Maljamar #1 AGI System Maljamar Gas Plant Motion to Amend NMOCD Order No. R-13443



February 14, 2013

OCC Case No. 14664 FRONTIER FIELD SERVICES Exhibit [#]2

FRONTIER

Goals of Maljamar AGI System

- To safely inject and store up to 1.8 MMSCFD of TAG in the subsurface over a 30-year lifespan of injection
- And as a result:
 - Replace existing flaring limitation
 - Allow increase in plant processing capacity
 - Environmentally friendly sequestration of GHGs vs emission to atmosphere





Confirmation of Reservoir Properties During Drilling, Testing and Completion of Maljamar AGI #1

- Proposed Lower Leonard injection interval will not be needed for disposal Anticipated TAG volumes can be contained fully within Lower Wolfcamp Formation
- Testing confirmed a lack of fracturing and high quality of cap rock above Wolfcamp injection interval and a lack of connection with listed offset wells
- Confirmed presence of sour water and lack of hydrocarbons in injection zone
- Confirmed pre-existing adequate porosity and permeability and the conservative nature of the original anticipated modeled extent of the TAG plume after 30 years of injection – plume is likely to be smaller
- Actual completed injection interval restricted to depth interval of 9,550-10,130 feet bgs
- Additional wells completed in area since order issued further confirm the limits of the approved Wolfcamp injection zone as determined by 3D seismic presented in original C-108 and Hearing





Acid Gas Injection System Design





- Design incorporates both engineering and geology features
- Geology provides storage capacity and insures isolation of TAG in injection zone
- Engineering components (well) ensure safe delivery of TAG to injection zone
- Geologic and Engineering Safety factors combine to protect:
 - Plant employees
 - Fresh water resources
 - Oil and gas production
 - Atmosphere and local citizens



Specific Requests to Amend NMOCD Order No. R-13443 to Reduce Injection Zone and Remove Surrounding Well Requirements

- Approved injection interval is at a depth ranging from approximately 9,300 to 10,000 feet below ground surface including Lower Leonard and Wolfcamp Formations. Request Change to Reduce Interval to 9,500 to 20,230 ft. bgs
 - Only the Wolfcamp Formation will be used for injection from approximately 9,570' to 10,130 ft. bgs
- 2. Requirement to monitor 8 wells specifically cited in the order and plug and abandon the wells if H2S concentrations exceed 100 parts per million (ppm)
 - This requirement is not necessary, not workable, and may result in waste and impairment of correlative rights



Actual Completion and Final Well Schematic for Maljamar AGI #1

Note that actual completion interval only includes Wolfcamp Formation from 9,579' to 10,130' and not the overlying Lower Leonard Formation



Approved Injection Interval from Approximately 9,300 to 10,000 Feet

- Maljamar AGI #1 has been completed to the following specifications (see previous slide):
 - The permanent production packer was set at 9,452 feet
 - The interval above the depth of the permanent production packer has been permanently sealed and will never be used for TAG injection
 - The actual perforations in Maljamar AGI #1 occur from depths ranging from approximately 9,550 to 10,130 feet
 - The actual injection interval is effectively sealed above and below by cap rock
- NMOCD concurs with the reduction and has requested that the requirement in the Order be amended to reflect the 'as built' specifications
- Frontier requests that NMOCD Order R-13443 be amended to lower the uppermost elevation of the permitted injection interval from approximately 9,550 to 10,130 feet



Requirement from NMOCD Order No. R-13443 Requested for Amendment

(6) The operator shall ensure the following wells, and any other wells which are completed in the upper or lower Wolfcamp formation and located within 1.5 miles of the approved Acid Gas well, are equipped with H2S warning flags or other safety indicators as the U.S. BLM or the Division's Hobbs district office requires - until such time as the flagged well is permanently plugged back above the equivalent disposal interval:

a.	Baish A #14	D/22/17S/32E	30-025-30363
b.	Federal BI #1	N/28/17S/32E	30-025-27068
C.	Baish A #12	A/21/17S/32E	30-025-20568
d.	Hudson #1	M/15/17S/32E	30-025-21226
e.	Maljamar SWD29 #1	0/29/17S/32E	30-025-39519
f.	Elvis #4	F/20/17S/32E	30-025-33949
g.	Hudson Fed #1	K/15/17S/32E	30-025-25107
h.	Elvis #2	0/17/17S/32E	30-025-33854

(7) The operator shall take all steps necessary to ensure that the disposed fluids enter only the permitted disposal interval depths and are not permitted to escape to other formations or onto the surface through this well or any surrounding wells. If H2S levels on any of the wells listed above in ordering paragraph (6) reaches 100 ppm, the subject well shall be shut-in until Frontier Field Services, LLC has plugged those wells exhibiting newly discovered H2S.



Location and Sample Results from the 8 Wells Identified in NMOCD Order R-13443







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Requirement that 8 wells specifically cited in the order be plugged and abandoned if H2S concentrations exceed 100 ppm

- All wells sampled before Frontier commenced TAG injection
- Initial TAG Injection scheduled for first half of February 2013
- > 7 of the 8 listed wells were sampled and analyzed for H2S:
 - 5 of the 8 wells are very sour and have H2S concentrations ranging from 450 to 11,000 ppm:
 - Elvis 002 and 004 (O&G): 450 ppm H2S
 - Baish A 012 and 014 (O&G): 6,000 ppm H2S
 - Federal BI 001 (SWD): 11,000 ppm H2S prior to conversion to SWD
 - 2 wells are sweet (no H2S)but are located outside of reservoir and are 1.1 to 1.5 miles from outside of the Maljamar AGI #1 ROI:
 - Hudson 001 (O&G): 0 ppm
 - Hudson Federal 001 (O&G): 0 ppm
 - 1 well that was not sampled because it is a salt water disposal (SWD) well which receives fluids from numerous sour gas wells:
 - Maljamar SWD29 001: H₂S content varies with source of injected produced water the reservoir is already sour (see Federal BI 001 above)



Results of sampling from the 8 Wells Identified in NMOCD Order R-13443

						Miles Outside of
ven name	vveii iype	API NO.	Operator	PPM H2S	Miles from AGI #1	ROI
Elvis 002	0 & G	30-025-33854	CONOCO	450	1.504888628	1.324889
Elvis 004	0 & G	30-025-33949	CONOCO	450	1.336494767	1.156495
Baish A 012	0 & G	30-025-20568	CONOCO	6000	0.989797854	0.809798
Baish A 014	0 & G	30-025-30363	CONOCO	6000	1.09301894	0.913019
Federal BI 001	O&G converted to SWD	30-025-27068	COG	11000	0.862419663	0.68242
Hudson 001	0 & G	30-025-21226	COG	0	1.354511906	1.174512
Hudson Federal 001	0 & G	30-025-25107	VF Petroleum	0	1.688173128	1.508173
Maljamar SWD29 001	SWD	30-025-39519	COG	Not Tested	1.225155901	1.045156

Note: Frontier has not yet injected any acid gas

Requirement that 8 wells specifically cited in the order be plugged and abandoned if H2S concentrations exceed 100 ppm - continued

- None of the 8 wells are owned and operated by Frontier Field Services, LLC:
 - 6 of the 8 wells are operating oil and gas wells
 - 2 of the 8 wells are operating salt water disposal wells
 - 7 of the 8 wells are already producing or, in the case of the Federal BI#1, produced sour gas at 4.5 to 110 times the 100 ppm H₂S threshold cited in the order
 - In any case, because six of these wells are currently producing, and two are SWD wells which Frontier does not own or operate Frontier could not legally plug these wells
 - Since the subject wells are producing and or active injectors, plugging them would result in waste and would impair correlative rights



Summary of Reasons for Eliminating Paragraphs 6 and 7 of Order No. R-13443

- None of the 8 wells are owned and operated by Frontier Field Services, LLC and all are a significant and safe distance from the projected limit of injection plume after 30 years:
 - 5 of the 8 wells have been demonstrated to have H2S concentrations significantly over the 100 ppm action level cited in the order
 - Federal B1 001 had H2S concentrations of 11,000 ppm prior to SWD conversion.
 - The 1 well not sampled is a salt water injection well into the same sour injection interval which is expected to have H2S concentrations similar to Federal B1 001 (11,000 ppm)
 - \circ The two injection wells receive sour water for injection often saturated with H₂S
 - If NMOCD determined in the future that any of the 8 wells cited in NMOCD
 Order R-13443 must be plugged, Frontier Field Services, LLC does not have the ability to do so because they do not own or operate any of the 8 wells
- Frontier requests that NMOCD Order R-13443 be amended to remove the requirement that the 8 wells cited in the order be plugged and abandoned if H2S concentrations exceed 100 ppm



Summary of Frontier's Request of NMOCC

- Frontier requests that NMOCD Order R-13443 be amended to lower the uppermost elevation of the approved injection interval in the Maljamar AGI #1 to approximately 9,550 bgs
- Frontier has already placed warning signs on the wells listed in paragraph 6 of the order
- Frontier requests that NMOCD Order R-13443 be amended to eliminate the offset well requirements and remove paragraphs 6 and 7 on page 5 of the order



