

**Adams County
Community and Economic Development Department Development
Review Comments**

	Case Number: USR2018-00001			Case Name: Duck Club
	Applicant: Extraction			Date Initiated: 03/07/2018 Comments provided to applicant: 03/29/2018
Referral Comment No.	Mapped?	Reviewer Initials	County Comment	Applicant Response (date)
1	ADCO	CD	Staff has reviewed comments and is evaluating how Conditionals of Approval (COAs) may be used to mitigate impacts.	
2	ADCO	CD	<p>a. Per the operators MOU with Adams County, baseline testing of all residential water wells located within 1/2 mile of the proposed location will be required upon the owner's request.</p> <p>b. Describe what structural and administrative Best Management Practices will be implemented to mitigate air quality impacts during the different phases of development and production.</p> <p>c. The proposed location is within 1/4 mile of a FEMA flood zone, additional perimeter controls should be implemented to minimize the potential for surface migration of potential pollutants from the location.</p>	<p>a. Baseline testing of all residential water wells located within 1/2 mile of the proposed location will be conducted upon owner's request</p> <p>b. Construction, drilling, and completions are temporary activities. Impacts from these phases of development are managed by getting in place, working safely, and getting out as fast and efficiently as possible. Best management practices for these three phases can include utilizing electric engines (when possible), using dual-fuel engines for completions (when possible), and utilizing "green completion" technologies for well completions. Impacts from the operation phase will be managed by engineering-out the potential for emissions by installing state-of-the-art surface equipment, highly efficient controls, and through a robust Leak Detection and Repair (LDAR) program.</p> <p>c. On eastern side of the site is where the FEMA flood zone is present. there will be a stormwater retention ditch, sediment trap, and tertiary berms installed on the opposite side of the ditch to protect the flood zone from any surficial pollutants.</p>

	ADCO	CD	<p>d. The application identifies that nineteen acres (19 ac) will be disturbed for the development of the wellpad. Can that total area be reduced to meet the needs of each phase if all 12 wells are not drilled in a single phase?</p> <p>e. If all the wells are not drilled at the same time then additional information about what Best Management Controls will remain in place, or implemented, to meet Erosion Control/Stormwater Discharge requirements.</p> <p>f. If all the permitted wells are not drilled during the initial phase then how will Extraction provide notification to residence for re-mobilization to drill additional wells?</p> <p>g. Pipelines for transporting product off site has been shown to reduce truck traffic, reduce onsite storage, reduce emissions, and increase the compatibility of oil and gas facilities to current and future land uses. Has Extraction explored the option for connecting to pipeline for the transportation of product off site? If Extraction has explored pipelines and did not find they were a feasible option, what were the restrictions that were identified?</p> <p>h. Provide a summary of any notification Extraction provided to the City of Brighton. Provide a summary of any comments provided by Brighton and any actions taken by Extraction in response to those comments.</p>	<p>d. The well pad is scheduled to be drilled and completed in a single phase, however; in the event that the pad is phased due to economic contributors or business priorities, the pad size will be interim reclaimed within the allotted COGCC twelve (12) month timeframe.</p> <p>e. The site will be an active construction location and long-term maintenance will be addressed during all CDPHE bi-weekly, monthly, and post precipitation inspection reports.</p> <p>f. Should all wells not be developed in the initial phase, property owners within ½ mile of the location will be sent a notification of operations mailer no less than 1 week prior to the initiation of operations.</p> <p>g. Extraction has evaluated pipelines for the Duck Club facility. The incremental cost and lead-time associated with off-site storage and stabilization of oil is substantially detrimental to project economics. Additionally, Extraction’s BMPs are designed to both prevent any spills, and to prevent any spills from reaching the ground or impacting any sensitive groundwater.</p> <p>h. June 22, 2017 XOG mailed Notification of the planned development at our Duck Club location (map included) to the City of Brighton. In this notification we Invited them to attend the July 13th community meeting as well as the contact information for XOG and Adam’s County. On July 28th Brighton staff requested a consultation meeting which was held on August 17th 2017. The City of Brighton shared no concerns regarding the Duck Club locations.</p>
3	ADCO	EC	<p>Landscaping Comments:</p> <ol style="list-style-type: none"> 1. Please include any proposed fence elevations and details on the plan. All fences will require a building permit. 2. More information is required on the proposed irrigation system. Details must be included on the plan. 3. All shrubs must be planted at a minimum 5 gal container. Please update the landscape notes to reflect this requirement. 	<ol style="list-style-type: none"> 1. Emily Collins and Kevin Crehan discussed proposed fencing. Due to the land locked nature of this pad, barbed wire fencing will be used at the location 2. The proposed irrigation plan was provided as #11 on the landscape plan submitted 2/28/2018 3. All shrubs planted on location will be a minimum of 5-gallon containers. This is shown on the Landscape Conditions column of the landscape plan

4	ADCO	JR	<p>In accordance with the Resources Review that was completed as a requirement of the Natural Resources Conservation Overlay, the resulting recommendations should be included as Conditions of Approval:</p> <ul style="list-style-type: none"> a. Three Burrowing Owl surveys will be conducted and documented prior to construction at the location if construction occurs between March 15th through October 31st. <ul style="list-style-type: none"> 1. If owls are observed, Extraction will follow the appropriate mitigation options outlined in Colorado Parks and Wildlife's guidance that include establishing buffers and avoidance of habitat and species. b. Raptor surveys will be conducted prior to construction at the location to determine if the identified nest is still inactive during egg laying and incubation periods for raptors or whether development activities are within a half-mile radius of the nest. <ul style="list-style-type: none"> 2. If an active raptor nest is observed within the recommended buffer zone outlined in CPWs guidance for a particular species, stress monitoring or CPW consultation will be required prior to construction. 	<ul style="list-style-type: none"> a. During the NRCO report no burrowing owls were observed, however Extraction will conduct a perform a pre-construction evaluation and if burrowing owls are observed Extraction will follow mitigation options outlined in Colorado Parks and Wildlife's guidance. b. During the NRCO report no raptors were observed, however Extraction will conduct a perform a pre-construction evaluation and if burrowing owls are observed Extraction will follow mitigation options outlined in Colorado Parks and Wildlife's guidance.
5	Water District PWSID # CO0103035	E	<ul style="list-style-type: none"> a. This well field supplies over 50,000 people at this time and any contamination of the shallow aquifer or disturbance of operations caused by the Extraction Oil project will essentially curtail water delivery to these water users. As such, ECCV and ACWWA are highly concerned with the specific location of the Extraction project, the facilities to be constructed, and BMP's to be employed. b. The Application correctly identifies ECCV Well 11 as the closest water well at a 50-foot distance from the Duck Club. The application also proposes compliance with Rule 318-A requiring sampling and monitoring. Should this application move forward, the District will cooperate with Extraction regarding sampling from this well to achieve Rule 318-A compliance, but also believes additional monitoring and routine testing of the shallow groundwater system on and at the boundaries of the Duck Club tract is both appropriate and necessary. 	<ul style="list-style-type: none"> a. Please refer to Exhibit A b. Please refer to Exhibit A

5	N/A	ECCV	<p>c. The Beebe Seep Canal and a number of shallow lakes connected to the ground water system lie within ½ mile or less of the proposed facility. These key regional hydrologic features are used for transport of irrigation waters to local farmers. The Mile Hi Lake facility immediately north east of the Duck Pond site is specifically designated as an aquifer recharge site in ECCV's water rights decrees. More important to ECCV, this seep canal and these lakes interact with its wells. As ECCV's wells pump, the wells deplete the seep canal. ECCV has a very detailed augmentation plan developed in Water Division 1 Case No. 10CW306 depicting how the seep canal is depleted by ECCV pumping and how such depletions are mitigated to protect senior users. If contamination reaches the canal or the lake beds, through either surface or ground waters, this could incapacitate ECCV's production wells.</p> <p>d. ECCV operates a reverse osmosis treatment plant in the Beebe Draw. This plant is located approximately 2/3 mile from the Duck Pond Facility as shown on Figure 1. At this plant, salts are removed from the alluvial waters and concentrated in a brine. The brine is being disposed of through 2 deep injection wells, the closest being located at the treatment plant 2/3 mile from the Duck Club. These wells are in excess of 11,000 feet in depth, and are permitted through the EPA's Class I Injection well program. These wells allow injection of brine into the Lyons, Lower Santanka, Wolfcamp, Amazon, Council Grove, Admire, Virgil, and Missourian geologic units.</p> <p>Construction and operation of these wells is highly regulated and monitored by EPA, and the construction specifications required greatly exceed similar specifications used in most oil and gas production wells. In order to secure the permit for these wells, ECCV had to undertake extensive studies of local seismicity, bedrock faulting, and site specific geology. Furthermore, ECCV is assigned strict limits on operating injection pressures to assure fracturing of the deep formations is avoided. ECCV was not allowed to conduct a petroleum style fracking program on these wells, in large part due to concerns with inducing artificial earthquakes in the area. ECCV has operated in the Beebe Draw for 5 years now without any seismic issues.</p>	<p>c. Please refer to Exhibit A</p> <p>d. Please refer to Exhibit A</p>
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5	N/A	ECCV	<p>However, any seismic event within 2 miles of ECCV's permit area will because for the EPA to shut down the injection wells and subsequently curtail operations of ECCV's treatment facilities. The construction and operation of the 9 wells on the Duck Club facility could induce seismic activity that could shut down ECCV operations.</p> <p>e. ECCV is sensitive to the potential problems a petroleum release can have on its facilities. One incident occurred several years ago which impacted ECCV's wells. This involved a release from a condensate tank which allowed petroleum products to enter the soils overlying the aquifer. In this particular instance, the operator reportedly removed over 2000 yards of soil from the site, installed a soil vapor extraction system, and sealed up the related production well in order to protect the underlying alluvial aquifer. This spill was not quickly located due to inadequate monitoring. Remediation attempts were generally successful; however, ECCV was forced to shut down wells in the area for more than one year. ECCV's system is larger now with more demand, and a long-term shutdown would be catastrophic.</p> <p>f. ECCV foresees accidental surface and near surface spills from drilling operations, truck spills, pipeline spills, and other sources as one of the greatest risks incurred by our system with the introduction of the Duck Club facility. As such, the BMP's identified in the application are not sufficient to significantly reduce risk of contamination of the alluvial aquifer system lying just a few feet beneath the surface at the site. We strongly encourage COGCC to require upgraded containment, monitoring, and emergency notification procedures should this site move forward. Furthermore, we encourage COGCC to require appropriate bonding and contingency planning should Extraction's operations contaminate the aquifer or curtail ECCV's ability to deliver water to its constituents</p>	<p>e. Please refer to Exhibit A</p> <p>f. Please refer to Exhibit A</p>
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5	N/A	ECCV	<p>g. ECCV/United operate an aquifer recharge facility just south of the Duck Club property. This facility is operated pursuant to the decree in Water Court Case No. 10CW306. This site takes water rights owned by ECCV, treats the water, and injects it into the aquifer for recapture further north in their production wells. Injection wells operate as an EPA Class 5 injection facility authorized by EPA Rule of Authorization. The Duck Club facility lies directly in the flow path between the points of injection and the points of pumping for this recharge system. The placement of 9 conductor casings in the aquifer at the Duck Club site and the placement of these casings could impact ground water flow regime in this area. If these casings are installed in a manner allowing significant amounts of mud or cement to contaminate the aquifer at distances from the 9 wells, this blockage in the aquifer could defeat much of the recharge effort.</p> <p>h. ECCV also holds rights to surface recharge facilities at the Mile High Lakes sites (identified on Figure 1) These facilities are decreed in Division 1 Water Court Cases 02CW404 and 03CW442. These are surface ponds through which water is recharged into the shallow aquifer system. Operation of these facilities will maintain water levels in the aquifer at near current levels. If any dewatering is anticipated as part of the Duck Club installations, such dewatering will be operating in direct competition to our recharge operations.</p> <p>i. ECCV is highly concerned with the construction and operation of a large petroleum production, processing, storage, and transport complex immediately over the shallow Beebe Draw Aquifer System. Any spill, accidental release, fire, or drilling mishap occurring on the site could, and quite likely would compromise the quality of water in this crucial aquifer. Were the aquifer deeper, or less permeable, remediation of surface releases would be easier to undertake, but it is not. The water table is very shallow, and as ECCV begins to operate its recharge facilities and develops the Mile Hi Lake recharge ponds, the water level beneath the site may become even more shallow.</p>	<p>g. Please refer to Exhibit A</p> <p>h. Please refer to Exhibit A</p> <p>i. Please refer to Exhibit A</p>
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5	N/A	ECCV	j. Finally, we have concerns with the drilling and development operations creating low level seismic activity which, if recorded by EPA or reported by any local land owners, could shut down the deep injection wells key to the District's continued treatment and distribution of water.	j. Please refer to Exhibit A
6	N/A	Brighton Fire District	<p>a. Please provide information on the access road condition. The road needs to be capable of supporting of 75,000 pound fire apparatus and maintained at all times.</p> <p>b. Please change the contact number listed on the response resource contact information. The number listed is for our administrative office and is not a 24 hour phone. For 24 hour dispatch, 911 should be utilized.</p> <p>c. Section 3.0 of the TRP states that a copy of the summary card will be provided to the local fire department. Please provide a copy of this.</p> <p>d. Please provide the gps coordinates for the point of site access entry and the public road junction.</p>	<p>a. Per Section 12 of the executed MOU, Extraction will construct the lease/access road to be capable of supporting 75,000 lbs. emergency response vehicle.</p> <p>b. The contact number on the TRP has been updated to reflect 911 for emergency services.</p> <p>c. The TRP Card has been provided to the Brighton Fire Rescue District.</p> <p>d. The GPS coordinates for site access and junction with a public road is as follows: 39°58'20.72"N, 104°44'18.22"W.</p>

Agency Referral Comments:

- 1) City of Brighton : No Comment
- 2) Tri-County Health: No Comment
- 3) United Power: No Comment
- 4) DNR Parks & Wildlife: No Comment
- 5) School District 27J: No Comment
- 6) Adams County Sheriff's Department: No Comment

Exhibit A

Response to Itemized Concerns

Please find the following responses to the concerns identified by ECCV during the Adams County comment period with the specific responses identifying BMPs used by Extraction as standard operating practices (SOPs) or proposed specifically for this project to prevent groundwater impacts, monitor groundwater quality, and report, contain, and remediate impacts in the event groundwater impairment is identified.

- a. *This well field supplies over 50,000 people at this time and any contamination of the shallow aquifer or disturbance of operations caused by the Extraction Oil project will essentially curtail water delivery to these water users. As such, ECCV and ACWWA are highly concerned with the specific location of the Extraction project, the facilities to be constructed, and BMP's to be employed.*

Extraction develops and operates oil and gas facilities throughout the DJ Basin, and complies with all federal, state, and local rules in permitting and operating these facilities, including those regulations specific to protection of public health and the environment. **Standard operating practices (SOPs) and BMPs** deployed by Extraction on every location specifically for protection of water quality and the environment include the following:

Construction and Reclamation

- Newly constructed locations include stormwater BMPs designed for the specific purpose of preventing sediment or other pollutants from discharging off the location during drilling and completions phases of operation.
- Interim reclamation designs for long-term production include similar run-on/run-off controls to prevent stormwater from traveling onto the site, while preventing sediment and other pollutants from discharging off the site.

Drilling and Well Completions

- Surface casing is set and cemented to a minimum depth of 1500' below ground surface (bgs) to isolate all potential drinking water aquifers from drilling and completions operations, and long-term production of hydrocarbons.
- As part of the surface casing cement procedure, visual cement returns are confirmed at the surface to ensure the surface casing has good cement from the bottom (~1500') to surface.
- Subsequent to the surface casing cement job, a cement bond log (CBL) is run to confirm there is a good bonding between the steel surface casing, cement, and adjacent formation.

- Drilling operations are completed using closed-loop drilling technology to eliminate the use of pits or handling of drill cuttings on the working surface. All drilling mud ingredients, and drill cuttings are stored and managed in containers designed for compatibility with the specific product or waste stream, and associated handling techniques.
- All generated drilling fluids and cuttings are transported offsite for disposal at a licensed disposal facility.
- Portable bulk storage tanks used for storing well completion fluid will be stored in secondary containment designed to capture minor leaks and simple handling spills.
- Extraction drilling, well completion coordinators, and contractor managers conduct daily inspections of the location to ensure proper function of storage containers, operating equipment, secondary containment, and stormwater controls.
- All drilling and well completion operations are automated with redundant alarms and warning systems to allow for immediate shutdown in the event of an emergency or upset condition.
- Active drilling and well completion operations are staffed 24-hours per day to ensure proper equipment function, and prompt identification of spills or releases.
- Extraction personnel are trained to identify potential equipment/operational problems, and to promptly stop, contain, report, and remediate any unintended spills or discharges. Extraction policy is to immediately report all spills, regardless of volume, to the Extraction Environmental, Health, and Safety (EHS) Department. Additionally, ECCV's contact information has been added to Extraction's Tactical Response Plan (TRP) in the event of incident and will be contacted in the event of a COGCC reportable release.

Flowback and Production

- During flowback operations, portable bulk storage tanks will be stored in secondary containment designed to capture minor leaks and simple handling spills.
- Facility production tanks are placed in lined, steel-walled secondary containments with storage capacity adequate to contain 150% of the largest tank's volume.
- Onsite chemicals used during flowback and production to prevent corrosion or development of damaging bacteria, are stored in containers compatible with the material, and placed in impervious secondary containments with storage capacity adequate to contain 150% of the largest tank's volume.
- All secondary containments are visually inspected at least weekly to ensure proper working condition.
- All production equipment is automated and remotely monitored, with redundant alarms and warning systems to allow for immediate shut-down in the event of an emergency or upset condition.

- All flowlines and gathering lines will be constructed in accordance with standard industry practice and pressure tested prior to initiating operations.

In addition, due to the sensitivity of the location of the proposed MHDC well pad, Extraction will include the following **additional site-specific protections and practices** during development and long-term operation of the MHDC Well Pad:

Drilling and Well Completion

- In addition to basic safety and environmental awareness training, Extraction will provide site-specific training to drilling and well completions teams to inform personnel of the sensitivity of the MHDC location, to describe the ECCV water supply and management system, and to emphasize the potential risks to public health for improper operations at this location. Reminders of this training, in the form of posters with simple guidance, will be placed throughout the location and in offices where personnel work and take breaks.
- In addition to general secondary containment practices, all onsite temporary bulk storage containers for materials and waste, will be placed in secondary containments to capture minor leaks or handling spills. These containments will be inspected daily for proper equipment function, and prompt identification of leaks or releases.
- Prior to initiation of drilling activities, and at least weekly during active drilling and well completions activities, an Extraction Environmental representative will inspect onsite operation to ensure site-specific BMPs are being adhered to and that any noncompliance is promptly addressed. These inspections will be documented and available for review upon request.

Flowback and Production

- All flowback and secondary containments will be inspected daily for proper equipment function, and prompt identification of leaks or releases.
- Following construction of permanent production facilities, groundwater-monitoring wells will be installed on the downgradient side of secondary containments. These monitoring wells will be sampled on the same frequency and analytical suite as agreed to between ECCV and Extraction for long-term monitoring of groundwater quality.
- Permanent secondary containment will be installed at this facility for bulk fluid storage will be lined.
- In addition to SOPs for flowline and gathering line installation and maintenance, Extraction completes daily pressure evaluations on each well and documented pressure tests in accordance to COGCC rule 1104.h. twice a year to promptly identify and address potential problems.

- b. *The Application correctly identifies ECCV Well 11 as the closest water well at a 50-foot distance from the Duck Club. The application also proposes compliance with Rule 318-A requiring sampling and monitoring. Should this application move forward, the District will cooperate with Extraction regarding sampling from this well to achieve Rule 318-A compliance, but also believes additional monitoring and routine testing of the shallow groundwater system on and at the boundaries of the Duck Club tract is both appropriate and necessary.*

Extraction would be happy to review any specific requests or recommendations you have related to groundwater sampling frequency or analytical suite. To expedite this process and ensure productive correspondence in this collaboration, please provide details on what you would like to see related to these items so that we may evaluate and revise the SOW or have an informed discussion in our next meeting.

- c. *The Beebe Seep Canal and a number of shallow lakes connected to the ground water system lie within ½ mile or less of the proposed facility. These key regional hydrologic features are used for transport of irrigation waters to local farmers. The Mile Hi Lake facility immediately north east of the Duck Pond site is specifically designated as an aquifer recharge site in ECCV's water rights decrees. More important to ECCV, this seep canal and these lakes interact with its wells. As ECCV's wells pump, the wells deplete the seep canal. ECCV has a very detailed augmentation plan developed in Water Division 1 Case No. 10CW306 depicting how the seep canal is depleted by ECCV pumping and how such depletions are mitigated to protect senior users. If contamination reaches the canal or the lake beds, through either surface or ground waters, this could incapacitate ECCV's production wells.*

Extraction understands and shares ECCV's concern related to protection of surface water, including the Beebe Seep Canal. Current SOPs and BMPs for spill prevention and containment, and for stormwater management make offsite discharges from an Extraction location an extremely remote possibility.

- d. *ECCV operates a reverse osmosis treatment plant in the Beebe Draw. This plant is located approximately 2/3 mile from the Duck Pond Facility as shown on Figure 1. At this plant, salts are removed from the alluvial waters and concentrated in a brine. The brine is being disposed of through 2 deep injection wells, the closest being located at the treatment plant 2/3 mile from the Duck Club. These wells are in excess of 11,000 feet in depth, and are permitted through the EPA's Class I Injection well program. These wells allow injection of brine into the Lyons, Lower Santanka, Wolfcamp, Amazon, Council Grove, Admire, Virgil, and Missourian geologic units.*

Construction and operation of these wells is highly regulated and monitored by EPA, and the construction specifications required greatly exceed similar specifications used in most oil and gas production wells. In order to secure the permit for these wells, ECCV had to undertake extensive studies of local seismicity, bedrock faulting, and site specific geology. Furthermore, ECCV is assigned strict limits on operating injection pressures to assure fracturing of the deep formations is avoided. ECCV was not allowed to conduct a petroleum style fracking program on these wells, in large part due to concerns with inducing artificial earthquakes in the area. ECCV has operated

in the Beebe Draw for 5 years now without any seismic issues.

However, any seismic event within 2 miles of ECCV's permit area will be cause for the EPA to shut down the injection wells and subsequently curtail operations of ECCV's treatment facilities. The construction and operation of the 9 wells on the Duck Club facility could induce seismic activity that could shut down ECCV operations.

Hydraulic fracturing in the Niobrara and Codell chinks has never induced seismicity 1) due to the distance from the basement (more than 4000 vertical feet) and 2) due to the plastic nature of the chinks themselves. There are numerous private seismic monitors all over the Denver Julesburg basin, which monitor for induced seismicity and no seismicity has ever been recorded due to hydraulic fracturing.

The only mechanism in the DJ for potentially inducing seismicity is increasing pore pressure in existing faults under stress in the Precambrian basement through injection into that rock.. As long as ECCV's wells do not penetrate the Precambrian, and according to Extraction's information, they do not, there is no risk of induced seismicity in the Beebe Draw area.

- e. ECCV is sensitive to the potential problems a petroleum release can have on its facilities. One incident occurred several years ago which impacted ECCV's wells. This involved a release from a condensate tank which allowed petroleum products to enter the soils overlying the aquifer. In this particular instance, the operator reportedly removed over 2000 yards of soil from the site, installed a soil vapor extraction system, and sealed up the related production well in order to protect the underlying alluvial aquifer. This spill was not quickly located due to inadequate monitoring. Remediation attempts were generally successful; however, ECCV was forced to shut down wells in the area for more than one year. ECCV's system is larger now with more demand, and a long-term shutdown would be catastrophic.*

Extraction recognizes the sensitivity of this location as it relates to ECCV's municipal water system, and the risk posed by potential releases from production equipment during long-term operation of the MHDC. In addition to SOPs and BMPs used on all locations developed and operated by Extraction, site-specific practices for the MHDC are also proposed to provide further protections, which Extraction believes reasonably address ECCV's concerns around the sensitive nature of this site. Please see the response to question 'a.' above for details.

- f. ECCV foresees accidental surface and near surface spills from drilling operations, truck spills, pipeline spills, and other sources as one of the greatest risks incurred by our system with the introduction of the Duck Club facility. As such, the BMP's identified in the application are not sufficient to significantly reduce risk of contamination of the alluvial aquifer system lying just a few feet beneath the surface at the site. We strongly encourage COGCC to require upgraded containment, monitoring, and emergency notification procedures should*

this site move forward. Furthermore, we encourage COGCC to require appropriate bonding and contingency planning should Extraction's operations contaminate the aquifer or curtail ECCV's ability to deliver water to its constituents

In addition to SOPs and BMPs used on all locations developed and operated by Extraction, site-specific practices for the MHDC designed specifically to enhance spill prevention; containment, identification, response, and reporting are proposed in this response. Please see the response to question 'a.' above for further details.

- g. ECCV/United operate an aquifer recharge facility just south of the Duck Club property. This facility is operated pursuant to the decree in Water Court Case No. 10CW306. This site takes water rights owned by ECCV, treats the water, and injects it into the aquifer for recapture further north in their production wells. Injection wells operate as an EPA Class 5 injection facility authorized by EPA Rule of Authorization. The Duck Club facility lies directly in the flow path between the points of injection and the points of pumping for this recharge system. The placement of 9 conductor casings in the aquifer at the Duck Club site and the placement of these casings could impact ground water flow regime in this area. If these casings are installed in a manner allowing significant amounts of mud or cement to contaminate the aquifer at distances from the 9 wells, this blockage in the aquifer could defeat much of the recharge effort.*

Extraction utilizes standard industry practices designed specifically to protect surface and shallow groundwater quality. All drilling mud and cement ingredients are selected specifically for non-toxic properties to protect water quality, and have been used effectively by the industry for many years. With regards to the potential blockage of groundwater flow from the 9 proposed wells, based on available information, Extraction sees no reason to believe that the presence of these well conductors would have any effect on groundwater flow to ECCV's northern production wells. Extraction's proposed wells run north to south, parallel or cross gradient to the system described here by ECCV.

- h. ECCV also holds rights to surface recharge facilities at the Mile High Lakes sites (identified on Figure 1) These facilities are decreed in Division 1 Water Court Cases 02CW404 and 03CW442. These are surface ponds through which water is recharged into the shallow aquifer system. Operation of these facilities will maintain water levels in the aquifer at near current levels. If any dewatering is anticipated as part of the Duck Club installations, such dewatering will be operating in direct competition to our recharge operations.*

Any dewatering conducted during construction or development of the MHDC would be conducted in accordance with CDPHE stormwater permit requirements for construction dewatering. Those requirements include field screening for potential water quality concerns, and use of a filter bag and straw bales to remove sediment, and return removed water to the groundwater source it was pulled from.

- i. ECCV is highly concerned with the construction and operation of a large petroleum production, processing, storage, and transport complex immediately over the shallow Beebe Draw Aquifer System. Any spill, accidental release, fire, or drilling mishap occurring on the site could, and quite likely would compromise the quality of water in this crucial aquifer. Were the aquifer deeper, or less permeable, remediation of surface releases would be easier to undertake, but it is not. The water table is very shallow, and as ECCV begins to operate its recharge facilities and develops the Mile Hi Lake recharge ponds, the water level beneath the site may become even more shallow.*

Extraction recognizes the sensitivity of this location as it relates to ECCV's municipal water system, and has built into its development plan multiple layers of protection to eliminate risk that could be posed by potential releases from production equipment during long-term operation of the MHDC. In addition to SOPs and BMPs used on all locations developed and operated by Extraction, site-specific practices for the MHDC are also proposed to provide further protections, which Extraction believes reasonably address ECCV's concerns around the sensitive nature of this site. Please see the response to question 'a.' above for details.

- j. Finally, we have concerns with the drilling and development operations creating low level seismic activity which, if recorded by EPA or reported by any local land owners, could shut down the deep injection wells key to the District's continued treatment and distribution of water.*

Please see the response to question 'd.' above for details.