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PUBLIC WORKS DEPARTMENT
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August 3, 2012

Lamp, Ryneerson, & Associates
Attention: Omar Herrera
4715 Innovation Dr
Fort Collins, CO 80525

Re: Flood Hazard Development Permit application (FHDP-799) – Construction of a new oil and gas tank battery and associated facilities

Dear Mr. Herrera,

As a participant in FEMA's National Flood Insurance Program (NFIP), Weld County is required by FEMA to ensure that any development (as defined by FEMA) occurring in a designated 100-year floodplain or floodway is compliant with FEMA, Colorado Water Conservation Board, and Weld County floodplain regulations. The intent of the floodplain regulations is to ensure that development occurs in a manner that keeps proposed development safe from flood damage and does not adversely impact the health and safety of the public. The purpose of this FHDP Conditional Approval Letter is to provide the applicant with a brief history of the floodplain issues involved with the proposed project and to make the applicant aware of specific requirements which must be satisfied in order for Weld County and this proposed project to remain in good standing with the NFIP requirements. Failure to abide by the floodplain regulations and requirements may result in a violation case being brought before the Weld County Board of County Commissioners and potential fines.

The Weld County Public Works Department has reviewed the requested Flood Hazard Development Permit (FHDP) application for the construction of a new tank battery and associated facilities. The current FHDP application can be conditionally approved at this time based on the comments and requirements below.

COMMENTS

Applicant: Great Western Oil & Gas Co, LLC
Attention: Janni Keidel
1700 Broadway
Suite 650
Denver, CO 80290

Request: Flood Hazard Development Permit number 799 for the construction of a new tank battery and associated facilities located in the Cache La Poudre River floodplain.

Legal Description: NE1/4 of the NW1/4, Section 29, T6N, R67W of the 6th P.M., Weld County, Colorado.

Location: Approximately 3,200 feet west of CR 17 and approximately 900 feet south of the north section line.

FIRM Community
Panel Map No. 080266-0605D, September 27, 1991

Parcel Number: 0807-29-0-00-051

Public Works Department

The FHDP application was submitted on July 31, 2012 by Janni Keidel in support of the construction of a new tank battery (14 – oil tanks, 2 – water vaults, 14 – separators, pipeline, and 14 wells) and associated facilities on Parcel 0807-29-0-00-051 located approximately 3,200 feet west of CR 17 and approximately 900 feet south of the north section line in the NE1/4 of the NW1/4, Section 29, T6N, R67W of the 6th P.M., Weld County, Colorado in the Cache La Poudre River Special Flood Hazard Area (SFHA), also known as the 100-year floodplain. The entire parcel is designated as Zone AE on Flood Insurance Rate Map (FIRM) Panel 080266-0605D. The majority of the property is designated as being in a 1 foot floodway. This Zone AE designation indicates there is published base flood elevation (BFE) for the South Platte River floodplain on the current effective FIRM dated September 27, 1991 and FBFM Panel Number 080266-0001 dated September 27, 1991. All FIRMs are prepared, distributed, managed, and revised by the Federal Emergency Management Agency (FEMA).

The FHDP application includes the following documentation:

1. FHDP Application (Page 6)
2. Narrative explaining the HEC-RAS modeling procedures utilized by the applicant's engineer that has been stamped, signed, and dated by Omar Ray Herrera, P.E. # 42160
3. Surface Use Agreement
4. Answers to the Floodplain Management Standards
5. Map showing the location of the proposed tank battery in relation to the Cache La Poudre River Floodplain and Floodway
6. Copies of the effective floodplain and floodway maps
7. Copies of the HEC-RAS printout
8. CD-ROM containing the HEC-RAS model

The following information was added to the file:

1. Copy of the current effective FIRM map (FIRMette)
2. Copy of Weld County GIS map showing the proposed location of the tank battery

Since the oil and gas facility is a non-insurable structure and there will be no buildings on-site, an elevation certificate is not required. The Colorado Oil and Gas Conservation Commission website indicates that this tank battery and associated facility will serve the H-Y 29-21, 29-21-3, 29-31, 20-24, 20-54, 20-23-18, 29-21-4, 29-51, 20-23, 29-52, 20-34, 29-31-8, 29-31-2, 20-53 wellheads.

The applicant's engineer used a HEC-RAS model, version 4.1, to determine that the tank battery was not impacting the 100-year mapped floodplain for the Cache La Poudre River. The applicant's engineer obtained the Water Valley LOMR HEC-RAS model version 3.1 from Anderson Consulting Engineers. The engineer created a duplicate effective model in HEC-RAS version 4.1. A comparison of the current effective model to the duplicate effective model shows that there are no significant changes in water surface elevations due to the different HEC-RAS versions.

The engineer compiled a corrected effective model with three additional cross sections added. The additional cross sections were based on topography that existed prior to the landowner placing fill

material in the vicinity of the proposed tank battery. The addition of the cross sections resulted in a revised floodplain and 1 foot floodway boundary. The engineer then compiled a second corrected effective model which shows the impact of the fill placed by the land owner around 1999-2001 timeframe. A comparison of the two corrected effective models shows that the landowner placed fill into the floodway and caused a rise of approximately 0.04 feet in the water surface elevation of the floodplain. The fill material appears to have caused a negligible rise in the water surface elevations and has caused a negligible increase in the width of the floodplain. It appears that the A review of the aerial photography shows that no structures would be impacted. Because the wells have already been drilled and completed, the decision was made by Weld County not to pursue the landowner and require the removal of the fill material from the floodplain. Furthermore, FEMA is currently undertaking a new study of the Poudre River that will account for the fill material.

After comparing the two corrected effective models, the engineer compiled a proposed conditions model which shows that the tank battery will be placed outside of the floodway and will be elevated several feet above the 100-year water surface elevation. Since the tank battery is elevated above the 100-year water surface elevation, it does not have to be anchored.

The model shows that the tank battery does not increase the floodway or BFE elevations at the site. The proposed tank battery location is outside of the 1 foot floodway. The tank battery will be located approximately 250 feet from the edge of the floodplain. The floodplain in this location is approximately 3,900 feet wide.

Please refer to the REQUIREMENTS section of this memorandum for further instructions.

Department of Planning Services

Please refer to the REQUIREMENTS section of this memorandum for specific instructions.

Building Department

Please refer to the REQUIREMENTS section of this memorandum for specific instructions.

Environmental Health Services

Since an Individual Sewage Disposal System (ISDS) and water well will not be constructed in the floodplain or floodway, Environmental Health Services does not have concerns with the application.

REQUIREMENTS:

Public Works Department

1. All stockpiles from the facility pad construction shall be removed to a location that is outside of the FEMA-defined 100-year floodplain.
2. Any future placement of fill that falls within the FEMA defined 100-year floodplain shall obtain an amended flood hazard development permit prior to the placement of any fill.
3. Any future proposed development activities on this parcel that fall within the FEMA-defined 100-year floodplain shall not cause a rise in the BFE on adjacent or upstream properties or structures. Any future activities on this site that may cause adverse flooding impacts must be approved through an amended flood hazard development permit (AmFHDP).
4. Any fill material in the floodplain must be designed to withstand the erosional forces associated with the 100-year storm.
5. Pursuant to Chapter 15, Articles I and II of the Weld County Code, **if noxious weeds** exist on the property or become established as a result of the proposed development, the applicant/landowner shall be responsible for controlling the noxious weeds. All vegetation, other than grasses, needs to be maintained at a maximum height of 12 inches until the area is completely developed.

Department of Planning Services

1. Stockpiling of any material in the floodplain is not permitted due to the highly erosional nature of placement of said material in this location. Stockpiling of, and storage of, materials in the Floodway is prohibited.
2. Construction, including post construction anchoring of vessels shall comply with all requirements/conditions of the Weld County Building Code, Colorado Oil and Gas Conservation Commission and other applicable Codes, Ordinances and standards.
3. All proposed or existing structures will or do meet the minimum setback and offset requirements for the zone district in which the property is located.
4. Any future structures or uses on site must obtain the appropriate zoning and building permits.

Building Department

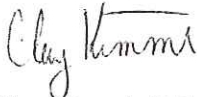
1. All equipment installed within the floodplain shall be secured to resist all lateral forces created by flood waters.
2. Fill used to elevate equipment within the floodplain shall be compacted to resist erosion created by flood waters.
3. All electrical equipment shall be above BFE.
4. A building permit is required for all tank battery installations.

RECOMMENDATIONS:

The Weld County Public Works Department can conditionally approve this FHDP application at this time.

If you have any questions please feel free to contact me at the above number.

Sincerely,



Clay Kimmi, P.E., CFM
Weld County Public Works

Original:	Great Western Oil & Gas, <i>Applicant</i>
CC to File:	FHDP-799
PC by Post:	Kim Ogle, <i>Planning Services</i>
	Lauren Light, <i>Environmental Health</i>
	Lin Dodge, <i>Planning Services</i>