

MAIL TO:

Division of Water Quality
Utah Department of Environmental Quality
Salt Lake City, Utah 84114-4870

Application No.: _____
Date Received: _____
(leave both lines blank)

UTAH GROUND WATER DISCHARGE PERMIT APPLICATION

Part A - General Facility Information Please read and follow carefully the instructions on this application form. Please type or print, except for signatures. This application is to be submitted by the owner or operator of a facility having one or more discharges to groundwater. The application must be signed by an official facility representative who is: the owner, sole proprietor for a sole proprietorship, a general partner, an executive officer of at least the level of vice president for a corporation, or an authorized representative of such executive officer having overall responsibility for the operation of the facility.

1. Administrative Information. Enter the information requested in the space provided below, including the name, title and telephone number of an agent at the facility who can answer questions regarding this application.

Facility Name: _Crown Asphalt Ridge
Mail Address: 1245 East Brickyard Road
Suite 110
Salt Lake City, Utah 84106
Facility Legal Location* Uinta County, Tract A, T. 4 S., R. 21 E., SLBM, W¹/₂ SE¹/₄ & SE¹/₄ SE¹/₄ of Section 30
W¹/₂ NE¹/₄ & SE¹/₄ NE¹/₄ of Section 31
NE¹/₄ NE¹/₄ of Section 31
Tract B: Township 4 South, Range 21 East, SW¹/₄ of Section 32
Tract D: Township 4 South, Range 20 East, S¹/₂ NE¹/₄ & N¹/₂ SE¹/₄ of Section 23
S¹/₂ NW¹/₄ & N¹/₂ SW¹/₄ of Section 24

Containing 760 acres, more or less (280 Tract A; 160 tract B; 320 Tract D).
See Figure 1 for the location of the facility and other relevant features/objects. *Note: A topographic map or detailed aerial photograph should be used in conjunction with a written description

Contact's Name: Jon Schulman Phone No.:(801) 943-4144
Title: Environmental Engineer JBR Environmental Consultants, Inc.

2. Owner/Operator Information. Enter the information requested below, including the name, title, and phone number of the official representative signing the application.

Owner Name: Soung Joon Kim, Crown Asphalt Ridge Phone No.:(801) 466-4131
Mail Address: 1245 East Brickyard Road
Salt Lake City, Utah 84106
Operator Name: same as owner

Official Representative Name: Jon Schulman Phone No.:(801) 943-4144
Title: Environmental Engineer, JBR Environmental Consultants, Inc.

3. Facility Classification (check one)

New Facility Existing Facility Modification of Existing Facility

4. **Type of Facility** (check one)

Industrial Mining Municipal Agricultural Operation Other, please describe:
Oil sands mining and processing plant. Initially a pilot plant.

5. **SIC/NAICS Codes: NAICS 211 Oil and Gas Extraction [211111 Crude Petroleum & Natural Gas Extraction, Crude Petroleum from Oil Sands]**

Enter Principal 3 Digit Code Numbers Used in Census & Other Government Reports

6. **Projected Facility Life: if pilot is successful, projected life is 10-20 years, otherwise < 1 year**

7. **Identify principal processes used, or services performed by the facility. Include the principal products produced, and raw materials used by the facility: see attached**

8. **List all existing or pending Federal, State, and Local government environmental permits:**

Permit Number

NPDES or UPDES (discharges to surface water) Storm water permit

CAFO (concentrated animal feeding operation)

UIC (underground injection of fluids)

RCRA (hazardous waste)

PDS (air emissions from proposed sources)

Pending

Construction Permit (wastewater treatment)

Solid Waste Permit (sanitary landfills, incinerators)

Septic Tank/Drainfield

Other, specify:

Uintah County Conditional Use Permit,
DOGM Large Mining Permit M0470032

9. Name, location (Lat. _____ ° _____ ' _____ "N, Long. _____ ° _____ ' _____ "W) and description of: each well/spring (existing, abandoned, or proposed), water usage(past, present, or future); water bodies; drainages; well-head protection areas; drinking water source protection zones according to UAC 309600; topography; and man-made structures within one mile radius of the point(s) of discharge site. Provide existing well logs (include total depth and variations in water depths).

See Attached

Name Location Description Status Usage

The above information must be included on a plat map and attached to the application.

Part B - General Discharge Information

Complete the following information for each point of discharge to ground water. If more than one discharge point exists, photocopy and complete this Part B form for each discharge point.

1. Location (if different than Facility Location in Part A):

County: Uintah T. 4S , R. 21E , Sec. 30 ,
 1/4 of SE 1/4,
Lat. 40 ° 26 ' _____ "N. Long. 109 ° 35.9 ' _____ "W

2. Type of fluid to be Discharged or Potentially Discharged

(check as applicable)

Discharges (fluids discharged to the ground)

- Sanitary Wastewater: wastewater from restrooms, toilets, showers and the like
- Cooling Water: non-contact cooling water, non contact of raw materials, intermediate, final, or waste products
- Process Wastewater: wastewater used in or generated by an industrial process
- Mine Water: water from dewatering operations at mines
- Other, specify: ground water seep into the mine

Potential Discharges (leachates or other fluids that may discharge to the ground)

- Solid Waste Leachates: leachates from solid waste impoundments or landfills
- Milling/Mining Leachates: tailings impoundments, mine leaching operations, etc.
- Storage Pile Leachates: leachates from storage piles of raw materials, product, or wastes
- Potential Underground Tank Leakage: tanks not regulated by UST or RCRA only
- Other, specify: _____

3. Discharge Volumes

For each type of discharge checked in #2 above, list the volumes of wastewater discharged to the ground or ground water. Volumes of wastewater should be measured or calculated from water usage. If it is necessary to estimate volumes, enclose the number in parentheses. Average daily volume means the average per operating day: ex. For a discharge of 1,000,000 gallons per year from a facility operating 200 days, the average daily volume is 5,000 gallons.

Discharge Type: Daily Discharge Volume all in units of (Average) (Maximum) estimated
 1 GPM see attached Figure2

4. Potential Discharge Volumes

For each type of potential discharge checked in #2 above, list the maximum volume of fluid that could be discharged to the ground considering such factors as: liner hydraulic conductivity and operating head conditions, leak detection system sensitivity, leachate collection system efficiency, etc. Attach calculation and raw data used to determine said potential discharge.

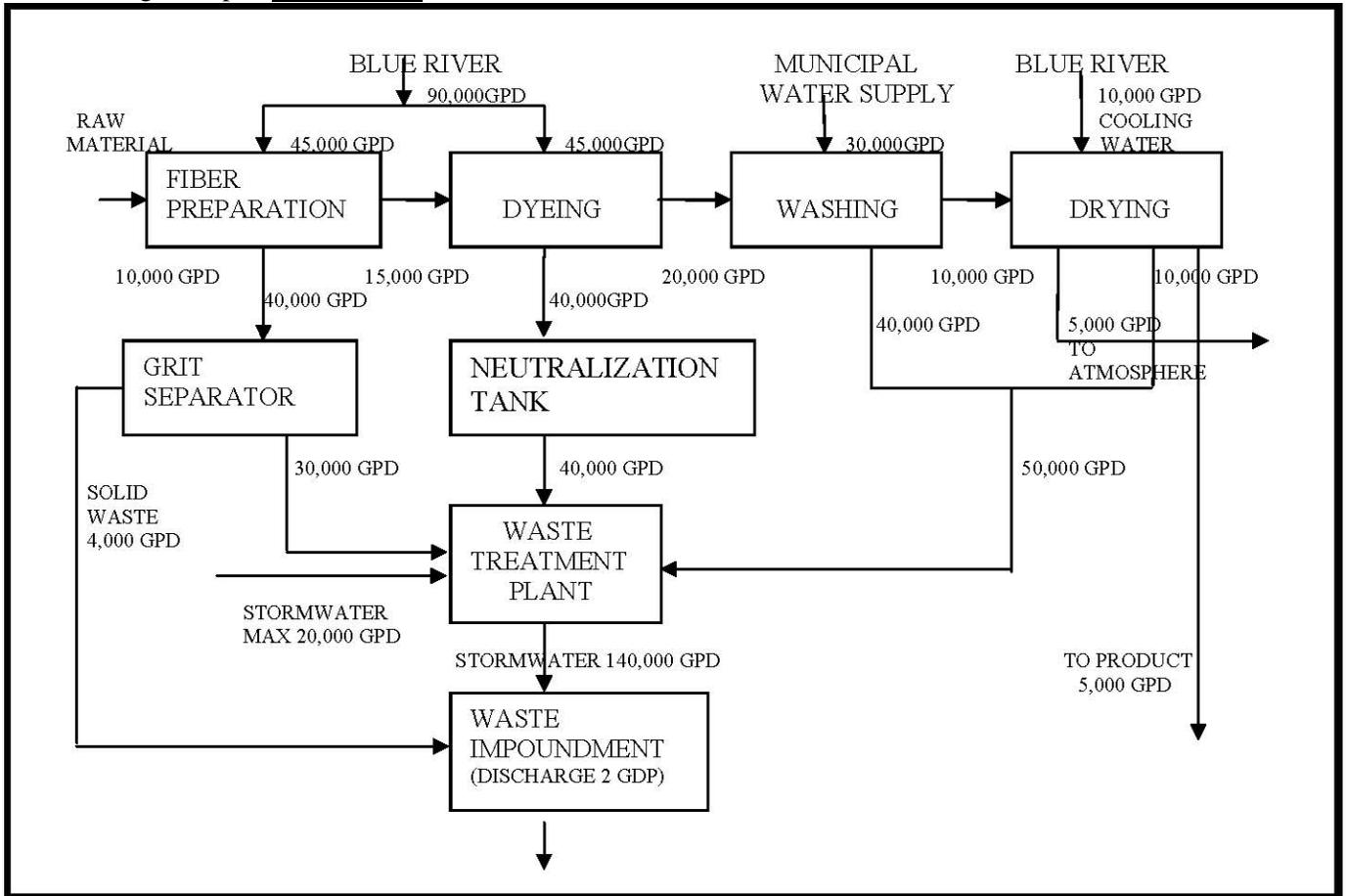
Discharge Type: Daily Discharge Volume all in units of (Average) (Maximum) Tailings
 leachate – draindown and leachate from precipitation will be collected for use in the process
 see attached

5. **Means of Discharge or Potential Discharge** (check one or more as applicable)

- lagoon, pit, or surface impoundment (fluids) industrial drainfield
- land application or land treatment underground storage tank
- discharge to an ephemeral drainage
- percolation/infiltration basin (dry wash, etc.)
- storage pile mine heap or dump leach landfill (industrial or solid wastes)
- mine tailings pond other, specify Mine seep to an unlined evaporation pond in the open mine pit ; for tailings see attached response to previous item

6. **Flows, Sources of Pollution, and Treatment Technologies**

Flows. Attach a line drawing showing: 1) water flow through the facility to the ground water discharge point, and 2) sources of fluids, wastes, or solids which accumulate at the potential ground water discharge point. Indicate sources of intake materials or water, operations contributing wastes or wastewater to the effluent, and wastewater treatment units. Construct a water balance on the line drawing by showing average flows between intakes, operations, treatment units, and wastewater outfalls. If a water balance cannot be determined, provide a pictorial description of the nature and amount of any sources of water and any collection or treatment measures. See the following example. **See Figure 4**



7. **Discharge Effluent Characteristics** Established and Proposed Ground Water Quality Standards - Identify wastewater or leachate characteristics by providing the type, source, chemical, physical, radiological, and toxic characteristics of wastewater or leachate to be discharged or potentially discharged to ground water (with lab analytical data if possible). This should include the discharge rate or combination of discharges, and the expected concentrations of any pollutant (mg/l). If more than one discharge point is used, information for each point must be provided. **See attached**

Hazardous Substances - Review the present hazardous substances found in the Clean Water Act, if applicable. List those substances found or believed present in the discharge or potential discharge. **Not applicable**

Part C - Accompanying Reports and Plans

The following reports and plans should be prepared by or under the direction of a professional engineer or other ground water professional. Since ground water permits cover a large variety of discharge activities, the appropriate details and requirements of the following reports and plans will be covered in the pre-design meeting(s). For further instruction refer to the Ground Water Permit Application Guidance Document.

8. Hydrogeologic Report

Provide a Geologic Description, with references used, that includes as appropriate:

Structural Geology – regional and local, particularly faults, fractures, joints and bedding plane joints;

Stratigraphy – geologic formations and thickness, soil types and thickness, depth to bedrock;

Topography – provide a USGS MAP (7 ½ minute series) which clearly identifies legal site location boundaries, indicated 100 year flood plain area and applicable flood control or drainage barriers and surrounding land uses.

Provide a Hydrologic Description, with references used, that includes: Ground water – depths, flow directions and gradients. Well logs should be included if available. Include name of aquifer, saturated thickness, flow directions, porosity, hydraulic conductivity, and other flow characteristics, hydraulic connection with other aquifers or surface sources, recharge information, water in storage, usage, and the projected aerial extent of the aquifer. Should include projected ground water area of influence affected by the discharge. Provide hydraulic gradient map indicating equal potential head contours and ground water flow lines. Obtain water elevations of nearby wells at the time of the hydrologic investigation. Collect and analyze ground water samples from the uppermost aquifer which underlies the discharge point(s). Historic data can be used if the applicant can demonstrate it meets the requirements contained within this section. Collection points should be hydraulically up and downgradient and within a one-mile radius of the discharge point(s). Ground water analysis should include each element listed in Ground Water Discharge Permit Application, Part B7. **NOTE** Failure to analyze for background concentrations of any contaminant of concern in the discharge or potential

discharge may result in the Executive Secretary's presumptive determination that zero concentration exist in the background ground water quality. Sample Collection and Analysis Quality assurance – sample collection and Preservation must meet the requirements of the EPA RCRA Technical Enforcement Guidance Document, OSWER-9959.1, 1986 [UAC R317-6-6.3(L,6)]. Sample analysis must be performed by State of Utah certified laboratories and be certified for each of the parameters of concern. Analytical methods should be selected from the following sources [UAC R317-6-6.3L]: (Standard Methods for the Examination of Water and Wastewater, 20th Ed., 1998; EPA, Methods for Chemical Analysis of Water and Wastes, 1983; Techniques of Water Resources Investigation of the U.S. Geological Survey, 1998, Book 9; EPA Methods published pursuant to 40 CFR Parts 141, 142, 264 (including Appendix IX), and 270. Analytical methods selected should also include minimum detection limits below both the Ground Water Quality Standards and the anticipated ground water protection levels. Data shall be presented in accordance of accepted hydrogeologic standards and practice.

Provide Agricultural Description, with references used, that includes: If agricultural crops are grown within legal boundaries of the site the discussion must include: types of crops produced; soil types present; irrigation system; location of livestock confinement areas (existing or abandoned).

Note on Protection Levels:

After the applicant has defined the quality of the fluid to be discharged (Ground Water Discharge Permit Application, Part B), characterized by the local hydrogeologic conditions and determined background ground water quality (Hydrogeologic Report), the Executive Secretary will determine the applicable ground water class, based on: 1) the location of the discharge point within an area of formally classified ground water, or the background value of total dissolved solids. Accordingly, the Executive Secretary will determine applicable protection levels for each pollutant of concern, based on background concentrations and in accordance with UAC R317-6-4.

9. Ground Water Discharge Control Plan:

Select a compliance monitoring method and demonstrate an adequate discharge control system. Listed are some of the Discharge Control Options available.

No Discharge – prevent any discharge of fluids to the ground water by lining the discharge point with multiple synthetic and clay liners. Such a system would be designed, constructed, and operated to prevent any release of fluids during both the active life and any post-closure period required.

Earthen Liner – control the volume and rate of effluent seepage by lining the discharge point with a low permeability earthen liner (e.g. clay). Then demonstrate that the receiving ground water, at a point as close as practical to the discharge point, does not or will not exceed the applicable class TDS limits and protection levels* set by the Executive Secretary. This demonstration should also be based on numerical or analytical saturated or unsaturated ground water flow and contaminant transport simulations.

Effluent Pretreatment – demonstrate that the quality of the raw or treated effluent at the point of discharge or potential discharge does not or will not exceed the applicable ground water class TDS limits and protection levels* set by the Executive Secretary.

Contaminant Transport/Attenuation – demonstrate that due to subsurface contaminant transport mechanisms at the site, raw or treated effluent does not or will not cause the receiving ground water, at a point as close as possible to the discharge point, to exceed the applicable class TDS limits and protection levels* set by the Executive Secretary.

Other Methods – demonstrate by some other method, acceptable to the Executive Secretary, that the ground water class TDS limits and protection levels* will be met by the receiving ground water at a point as close as practical to the discharge point.

*If the applicant has or will apply for an alternate concentration limit (ACL), the ACL may apply instead of the class TDS limits and protection levels.

Submit a complete set of engineering plans and specifications relating to the construction, modification, and operation of the discharge point or system. Construction Permits for the following types of facilities will satisfy these requirements. They include: municipal waste lagoons; municipal sludge storage and on-site sludge disposal; land application of wastewater effluent; heap leach facilities; other process wastewater treatment equipment or systems.

Facilities such as storage piles, surface impoundments and landfills must submit engineering plans and specifications for the initial construction or any modification of the facility. This will include the design data and description of the leachate detection, collection and removal system design and construction. Provide provisions for run on and run-off control.

10. **Compliance Monitoring Plan:** The applicant should demonstrate that the method of compliance monitoring selected meets the following requirements:

Ground Water Monitoring – that the monitoring wells, springs, drains, etc., meet all of the following criteria: is completed exclusively in the same uppermost aquifer that underlies the discharge point(s) and is intercepted by the upgradient background monitoring well; is located hydrologically downgradient of the discharge point(s); designed, constructed, and operated for optimal detection (this will require a hydrogeologic characterization of the area circumscribed by the background sampling point, discharge point and compliance monitoring points); is not located within the radius of influence of any beneficial use public or private water supply; sampling parameters, collection, preservation, and analysis should be the same as background sampling point; ground water flow direction and gradient, background quality at the site, and the quality of the ground water at the compliance monitoring point.

Source Monitoring – must provide early warning of a potential violation of ground water protection levels, and/or class TDS limits and be as or more reliable, effective, and determinate than a viable ground water monitoring network.

Vadose Zone Monitoring Requirements – Should be: used in conjunction with source monitoring; include sampling for all the parameters required for background ground water quality monitoring; the application, design, construction, operation, and maintenance of the monitoring system should conform with the guidelines found in: Vadose Zone Monitoring for Hazardous Waste Sites; June 1983, KT-82018(R).

Leak Detection Monitoring Requirements – Should not allow any leakage to escape undetected that may cause the receiving ground water to exceed applicable ground water protection levels during the active life and any required post-closure care period of the discharge point. This demonstration may be accomplished through the use of numeric or analytic, saturated or unsaturated, ground water flow or contaminant transport simulations, using actual field data or conservative assumptions. Provide plans for daily observation or continuous monitoring of the observation sump or other monitoring point and for the reporting of any fluid detected and chemical analysis thereof.

Specific Requirements for Other Methods – Demonstrate that: the method is as or more reliable, effective, and determinate than a viable ground water monitoring well network at detecting any violation of ground water protection levels or class TDS limits, that may be caused by the discharge or potential discharge; the method will provide early warning of a potential violation of ground water protection levels or class TDS limits and meets or exceeds the requirements for vadose zone or leak detection monitoring.

Monitoring well construction and ground water sampling should conform to A Guide to the Selection of Materials for Monitoring Well Construction. Sample collection and preservation, should conform to the EPA RCRA Technical Enforcement Guidance Document, OSWER-9950.1, September, 1986. Sample analysis must be performed by State-certified laboratories by methods outlined in UAC R317-6-6.3L. Analytical methods used should have minimum detection levels which meet or are less than both the ground water quality standards and the anticipated protection levels.

11. Closure and Post Closure Plan: The purpose of this plan is to prevent ground water contamination after cessation of the discharge or potential discharge and to monitor the discharge or potential discharge point after closure, as necessary. This plan has to include discussion on: liquids or products, soils and sludges; remediation process; the monitoring of the discharge or potential discharge point(s) after closure of the activity.

12. Contingency and Corrective Action Plans: The purpose of this Contingency plan is to outline definitive actions to bring a discharge or potential discharge facility into compliance with the regulations or the permit, should a violation occur. This applies to both new and existing facilities. For existing facilities that may have caused any violations of the Ground Water Quality Standards or class TDS limits as a result of discharges prior to the issuance of the permit, a plan to correct or remedy any contaminated ground water must be included.

Contingency Plan – This plan should address: cessation of discharge until the cause of the violation can be repaired or corrected; facility remediation to correct the discharge or violation.

Corrective Action Plan – for existing facilities that have already violated Ground Water Quality Standards, this plan should include: a characterization of contaminated ground water; facility remediation proposed or ongoing including timetable for work completion; ground water remediation.

Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Jon Schulman, Environmental Engineer, JBR Environmental Consultants, Inc 801.943.4144

NAME & OFFICIAL TITLE (type or print) PHONE NO. (area code & no.)

SIGNATURE

DATE SIGNED