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# State of Utah

## DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER  
Executive Director

### Division of Oil, Gas and Mining

JOHN R. BAZA  
Division Director

April 16, 2014

William C. Gibbs  
Green River Resources Inc.  
4760 South Highland Drive, #341  
Salt Lake City, Utah 84117

Subject: First Review of Notice of Intention to Commence Large Mining Operations, Green River Resources Inc. Bruin Point Mine, Carbon County, Utah, M0070040, Carbon County, Utah

Dear Mr. Gibbs:

The Division of Oil, Gas and Mining (Division) has completed a review of the referenced Notice of Intention to Commence Large Mining Operations (NOI) which was received March 4, 2014. The attached comments will need to be addressed before tentative approval may be granted.

The comments are listed under the applicable Minerals Rule heading; please format your response in a similar fashion. Please address only those items requested in the attached technical review by sending replacement pages of the original mining notice using redline and strikeout text. After the notice is determined technically complete, the Division will ask that you submit two clean copies of the complete and corrected plan. Upon final approval, both copies will be stamped approved, and one will be returned for your records.

The Division has the following general comments:

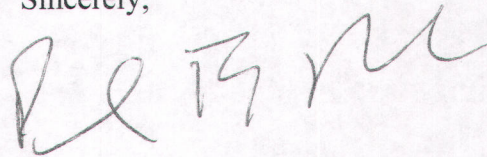
1. The submittal should be formatted to easily incorporate additional revisions and amendments.
2. The Division may have additional comments based on the responses to this review.

The Division requests a response to this review by July 1, 2014.

First Review  
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April 16, 2014

The Division will suspend further review until receiving your response to this letter. Please contact Wayne Western at 801-538-5263 if you have questions about the review or if you would like to schedule a meeting to discuss it. Thank you for your cooperation.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. B. Baker', written in a cursive style.

Paul B. Baker  
Minerals Program Manager

PBB: whw: eb  
Attachment: Review  
cc: Dan Hall, DWQ  
P:\GROUPS\MINERALS\WP\M007-Carbon\M0070040-BruinPointMine\final\Rev1-5973-04152014.docx

**FIRST REVIEW OF NOTICE OF INTENTION  
TO COMMENCE LARGE MINING OPERATIONS  
Green River Resources Inc.  
Bruin Point Mine  
M/007/0040  
April 16, 2014**

**General Comments:**

| Comment # | Sheet/Page/Map/Table # | Comments  | Initials | Review Action |
|-----------|------------------------|---|----------|---------------|
| 1         | General                | To allow the Division to utilize GIS capabilities in the evaluation, the Division requests that ESRI shape files be provided with 1) permit and project areas (or amended from comment below), 2) disturbance area footprints, 3) vegetation/wildlife survey areas, 4) vegetation transect /sampling points, and 5) seeps and springs inventory points. Other digital data may be requested as needed.  | mpb      |               |
| 2         | Appendix G             | The raw laboratory data found in Appendix G was extremely confusing to interpret. The analytical results presented in Tables 1 and 2 were reportedly for three samples of processed ore and one sample of raw tar sands. The analytical reports provided by America West Laboratories only reported results for three samples: 1A, B, C; 2 A, B, C; 3A, B, C. All were identified as "processed sands" on the Chain of Custody document. There was no analysis report for the raw tar sands sample. Furthermore, on Tables 1 and 2, samples were titled 001A, 003A, 005A, 007A, which were not the same identifier numbers on the lab reports. On top of that, none of the detected concentrations found in the lab reports matched the data that was presented in Tables 1 and 2.<br>Please clarify these laboratory analytical data results.  | aa       |               |
| 3         | Figure 1               | The use of the terms "permit area" and "project area" is confusing and difficult to apply to the regulations. As shown on several of the figures, the permit area is sometimes outside the project area and the project area is sometimes outside of the permit area.<br><br>The area covered by the Notice of Intention to Commence Large Mining Operations could properly be termed the permit area or the area upon which the operator has authority to conduct mining operations and which is covered under a reclamation surety. Mining operations, as defined in the rules, include surface effects of underground mining but does not include underground mining itself. Based on this definition, subsidence would be classified as part of the mining operation if there were surface effects. Rule R647-4-105.5 requires an underground development map.<br><br>Please modify the text and the maps to clearly show the permit area. The term "project area," if used, needs to be defined. | whw      |               |
| 4         | Figure 12              | Please overlay the disturbed areas with the watershed boundary line.  | aa       |               |

**R647-4-104 - Filing Requirements and Review Procedures**

| Com<br>ment<br># | Sheet/Page/<br>Map/Table<br># | Comments   | Initials | Review<br>Action |
|------------------|-------------------------------|--|----------|------------------|
| 5                | Page 3                        | Item #3 on this page says there are no BLM leases, but item #11 says federal mining claims or lease numbers will be provided prior to the start of the project. Please clarify if there are any federal mine claims or leases in the permit area, meaning the area, both surface and subsurface, where mining operations would be conducted.<br><br>The Division understands that in the future the area might be expanded and that background information is included in the NOI that will include future expansion. However, the Division must know the boundaries for the approved NOI. | whw      |                  |

**R647-4-104 – Operator Information and Surface and Mineral Ownership**

| Com<br>ment<br># | Sheet/Page/<br>Map/Table<br># | Comments   | Initials | Review<br>Action |
|------------------|-------------------------------|--|----------|------------------|
| 6                | Appendix D                    | Please include a summary sheet that lists the surface and mineral owners on the permitted and surrounding areas. The information in Appendix D is difficult to decipher. | whw      |                  |

**R647-4-105 - Maps, Drawings & Photographs**

**General Map Comments**

| Com<br>ment<br># | Sheet/Page/<br>Map/Table<br># | Comments   | Initials | Review<br>Action |
|------------------|-------------------------------|--|----------|------------------|
| 7                | Figures 1, 2, 5, 7 and 8      | Figures 1, 2, 5, 7 and 8 have topographic lines on the maps but the lines are not marked. Please include elevations for the topographic lines.   | whw      |                  |
| 8                | Figure 4                      | The contours do not contrast well with the background image. Please fade the background image back ~50 percent. Label index contours and differentiate from minor contours (bolder index, or thinner minor). | mpb      |                  |

**105.1 - Topographic base map, boundaries, pre-act disturbance**

| Com<br>ment<br># | Sheet/Page/<br>Map/Table<br># | Comments   | Initials | Review<br>Action |
|------------------|-------------------------------|--|----------|------------------|
| 9                | Figure 3                      | Please list the surface and mineral ownership on Figure 3.   | whw      |                  |
| 10               | Figure 3                      | Please have the colors on the legend match the colors on the maps. The problem might be that the base map has a color that alters the colors used to show land ownership.  | whw      |                  |
| 11               | Figure 2                      | Please show the actual location of the town of Sunnyside and highlight the route(s) that can be used to access the site.   | whw      |                  |
| 12               | Figure 1                      | Please list in the text if there are any perennial streams, springs and other bodies of water, roads, buildings, landing strips, electrical transmission lines, water wells, oil and gas pipelines, existing wells, boreholes, or other existing surface or subsurface | whw      |                  |

|    |  |  |     |  |
|----|--|--|-----|--|
|    |  | facilities within 500 feet of the proposed mining operations   |     |  |
| 13 |  | Please show the location of all mining activities that have been conducted in and near the permit area. Any previous disturbance needs to be documented. | whw |  |
| 14 |  | Please include a map that shows the extent of underground workings and the approximate acreage of the underground area.                                  | whw |  |

**105.2 - Surface facilities map**

| Comment # | Sheet/Page/Map/Table #                         | Comments  | Initials | Review Action |
|-----------|--|---|----------|---------------|
| 15        | Figure 5 and Appendix H and page 10, 11 and 58 | Please make sure that all items listed in the bond are shown by the same name on the surface facilities map and in the text. Some items missing from the bond include the material conveyor and the communications tower. Also the warehouse is listed on page 10 as a warehouse and maintenance shop. Please include the change house, substation, and fan house.  | whw      |               |
| 16        | Figures 7 & 8, possibly others                 | The 26-acre facilities location is a geometric square, much of which is located on a ridge. This outline, as measured from the scale on these maps, is approximately 24 plus acres and shows structures almost out to the edges of it. It appears this outline does not adequately account for the total disturbance created by the cut and fill slopes needed to construct this pad. At the scale on these figures, it is also not clear if this applies to the portal area. Please clarify with plan drawings including contours showing the grade and extent of disturbance created by the cut and fill slopes for these areas. Please include section drawings of these areas. Adjust the total disturbed area acreages if necessary. | mpb      |               |

**105.3 - Drawings or Cross Sections (slopes, roads, pads, etc.)**

| Comment # | Sheet/Page/Map/Table # | Comments   | Initials | Review Action |
|-----------|------------------------|--|----------|---------------|
| 17        | Figure 6               | Please identify the "W" at the bottom of the X-Section.  | mpb      |               |
| 18        | Omission               | Please provide a cross section showing the extent of the ore zone to be mined. Please depict the surface elevation, the ore zone elevations, Range Creek and any other important features necessary in this cross section. | aa       |               |
| 19        | Figure 13              | Contact between Tgu and Tgu should be shown as dashed, as shown in stratigraphic column.   | lah      |               |
| 20        | Figure 13              | Either include the symbol for strike and dip on the map or a note on the orientation of the bedding on the legend if the stratigraphy is flat lying.   | lah      |               |
| 21        | Figure 13              | Include a geologic cross section through the project area/ permit area.  | lah      |               |
| 22        | Figure 13              | Where the contact is inferred, please use dashes for approximate and dotted lines for inferred.  | lah      |               |
| 23        | Figure 13              | Include the location of the oil sands on the stratigraphic column and the geologic cross section. Use dashed and dotted lines as needed.   | lah      |               |

**R647-4-106 - Operation Plan**

**General Operation Comments**

| Comm | Sheet/Page/ | Comments | Initials | Review |
|------|-------------|----------|----------|--------|
|------|-------------|----------|----------|--------|

| ent # | Map/Table #                |  |     | Action |
|-------|----------------------------|--|-----|--------|
| 24    | Appendix D and Access Road | The Division was unable to locate the road maintenance agreement with Carbon County in Appendix D. Please provide a copy of the agreement. The road will need to be permitted and bonded unless it is a public road. | whw |        |

**106.2 - Type of operations conducted, mining method, processing etc.**

| Comment # | Sheet/Page/Map/Table # | Comments   | Initials | Review Action |
|-----------|------------------------|--|----------|---------------|
| 25        | Pg. 8                  | The plan says an adequate buffer will be maintained as underground mining approaches Range Creek. Please elaborate on what factors will determine what is considered an adequate buffer.   | aa       |               |
| 26        | Pg. 9                  | The underground mining plan states that the sorting waste and tailings will be disposed of in a permanent surface stockpile during the first six years of mine life. However, on Figure 5 the permanent tailings storage area shows only four years of storage (years 0-3). Please correct this discrepancy. | aa       |               |
| 27        | Page 14-para 4         | Include more information about the tailings. Specifically, address the geotechnical aspects of the tailings, include phreatic surface of the natural ground, tailings material, crushed size, moisture content, etc.; and also dam construction issues.  | lah      |               |

**106.3 - Estimated acreages disturbed, reclaimed, annually**

| Comment # | Sheet/Page/Map/Table # | Comments  | Initials | Review Action |
|-----------|------------------------|---|----------|---------------|
| 28        | Table 106.3.1          | Table 106.3.1 shows the total surface disturbed area under the proposed permit. Please include the proposed underground area acreage. | whw      |               |

**106.4 - Nature of materials mined, waste and estimated tonnages**

| Comment # | Sheet/Page/Map/Table # | Comments   | Initials | Review Action |
|-----------|------------------------|--|----------|---------------|
| 29        |                        | Please provide a table that shows the estimated annual production of product ore and waste product. A table was not apparent in Appendix G | whw      |               |

**106.5 - Existing soil types, location, amount**

| Comment # | Sheet/Page/Map/Table # | Comments  | Initials | Review Action |
|-----------|------------------------|---|----------|---------------|
| 30        | Appendix B             | Provide a soil survey report with analytical results. | mpb      |               |

**106.7 - Existing vegetation - species and amount**

| Comment # | Sheet/Page/Map/Table # | Comments  | Initials | Review Action |
|-----------|------------------------|---|----------|---------------|
| 31        | Appendix A, Fig 3      | Many of the transect and sampling points appear to be located outside the areas that will be disturbed and may not be representative of the vegetation cover values on the disturbed areas, but it is difficult to determine whether this is the case. Include an | mpb      |               |

|  |  |   |  |  |
|--|--|---|--|--|
|  |  | overlay of all proposed disturbed areas on this map. Supply a shape file as requested in General Comment 1 above. |  |  |
|--|--|---|--|--|

**106.8 - Depth to groundwater, extent of overburden, geology**

| Comment # | Sheet/Page/Map/Table # | Comments  | Initials | Review Action |
|-----------|------------------------|---|----------|---------------|
| 32        | Pg. 35                 | The description of drilling activities presented one monitoring well drilled to 1,035 feet yielding two gallons of water. None of the figures showed where this drill hole was located. Please add this drilling location to one of the figures.  | aa       |               |
| 33        | Pg. 36                 | More information is needed on the geology underlying the Green River Formation in the project area. Specifically, information is needed as to what formation the springs and seeps in the underlying rock formations identified in the spring and seep survey are originating from and what is the relative depth between the ore formation and the spring and seep-bearing formations. | aa       |               |
| 34        | Page 35                | The surface map refers to Colton and Flagstaff formations, and the text refers to the Wasatch formation. Please provide an explanation in the text.   | lah      |               |

**106.9 - Location & size of ore, waste, tailings, ponds**

| Comment # | Sheet/Page/Map/Table # | Comments  | Initials | Review Action |
|-----------|------------------------|---|----------|---------------|
| 35        | pg. 36                 | The plan indicates there will be two 30,000-ton stockpiles consisting of ore and temporary tailings adjacent to the processing plant as shown on Figure 5. A perimeter berm is planned as a hydrologic control for the processing area, which will include these stockpiles. The NOI needs to include geotechnical information providing design criteria that the berm will sufficiently contain these stockpiles in the event of an environmental hazard event that could release the tailings and ore stockpile materials to the Range Creek Canyon drainage. | aa       |               |

**R647-4-109 - Impact Assessment**

**109.1 - Impacts to surface & groundwater systems**

| Comment # | Sheet/Page/Map/Table # | Comments   | Initials | Review Action |
|-----------|------------------------|--|----------|---------------|
| 36        | Pg. 39                 | The third paragraph on this page states that annual precipitation is estimated at 12.5 inches with another 20 inches of snow. Snow is precipitation. An "average annual precipitation" value is a combination of rain and snow. The snow water equivalent is commonly about one inch of water for every ten inches of snow. So if read as-is, this paragraph basically says the average annual precipitation is about 14.5 inches (12.5 inches of rain and 2 inches of snow-water).<br>This estimate contradicts the precipitation values provided in Table 106.5.1 on page 17. The latest PRISM data also estimates annual precipitation at 23-25 inches. Please correct or explain the discrepancy and adjust accordingly any conclusions that may have been based on the original estimate. | mpb      |               |
| 37        | Pg. 39                 | The impact assessment identified springs and seeps as "sparse" in the general project  | aa       | .             |

|    |        |  |    |  |
|----|--------|--|----|--|
|    |        | <p>area vicinity. Two springs and a cluster of seeps were identified in the spring and seep report provided in Appendix C. These two springs were identified as North Spring with a May flow rate in the range of 0.045-0.094 cfs (20-42 gal/min). The second spring is Tributary Spring with an October flow rate of 0.010 cfs (4.5 gal/minute). These springs were reported to be used for stock watering and wildlife support.</p> <p>Range Creek becomes a perennial stream within the project boundary area.</p> <p>Range Creek has 3 point to point water rights associated with it.</p> <p>All of these water resources are located downstream of the mining operation. How will surface water downstream of the mine be protected from a possible failure of the valley fill tailings that will be stored in the Range Creek Road canyon? How will downstream water rights will be protected?</p> <p>An impact evaluation in this section is needed on how these receptors could be impacted by the mining operation and the mitigation measures that will be undertaken to address the impacts.</p> |    |  |
| 38 | Pg. 35 | The only groundwater studies performed for this project appear to be the installation of a single well and a spring and seep survey. The drillers log for this well hole did not identify the geology that was encountered. The Division of Water Quality Groundwater Discharge Permit Application was not included with the permit, so it was not clear if any additional studies have been completed. The Division cannot make an assessment of impacts to groundwater based on this information. A more comprehensive groundwater study to determine the impacts this operation, such as the Groundwater Discharge Permit Application, is needed.   | aa |  |
| 39 | Pg. 39 | Page 39 says the storm water pollution prevention plan (SWPPP) is in Appendix E, but this and other permits referenced on the cover page of Appendix E were not provided with the NOI. A SWPPP, or information that would be included in the SWPPP, is needed to evaluate how storm water will be routed around the disturbance area. It is noted that a surface water control plan was submitted as Figure 7; however it is not clear as to what design criteria were used for the diversion ditches, collector sumps, catchments, berms etc. in order to evaluate if these hydrologic features are capable of handling regional precipitation events. A draft copy of the SWPPP is acceptable.   | aa |  |
| 40 | Pg. 39 | The first paragraph in this section states that all disturbance areas will be within the Grassy Trail watershed. Please show an overlay of the proposed disturbance areas on Figure 12 with the watershed map to confirm the accuracy of this statement. See related comment in the general comments regarding Figure 12.  | aa |  |

**109.2 - Impacts to threatened & endangered wildlife/habitat**

| Comment # | Sheet/Page/Map/Table # | Comments   | Initials | Review Action |
|-----------|------------------------|--|----------|---------------|
| 41        | 109.2 at large         | The descriptions and conclusions drawn in the biology sections of the NOI address threatened, endangered, sensitive, and candidate (TESC) species "in the project area." This might seem to ignore the fact that the project is located at the head of the | mpb      |               |



|    |                             |  |     |  |
|----|-----------------------------|--|-----|--|
|    |                             | Range Creek watershed and that the effects of mining or the failure of the tailings dump could potentially have significant detrimental effects downstream, particularly to fish species.  |     |  |
| 42 | Page 42                     | Most of the project area is located in habitat identified by the Utah Division of Wildlife Resources (DWR) as crucial brood and winter habitat for the Greater sage grouse. DWR will review the project and provide preliminary comments separately. These comments may include requiring raptor and bat surveys, and possibly others.   | mpb |  |
| 43 | Page 44                     | The first sentence in the paragraph under Table 109.2.1 that draws a conclusion that no TESC species are likely to occur within the project area seems to contradict the rest of the paragraph.  | mpb |  |
| 44 | Page 45                     | This section does not say whether the coal-cliffs sweetvetch ( <i>Hedysarum occidentale</i> ) is present in the area or not, drawing no conclusion as to whether this species or its habitat will be disturbed.  | mpb |  |
| 45 | Page 45                     | A vague conclusion is provided for the giant hellebore ( <i>Epipactis gigantea</i> ). The habitat listing on Table 109.2.1 states that along with moist areas along Range Creek, it could also be present in spruce forest areas.  | mpb |  |
| 46 | Appendix A, Pg. 10, Table 6 | The Habitat Observations comment for the Uintah Basin hookless cactus ( <i>Sclerocactus wellandicus</i> ) was copied and pasted into the corresponding box for Graham beardtongue ( <i>Pestemon grahamii</i> ), with a curious addition of 100 feet to the known population elevation values as the only modification. Please provide a corrected remark for Graham beardtongue.   | mpb |  |
| 47 | General                     | The latest DWR threatened and endangered species occurrences data from May of 2013 indicates that the following species have had documented occurrences in the Bruin Point and Patmos Head Quads: Colorado River Cutthroat Trout ( <i>Oncorhynchus clarkii pleuriticus</i> ), Greater Sage Grouse ( <i>Centrocercus urophasianus</i> ), Northern goshawk ( <i>Accipiter gentilis</i> ), and Townsend's big-eared bat ( <i>Corynorhinus townsendii</i> ). Surveys appropriate to the season should be conducted to ensure these species are not present in proposed disturbed areas, or immediately downstream. | mpb |  |

**109.4 - Slope stability, erosion control, air quality, safety**

| Comm ent # | Sheet/Page/ Map/Table # | Comments   | Initials | Review Action |
|------------|-------------------------|--|----------|---------------|
| 48         | Pg. 53                  | The topsoil stockpiles are estimated to cumulatively contain approximately 220,000 cubic yards of material. The proposed berms for the topsoil stockpiles are designed to be two feet high and two feet wide and a 1.5H:1V slope. Please provide the engineering design calculations showing that these berms will contain this volume of topsoil in the event of a slope failure that could pose an environmental hazard to the Grassy Trail Creek watershed. | aa       |               |
| 49         | Omission                | On page 51, please discuss in text the issues regarding subsidence and the backfilling of tailings.  | lah      |               |
| 50         | Omission                | Include text on stability of the tailings area; include data to back up text. Include dam safety issues.   | lah      |               |

**R647-4-110 - Reclamation Plan**

**110.1 - Current & post mining land use**

| Comm ent # | Sheet/Page/ Map/Table | Comments | Initials | Review Action |
|------------|-----------------------|----------|----------|---------------|
|------------|-----------------------|----------|----------|---------------|

|    | #      |   |     |  |
|----|--------|---|-----|--|
| 51 | Pg. 55 | A cultural resources report was provided, but the NOI does not appear to have a delineated Appendix D as referenced on this page. | mpb |  |

**110.2 - Roads, highwalls, slopes, drainages, pits, etc., reclaimed**

| Comment # | Sheet/Page/Map/Table # | Comments  | Initials | Review Action |
|-----------|------------------------|---|----------|---------------|
| 52        |                        | Please show how all shafts and portals/audits will be closed.   | whw      |               |
| 53        |                        | Thank you for including dump-top rounding and toe extension in the regrading of slopes. (No response required.) | lah      |               |

**110.4 - Description or treatment/disposition of deleterious or acid forming material**

| Comment # | Sheet/Page/Map/Table # | Comments  | Initials | Review Action |
|-----------|------------------------|---|----------|---------------|
| 54        | Pg. 59 & Appendix F    | Due to its "proprietary" designation, the Material Safety Data Sheet (MSDS) provided for the Hydrocarbon Extraction Solvent is lacking information necessary to evaluate its potential deleterious impacts. The MSDS also contains several statements and requirements that are contradictory and raise alarms as to its true worker and environmental safety. A more thorough understanding of the constituents that make-up this material is required to determine the potential effects it may have on human health and safety, and the environment. When provided, this information can be marked "Confidential." | mpb      |               |
| 55        | Pg. 60                 | If stored on site in sufficient quantity until use in processing, the processing chemical should be included in the SPCC.   | mpb      |               |
| 56        | Appendix G             | Analytical data is provided for the processed sands that indicate there will be no residual bitumen or processing chemical in the processed sands disposed of in the tailings pile. These results are from controlled laboratory conditions. An ongoing QA/QC sampling and analysis plan needs to be implemented to ensure that the sands placed in the tailings pile are in fact clean and free of residual bitumen, oils and processing reagents.   | mpb      |               |

**110.5 - Revegetation planting program**

| Comment # | Sheet/Page/Map/Table # | Comments  | Initials | Review Action |
|-----------|------------------------|---|----------|---------------|
| 57        | Pgs. 60-63             | The planting program should include replanting appropriate tree species in previously-forested disturbed areas to help return these areas to the pre-disturbance hydrologic condition, assist in attaining the wildlife habitat/open space post-mining land use values for bird and big game species, and restore the ecologic and hydrologic quality of the Range Creek watershed and waters downstream. | mpb      |               |
| 58        | Table 110.5.2          | The seeding rate of 8.5 lbs/acre pure live seed (PLS) is too low. The rate should be increased to at least 14 lbs/acre PLS by increasing individual species seed rates and/or adding appropriate additional species to the species list.  | mpb      |               |

**R647-4-113 – Surety**

| Comment | Sheet/Page/ | Comments | Initials | Review |
|---------|-------------|----------|----------|--------|
|---------|-------------|----------|----------|--------|

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April 16, 2014

| #  | Map/Table # |  |     | Action |
|----|-------------|--|-----|--------|
| 59 | Appendix H  | Please include the cost to close the portals and the water well. | whw |        |
| 60 | Page 64     | Please include escalation year.                                  | whw |        |

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