Planning	Fencing: A meeting with the surface owner will determine a fencing plan. The location will be adequately fenced to restrict access by unauthorized persons. • Interchange – No fencing is planned for this location. • Livingston – There will be fencing surrounding the pad. • United – No fencing is planned for this location. • NWA – No fencing is planned for this location. • NWB – No fencing is planned for this location. Why are we not using the language of Exhibit B, #23?
Planning	This location is subject to a Comprehensive Development Plan (CDP), ~~permit~~ approved~~a~~ by~~l from T~~the City and County of Broomfield. Operator is currently working through the CDP as required by Extraction's Operator Agreement ~~application~~ with the City and County of Broomfield staff.
Planning	Blowout Prevention Equipment ("BOPE"): A double ram and annular preventer will be used during drilling. Stabbing valves shall be installed in the event of reverse circulation and shall be prior tested with low and high pressure fluid.
Planning	Backup stabbing valves will be required on well servicing operations during reverse circulation. Valves shall be pressure tested before each well servicing operation using both low-pressure air and high-pressure fluid.
Planning	All ground within twenty-five (25) feet of any tank, or other structure containing flammable or combustible materials, shall be kept free of dry weeds, grass or rubbish, and shall conform to COGCC 600 Series Safety Regulations and the applicable Fire Code.
Planning	Extraction maintains a Tactical Response Plan (TRP), also at times referred to as the Emergency Response Plan, which is designed to provide Extraction employees and designated Emergency Response Team (ERT) members with the information necessary to respond to incidents in a safe, rapid, effective, and efficient manner. The TRP is kept at Extraction's office and a copy is provided to the North Metro Fire Rescue District and the City of Broomfield. Extraction will place the TRP summary card in strategic places on the facilities during specific operational and copies of the summary card is provided to the North Metro Fire Rescue District to be kept in the responding fire engines. Should reference Emergency Preparedness Plan, BMPs #19. Maybe not all,

Comment [PG1]: Remove Extraction letterhead.

Comment [LD2]: This should include verbiage that states that operations cannot begin until the CDP is approved by the City and County of Broomfield.

Comment [LD3]: The requirements associated with BMP #19 should be included here.

	but part of that section at least. I don't know why COGCC is OK with the TRP, but not the other parts.
Community Outreach and Notification	Extraction will establish a live, 24-hour telephone hotline, as well as an email address, to receive feedback on our drilling and completion activities with the goal of having a tool for us to immediately investigate and address any complaints that arise. Prior to the initiation of 24-hour operations (drilling) Extraction will mail a post card (to include the email address and 24 hour manned phone number) to residents within 1/2 mile of the location.
Traffic Control	Access Roads: The access road will be constructed to accommodate local emergency vehicles. This road will be maintained for access at all times. Traffic will be routed to minimize local interruption. During construction and through the life of this location, Operator will utilize watering, via water trucks, to control fugitive dust. Additionally, the access road will be constructed with aggregate road base material and recycled asphalt and vehicle speeds will be limited to twenty five miles per hour to reduce dust. Operator must control erosion while roads are in use. (BMP #38) Why not language of BMP #17 Fugitive Dust Suppression?
Traffic Control	A traffic plan is required by the City and County of Broomfield and shall be coordinated with the local jurisdiction prior to commencement of move in and rig up. Any subsequent modification to the traffic plan must be coordinated with the local jurisdiction.
General Housekeeping	Maintain appearance with garbage clean-up; a trash bin will be located on site to accumulate waste by the personnel drilling the wells. Site will have unused equipment, trash and junk removed immediately and legally disposed of as applicable. Why not language of BMP #34, especially no burn requirement
Storm Water/Erosion Control	Implement and maintain BMPs to control stormwater runoff in a manner that minimizes erosion, transport of sediment offsite, and site degradation. Co-locate flowlines and/or gathering lines whenever feasible, and mitigate any erosion problems that arise due to the construction of any gathering lines. Location will be covered under Extraction Oil & Gas's field wide permit, permit number COR03M013. Typical stormwater BMPs installed include a diversion ditch and berm with sediment traps and installation of wattles where necessary.

Comment [LD4]: This item aligns with BMP #37. BMP 41 is broader as it is related to wastewater and waste management.

	Please see the attached Stormwater and Management Plan. Need to make sure plan attached? Why this plan and not other? Why not the other language of BMP #41?
Material Handling And Spill Prevention	Leak Detention Plan: Extraction will monitor production facilities weekly at a minimum to a maximum of daily to identify fluid leaks, including, but not limited to, visually inspecting all wellheads, tanks and fittings. Additionally annual SPCC inspections will be conducted and documented. Annual flowline testing will also occur according to COGCC rules 1101 and 1102. Inspection and record retention of flowline testing will be in accordance per COGCC regulation. All records will be made available to the COGCC upon request.
Dust control	805.c. Operator shall employ practices for control of fugitive dust caused by their operations. Such practices shall include but are not limited to the use of speed restrictions, regular road maintenance, restriction of construction activity during high- wind days, and silica dust controls when handling sand used in hydraulic fracturing operations. Additional management practices such as road surfacing, wind breaks and barriers may be used.
Construction	803. Permanent lighting will be installed around the facility to allow both the operator and haulers to conduct safe operations at night. All lights will be directed downward, inward and shielded so light pollution is minimized. During the Drilling and Completion Phases, consistent with applicable law, Operator will construct a 32 foot perimeter wall surrounding the well pads and operations area, as permitted, to reduce light escaping from the site.
Construction	Base beams will be used and not guy line anchors.
Construction	Containment Berms. The Operator shall utilize steel-rim berms around all permanent facility equipment at the Well Sites with sufficient capacity to contain 1.5 times the maximum volume of all liquids that will be contained at a facility at any given time plus sufficient freeboard to prevent overflow. All berms and containment devices shall be inspected quarterly by the Operator and maintained in good condition. No potential ignition sources shall be installed inside the secondary containment area unless the containment area encloses a fired vessel or such sources are rated in accordance with industry

Comment [LD5]: This section should include verbiage/plans including: BMP #s 13 Chemical Disclosure and Storage, BMP#24 Flammable Material, #41 Wastewater and Waste Management, and BMP #52 Spills

	codes and standards. Secondary containment such as duck ponds or lined earthen berms for temporary tanks shall also be used. A. Permanent containment berms shall be constructed of steel rings, designed and installed to prevent leakage and resist degradation from erosion or routine operation. B. Secondary containment for tanks shall be constructed with a synthetic or engineered liner that contains all primary containment vessels and is mechanically connected to the steel ring to prevent leakage. C. For locations within five hundred (500) feet and up-gradient of a surface water body, tertiary containment, such as an earthen berm, is required around production facilities.
Noise Mitigation	Quiet Technology. The Operator agrees to use the Liberty Quiet Fleet or comparable technology from an alternative vendor on all Well Sites.
Noise Mitigation	Thirty-two foot sound walls will be used during drilling and completion operations. Sound walls will be installed on the edges impacting nearest neighbors. Interchange – Northwest, southwest, and south edges of the pad. Livingston – Sound walls will wrap the pad except for the southwest corner. United – Sound walls will be placed on the northeast corner. NWA – Sound walls will be placed on the west, south, and south-east corner edges of the pad. NWB – Sound walls will be placed on the southwest, south, and southeast edges of the pad.
Noise Mitigation	Baseline noise monitoring will be conducted prior to commencement of pad construction. Additional sound mitigation measures will be considered and implemented pursuant to third party recommendations. All noise survey data will be made available to the COGCC inspector upon request. The Operator shall continuously monitor noise and continuously collect and store noise readings with instruments placed between the Oil and Gas Location and residential Building Units. The Operator shall conduct the monitoring and data collection during construction, drilling, and completions operations. This data shall be available to COGCC on tables or graphs within 48 hours of being requested by COGCC. The Operator shall conduct a 72 hour baseline noise survey from a minimum of three points prior to the commencement of construction.

Comment [AA6]: Only for Livingston. Will not be on the BMPs for the other pads.

Noise Mitigation	For the development wells, to provide long term noise mitigation at this location all production equipment will powered by electricity. If needed, sound mitigation panels will be installed around the compressors during production operations to shield sensitive areas.
Construction/Noise Mitigation	Electrified Drilling Rig - Extraction is working with United Power to supply sufficient electrical power for the drilling rig to drill the wells. Easements are being procured from the Landowners and the existing infrastructure is being upgraded in order to handle the larger electrical loads. While Extraction plans on drilling these wells on electrical power only, the rig will have diesel-powered generators in the event of an upset condition with the electrical supply from United Power. At that point, Extraction would use the diesel generators to power the rig until service from United Power was restored.
Emissions Mitigation	Operator will bring a new oil, gas, and water pipelines, in a timely manner, to send produced volumes immediately down the pipeline.
Emissions Mitigation	This location is designed without permanent tanks. Oil, Gas, and produced water will be transported through a pipeline gathering to a Central Gathering Facility. Saleable gas will not be flared, it will be sent downline. For maintenance or upset conditions the use of a maintenance vessel and emission control devices will be utilized.
Emissions Mitigation	Green Completions - Emission Control System. Test separators and associated flow lines and sand traps shall be installed on-site to accommodate green completions techniques pursuant to COGCC Rules.
Emissions Mitigation	Leak Detention Plan: Operator will monitor production facilities weekly at a minimum to a maximum of daily to identify fluid leaks, including, but not limited to, visually inspecting all wellheads and equipment. As part of Extraction's Leak Detection and Repair (LDAR) program, all equipment including above ground flowlines and piping will be inspected quarterly with an infra-red camera for the first 5 years of production.
Odor mitigation	805. Oil & gas facilities and equipment shall be operated in such a manner that odors do not constitute a nuisance or hazard to public welfare. Extraction will use a mud cooling system to control the release of odors within the drilling and fracturing fluids. Odor preventing additives will be on site for use if and when needed. Extraction will use a base fluid that will decrease the measurable BTEX and aromatic properties by more than 50% of regular diesel. Operator is prohibited from masking odors from any oil and gas facility site by using masking fragrances. Why not language of #48?

Comment [LD7]: This section should include what is required in BMP #20.

Comment [AA8]: The maintenance vessel is replacing the maintenance tank to reduce emissions. It will be permanent.

Comment [LD9]: Should include requirements in BMP #21

Comment [LD10]: Should include requirements from BMP #48

Drilling/Completions Operations	All fresh water for completions shall be transported to the well site via temporary water lines.
Drilling/Completions Operations	BOPE testing for drilling operations. Upon initial rig-up and at least once every thirty (30) days during drilling operations thereafter, pressure testing of the casing string and each component of the blowout prevention equipment including flange connections shall be performed to seventy percent (70%) of working pressure or seventy percent (70%) of the internal yield of casing, whichever is less. Pressure testing shall be conducted and the documented results shall be retained by the operator for inspection by the Director for a period of one (1) year. Activation of the pipe rams for function testing shall be conducted on a daily basis when practicable.
Drilling/Completions Operations	Closed chamber drill stem tests shall be allowed. All other drill stem tests shall require approval by the Director. None planned for this well.
Drilling/Completions Operations	All loadlines shall be bull plugged or capped.
Drilling/Completions Operations	Closed-Loop Pitless Systems for the Containment and/or Recycling of Drilling Fluids. Wells shall be drilled, completed and operated using closed-loop pitless systems for containment and/or recycling of all drilling, completion, flowback and produced fluids. Operator shall recycle fluids to the maximum extent practicable.
Interim Reclamation	Operator shall be responsible for segregating the topsoil, backfilling, re-compacting, reseeding, and re-contouring the surface of any disturbed area so as not to interfere with Owner's operations and shall reclaim such area to be returned to pre-existing conditions as best as possible with control of all noxious weeds.
Final Reclamation	Within 90 days subsequent to the time of plugging and abandonment of the entire site, superfluous debris and equipment shall be removed from the site. Identification of plugged and abandoned wells will be identified pursuant to 319.a.(5) Why not language of BMPs 34 & 35? Why 90 days when #35 says 30 days? Why not include requirement of submittal of final plan (BMP #49)
Final Reclamation	The operator shall identify the location of the wellbore with a permanent monument as specified in Rule 319.a.(5). The operator shall also inscribe or imbed the well number and date of plugging upon the permanent monument

Why are we not including all or part of the following:

Comment [LD11]: There is no mention of water quality (other than stormwater). The requirements in BMP #26 should be included. In addition, the requirements associated with risk management are also not included. The requirements in BMP #55 should be included.

Discharge valves (BMPs, #16)

Automatic Safety Protective systems #56

Flares and combustion devices (#25)

Removal of Debris #34 – why only reference to debris related to P&A. Why not the rest of #34?

#19(G) is probably worth putting in

Chemical disclosure and storage #13

#32 Flowlines

#17 Fugitive Dust suppression

#10 Anchoring

#31 Noise mitigation

#21 why not provisions A, C

#3 use of pipelines

#50 Well integrity

#49 Reclamation

#36 Plugged and decommissioned well testing