2A and 2B pg 2-26). For the Upper Powder River drainage, the projected volume produced within the watershed area was 2,242 acre-feet in 2015 (maximum production is estimated in 2006 at 171,423 acre-feet). As such, the volume of water resulting from the production of these wells is 28.86% of the total volume projected for 2015. This volume of produced water is also within the predicted parameters of the PRB FEIS.

WDEQ assumed primacy from U.S. Environmental Protection Agency for maintaining the State's water quality. The Wyoming State Engineer's Office (WSEO) has authority for regulating water rights issues and permitting impoundments for the containment of the State's surface waters. The Wyoming Oil and Gas Conservation Commission (WYOGCC) has authority for permitting and bonding off channel pits located over state and fee minerals.

Groundwater

The historical use for groundwater in this project area was for stock water or domestic purposes. A search of the WSEO Ground Water Rights Database for this area showed 9 registered stock and domestic water wells within 1 mile of the West Way and West Way II PODS (WW PODS) wells with depths ranging from 130 to 850 feet. For additional information on water, refer to the PRB FEIS (2003), Chapter 3, Affected Environment pp. 3-1 to 3-36 (groundwater).

WDEQ water quality parameters for groundwater classifications (Chapter 8 – Quality Standards for Wyoming Groundwater) define the following general limits for total dissolved solids (TDS): 500 mg/l TDS for drinking water (Class I), 2000 mg/l for agricultural use (Class II) and 5000 mg/l for livestock use (Class III). For additional water quality limits for groundwater, please refer to the WDEQ web site.

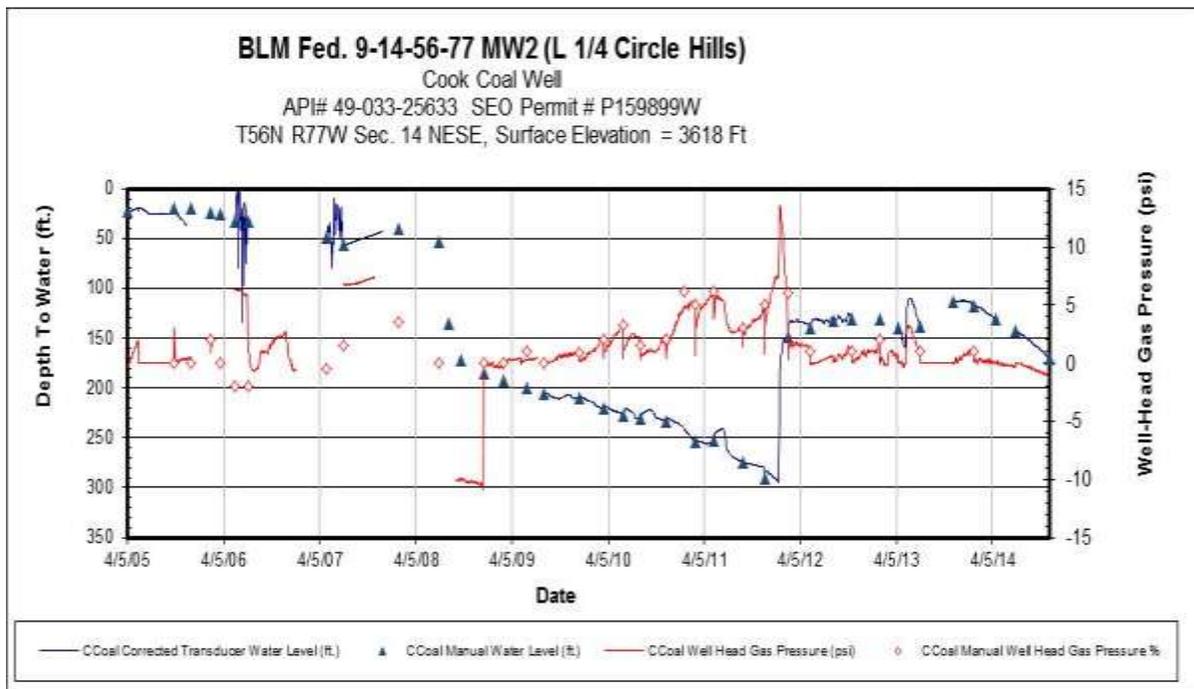
The production of CBNG necessitates the removal of some degree of the water saturation in the coal zones to temporarily reduce the hydraulic head in the coal. BFO has been monitoring coal zone pressures and water levels since the early 1990s in the PRB.

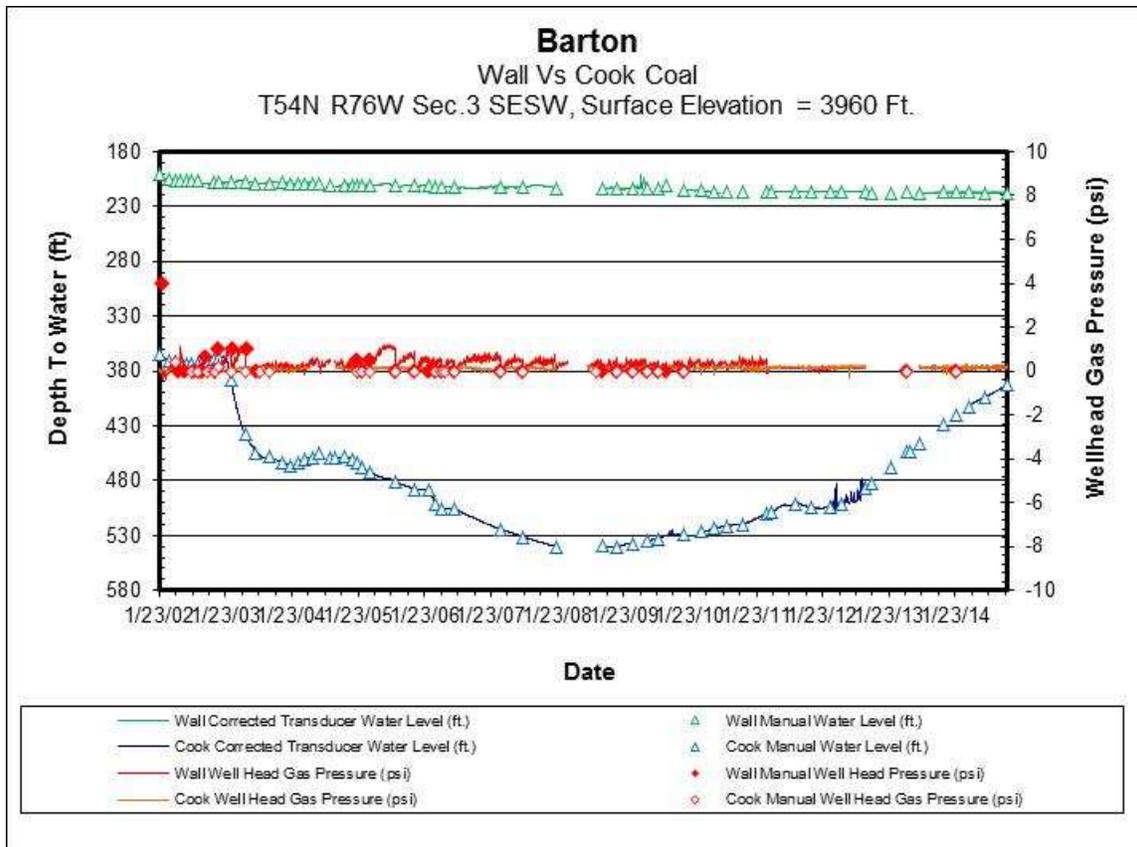
As a result, the target coal zone pressure may have been reduced through off set water production. The L Quarter Circle Hills Cook Coal Groundwater Monitoring Well (GMW), located approximately 3.3 miles north of the WW PODS boundary, was installed by Pennaco Energy as a part of the BLM deep

groundwater monitoring program (See the chart below, L ¼ Circle Hills). The Barton, Wall, and Cook Coal (GMW), located approximately 6 miles southeast of the POD boundary, was drilled by CMS and installed as a monitor well in 2002 (See the chart below, Barton). The initial water level of the L Quarter Circle Hills Cook Coal, which is indicative of the pressure in the coal zone, was recorded at 22.86 feet below ground level, dated 4/5/2005. The most recent measurement, dated 11/6/2014 recorded the water level at 321.80 feet below ground level, for a decline of 298.94 feet since the well was completed. The initial water level of the Barton, Wall, and Cook Coal was recorded at 200.48 feet and 364.5 feet below ground level, respectively for the Wall and Cook coals, dated 1/23/2002. The most recent measurement, dated 11/6/2014 recorded the water level at 217.31 feet and 392.82 feet below ground level, for a decline of 16.83 feet and 28.32 feet, respectively, since the well was completed. See the charts shown below for a graphical representation of these two wells. It should be noted that the Cook wells have shown groundwater level recovery over the last 5 years, likely due to the decline in production of those wells.

There is currently active approved and pending CBNG development to the North, East and South of the WW PODs boundary and monitoring wells. The Westway POD initially approved 15 wells, 7 APDs have expired and 8 have been drilled to date. The additional 3 APDs for the Westway II POD development will add to the existing impacts of the wells in the area, however, all the wells may not be drilled or will be drilled over time. Because of the proximity to existing and proposed wells it is likely that depressurization will continue.

This level of depressurization is within the potential predicted in the PRB FEIS; determined through the regional groundwater model for that document. Refer to the PRB FEIS, Chapter 4, Groundwater for further information and to the Wyoming State Geological Survey’s Open File Report 2014-01 titled, “2013 CBNG Regional Groundwater Monitoring Report Update: Powder River Basin, Wyoming,” which is available at: <http://www.wsgs.uwyo.edu>.





Direct and Indirect Effects

The PRB FEIS predicts an infiltration rate of 40% to groundwater aquifers and coal zones in the Upper Powder River drainage area (PRB FEIS pg 4-5). For this action, it may be assumed that a maximum of 160 gpm will infiltrate at or near the discharge points and impoundments (258.8 acre feet per year).

This water will saturate the near surface alluvium and deeper formations prior to mixing with the groundwater used for stock and domestic purposes. According to the PRB FEIS, “the increased volume of water recharging the underlying aquifers of the Wasatch and Fort Union Formations would be chemically similar to alluvial groundwater.” (PRB FEIS pg 4-54). Therefore, the chemical nature and the volume of the discharged water may not degrade the groundwater quality.

The PRB FEIS predicts that one of the environmental consequences of coal bed natural gas production is possible impacts to the groundwater. “The effects of development of CBM on groundwater resources would be seen as a drop in the water level (drawdown) in nearby wells completed in the developed coal aquifers and underlying or overlying sand aquifers.” (PRB FEIS page 4-1). In the process of dewatering the coal zone to increase natural gas recovery rates, this project may have some effect on the static water level of wells in the area. The permitted water wells produce from depths which range from 130 to 850 feet compared to 1,191 to 1,800 feet to the Anderson, Wall, Upper Canyon, Upper Pawnee, and Upper and Lower Cook coal zones. The operator has committed to offer water well agreements to holders of properly permitted domestic and stock wells within the circle of influence (½ mile of a federal CBNG producing well) of the proposed wells.

Recovery of the coal bed aquifer was predicted in the PRB FEIS to “...resaturate and repressurize the areas that were partially depressurized during operations. The amount of groundwater stored within the Wasatch - Tongue River sand and coals, and sands units above and below the coals is almost 750 million acre-feet of recoverable groundwater are (PRB FEIS Table 3-5). Redistribution is projected to result in a

rapid initial recovery of water levels in the coal. The model projects that this initial recovery period would occur over 25 years.” (PRB FEIS page 4-38).

Cumulative Effects/Mitigation Measures/Residual Effects

1. See Westway EA, WY-070-EA10-234;
 - a. Cumulative Effects; 4.1.4.1.2. Pages 43-44.
 - b. Mitigation Measures; 4.1.4.1.3. Page 44.
 - c. Residual Effects; 4.1.4.1.4. Page 44.

Surface Water/Wetlands/Riparian

1. See Westway EA, WY-070-EA10-234;
 - a. Direct and Indirect Effects; 4.1.4.2.1. Pages 44-47 and incorporating by reference new information from existing wells drilled within the project area:

Produced Water Quality

The following table shows an updated water quality analysis of produced water from a federal well, located in the NENW of Section 7, T55N-R76W, collected on 2/25/2014. The analysis represents a comingling of water from the target coal seams within the WW PODs project area:

SAMPLE	pH	TDS	SULFATE	CHLORIDE
Gibbs 3-7 55-76	8.28	1,610 mg/l	< 10 mg/l	27.5 mg/l

Individual coal zone samples are not available within the project area since all the existing and proposed wells are or will be comingled. For a copy of the water sample analysis and additional information, see the Westway II WMP, Appendix 5. A copy of the approved WDEQ Discharge Permit, WY0094277, along with the most current modification submittal that incorporates changes to the discharge permit, that reflect additional outfalls associated with the Westway II POD, can also be found in Appendix 4.

Based on the analysis performed in the PRB FEIS, the primary beneficial use of the surface water in the Powder River Basin is the irrigation of crops (PRB FEIS pg 4-69). The water quality projected for this POD is 1,610 mg/l TDS which is within the WDEQ criteria for agricultural use (2000 mg/l TDS). However direct land application is not included in this proposal. If at any future time the operator entertains the possibility of irrigation or land application with the water produced from these wells, the proposal must be submitted as a sundry notice for separate environmental analysis and approval by the BLM.

In addition to the 3 wells proposed with the Westway II POD, there are 8 existing federal wells and 9 existing fee wells associated with the Westway POD. A maximum of 20 gallons per minute (gpm) is projected to be produced from each of the 20 wells, for a total of 400 gpm for the WW PODS.

Produced Water Control

There are five (5) discharge points associated with this project. Two of the discharge points exist; a direct discharge into the Powder River and an outfall associated with the Odegard 6-12-55-77 reservoir, have been analyzed and approved in the Westway POD as primary containment facilities. Three additional outfalls are proposed with the Westway II POD, which Storm Cat has designated as secondary containment, and will only be constructed if needed. One outfall is for the Odegard 1-14-55-77 reservoir, one each for the Odegard 14-11-55-77 and Green 11-11-55-77 off-channel pit(s).

The facilities have been appropriately sited and utilize appropriate water energy dissipation designs. Existing and proposed water management facilities were evaluated for compliance with best management practices during the onsite.

To manage the produced water, four (4) total impoundments (155.3 acre feet capacity and 10.57 surface acres disturbed) would potentially be constructed within the project area. Four (4) of the five (5) outfalls will discharge to the impoundments; one outfall will directly discharge into the Powder River, utilizing the assimilative capacity credits program. Monitoring may be required based upon shallow groundwater investigations required for new impoundments by the WDEQ.

Storm Cat will discharge water through the existing direct discharge outfall into the Powder River during the months of October through July, utilizing the assimilative capacity credits program. During the months of August and September when no assimilative capacity is available, Storm Cat will discharge produced water that is below the monthly ambient concentrations for TDS and less than the sodium assimilative capacity limits. Should water quantity and/or quality limits be reached, discharge will be diverted to outfalls associated with the impoundments.

Proposed impoundments will be constructed to meet the requirements of the WSEO, WDEQ and the needs of the operator and the landowner. Storm Cat will submit the required reclamation bond amounts for the secondary containment facilities prior to constructing them. All water management facilities were evaluated for compliance with best management practices during the onsite.

Produced Water Quantity

The PRB FEIS assumes that 15% of the impounded water will re-surface as channel flow (PRB FEIS pg 4-74). Consequently, the volume of water produced from these wells may result in the addition of 0.13 cfs below the lowest reservoir (after infiltration and evapotranspiration losses). The operator has committed to monitor the condition of channels and address any problems resulting from discharge. Discharge from the impoundments will potentially allow for streambed enhancement through wetland-riparian species establishment. Sedimentation will occur in the impoundments, but would be controlled through a concerted monitoring and maintenance program. Phased reclamation plans for the impoundments will be submitted and approved on a site-specific, case-by-case basis as they are no longer needed for disposal of CBNG water, as required by BLM applied COAs.

Alternative (2A), the approved alternative in the Record of Decision for the PRB FEIS, states that the peak production of water discharged to the surface will occur in 2006 at a total contribution to the mainstem of the Upper Powder River watershed of 68 cfs (PRB FEIS pg 4-87). The predicted maximum discharge rate from these 20 wells is anticipated to be a total of 400 gpm or 0.89 cfs direct to the Powder River or 1.3% of the predicted total CBNG produced water contribution. For more information regarding the maximum predicted water impacts resulting from the discharge of produced water, see Table 4-6 (PRB-FEIS pg 4-85).

In the WMP portion of the POD, the operator provided an analysis of the potential development in the watershed above the project area (WMP, Appendix 6). Based on the area of Lynn Draw and two unnamed watersheds above the POD (3,785 acres) and an assumed density of 1 well per location every 80 acres, the potential exists for the development of 47 wells which could produce a maximum flow rate of 940 gpm (2.1 cfs) of water. The BLM agrees with the operator that this is not expected to occur because:

1. Some of these wells have already been drilled and are producing.
2. New wells will be phased in over several years, and
3. A decline in well discharge generally occurs after several months of operation.

The potential maximum flow rate of produced water within the watershed upstream of the project area, 2.1 cfs, is much less than the volume of runoff estimated from the 2-year storm event for Lynn Draw and the two unnamed watersheds within the POD (110.7 cfs). See Appendix 6 of the WMP.

Springs/Wetlands/Riparian Areas

In-channel downstream impacts are addressed in the WMP for the Westway II POD prepared by Western Land Services and Wood Group Production Services for Storm Cat Energy. Existing roads will use culverts to cross the ephemeral unnamed drainage of Lynn Draw and Cross H Creek drainages. The sizing of each culvert will meet the BLM Road Standards Manual Section 9113. Where utility lines cross drainages they will be placed 5-10 feet from the downstream end of the culvert, and perpendicular to the channel to reduce erosion. No headcut features will be affected by produced water discharges. A single headcut located in the NWNW, Section 12 T55N – R77W will be monitored to insure that the access road is not threatened. Corrective mitigation will be conducted if needed to protect the road.

Cumulative Effects

1. See Westway EA, WY-070-EA10-234;
 - a. Cumulative Effects; 4.1.4.2.2. Pages 47-49 and incorporating the following updated information by reference:

As of December 2013, all producing CBNG wells in the Upper Powder River watershed have discharged a cumulative volume of 399,806 acre-ft of water compared to the predicted 1,275,921 acre-ft disclosed in the PRB FEIS (Table 2-8 pages 2-26). These figures are presented graphically below. This volume is 31.3 % of the total predicted produced water analyzed in the PRB FEIS for the Upper Powder River watershed.

Actual vs predicted water production in the Upper Powder River watershed 2013

Data Update 05-08-14

Year	Upper Powder River Predicted (Annual acre-feet)	Upper Powder River Predicted (Cumulative acre-feet from 2002)	Upper Powder River Actual (Annual acre-feet)		Upper Powder River Actual (Cumulative acre-feet from 2002)	
			A-ft	% of Predicted	A-Ft	% of Predicted
2002	100,512	100,512	15,846	15.8	15,846	15.8
2003	137,942	238,454	18,578	13.5	34,424	14.4
2004	159,034	397,488	20,991	13.2	55,414	13.9
2005	167,608	565,096	27,640	16.5	83,054	14.7
2006	171,423	736,519	40,930	23.9	123,984	16.8
2007	163,521	900,040	42,112	25.8	166,096	18.5
2008	147,481	1,047,521	45,936	31.1	212,522	20.3
2009	88,046	1,135,567	43,079	48.9	255,601	22.5
2010	60,319	1,195,886	43,263	71.7	298,864	25.0
2011	44,169	1,240,055	43,163	97.7	342,027	27.6
2012	23,697	1,263,752	31,755	134.0	373,782	29.6
2013	12,169	1,275,921	26,024	213.9	399,806	31.3
2014	5,672	1,281,593				
2015	2,242	1,283,835				
2016	1,032	1,284,867				
2017	366	1,285,233				
Total	1,285,233		399,806			

The PRB FEIS identified downstream irrigation water quality as the primary issue for CBNG produced water. Electrical Conductivity (EC) and SAR are the parameters of concern for suitability of irrigation water. The water quality analysis in the PRB FEIS was conducted using produced water quality data, where available, from existing wells within each of the ten primary watersheds in the Powder River Basin. These predictions of EC and SAR can only be reevaluated when additional water quality sampling is available.

As referenced above, the PRB FEIS did disclose that cumulative impacts may occur as a result of discharged produced CBNG water. The cumulative effects relative to this project are within the analysis parameters and impacts described in the PRB FEIS for the following reasons:

1. They are proportional to the actual amount of cumulatively produced water in the Upper Powder River drainage, which is approximately 31.3% of the total predicted in the PRB FEIS.
2. The WDEQ enforcement of the terms and conditions of the WYPDES permit that are designed to protect irrigation downstream.
3. The commitment by the operator to manage the volume of water discharged.

Refer to the PRB FEIS, Volume 2, page 4-115 – 117 and table 4-13 for cumulative effects relative to the watershed and page 117 for cumulative effects common to all sub-watersheds.

Mitigation Measures/Residual Effects

1. See Westway EA, WY-070-EA10-234;
 - a. Mitigation Measures; 4.1.4.2.3. Page 49.
 - b. Residual Effects; 4.1.4.2.4. Page 50.

Cultural.

A Class III cultural resource inventory was performed for the Westway II POD prior to on-the-ground project work (BFO project no. 70140076). A class III cultural resource inventory following the Archeology and Historic Preservation, Secretary of the Interior's Standards and Guidelines (48CFR190) and the *Wyoming State Historic Preservation Office Format, Guidelines, and Standards for Class II and III Reports* was provided to BFO by Storm Cat (operator). Seth Lambert, BLM Archaeologist, reviewed the report for technical adequacy and compliance with Bureau of Land Management (BLM) standards, and determined it to be adequate. The following resources are located in or near the project area.

Site Number	Site Type	Eligibility
48SH1698	Prehistoric	Ineligible
48SH1699	Prehistoric	Ineligible

There are no eligible sites within the APE of the proposed project. Following the Wyoming State Protocol Section VI(A)(1) the Bureau of Land Management electronically notified the Wyoming State Historic Preservation Officer (SHPO) on June, 6th 2014 that no historic properties exist within the APE.

List of Preparers: Persons and Agencies Consulted (BFO unless otherwise noted)

Position/Organization	Name	Position/Organization	Name
NRS/Team Lead	Eric Holborn	Archaeologist	Seth Lambert
Supr NRS	Casey Freise	Wildlife Biologist	Scott Jawors
Petroleum Engineer	Will Robbie	Geologist	Kerry Aggen
LIE	Karen Klaahsen	NEPA Coordinator	John Kelley
Hydologist	Ray Stott	Supr NRS	Bill Ostheimer
Assistant Field Manager	Clark Bennett	Assistant Field Manager	Chris Durham

Decision and Rationale on the Proposal.

The COAs provide mitigation and further the justification for this decision and may not be segregated from project implementation without further NEPA review. I reviewed the plan conformance statement and determined that the proposed Storm Cat West Way II POD consolidated CX3 for APDs and infrastructure conform to the applicable land use plan, 43 CFR 1610.5, 40 CFR 1508.4, and 43 CFR 46.215. I reviewed the proposal to ensure the appropriate exclusion category as described in Section 390 of the Energy Policy Act of 2005 is correct. I determined that there is no requirement for further environmental analysis.

/s/ Duane W. Spencer
Field Manager

2/27/15
Date

Contact Person, Eric Holborn, Natural Resource Specialist, Buffalo Field Office, 1425 Fort Street, Buffalo WY 82834,307-684-1044.