NPDES PERMIT NO. NM0030848
FACT SHEET

FOR THE DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES

APPLICANT

City of Santa Fe
Buckman Direct Diversion
341 Caja Del Rio Road
Santa Fe, NM 87506

ISSUING OFFICE

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DATE PREPARED

May 6, 2014

PERMIT ACTION

Proposed reissuance of the current NPDES permit initially issued October 24, 2008, with an effective date of December 1, 2008, and an expiration date of November 30, 2013.

RECEIVING WATER – BASIN

Rio Grande

DOCUMENT ABBREVIATIONS

In the document that follows, various abbreviations are used. They are as follows:

4Q3	Lowest four-day average flow rate expected to occur once every three-years
BAT	Best available technology economically achievable
BCT	Best conventional pollutant control technology
BPT	Best practicable control technology currently available
BMP	Best management plan
BOD	Biochemical oxygen demand (five-day unless noted otherwise)
BPJ	Best professional judgment
CBOD	Carbonaceous biochemical oxygen demand (five-day unless noted otherwise)
CD	Critical dilution
CFR	Code of Federal Regulations
cfs	Cubic feet per second
COE	United States Corp of Engineers
CWA	Clean Water Act
DMR	Discharge monitoring report
ELG	Effluent limitation guidelines
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FCB	Fecal coliform bacteria
FWS	United States Fish and Wildlife Service
mg/l	Milligrams per liter
ug/l	Micrograms per liter
MG	Million gallons
MGD	Million gallons per day
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
NMIP	New Mexico NPDES Permit Implementation Procedures
NMWQS	New Mexico State Standards for Interstate and Intrastate Surface Waters
NPDES	National Pollutant Discharge Elimination System
MQL	Minimum quantification level
O&G	Oil and grease
POTW	Publically owned treatment works
RP	Reasonable potential
SS	Settleable solids
SIC	Standard industrial classification
s.u.	Standard units (for parameter pH)
SWQB	Surface Water Quality Bureau
TDS	Total dissolved solids
TMDL	Total maximum daily load
TRC	Total residual chlorine
TSS	Total suspended solids
UAA	Use attainability analysis
USGS	United States Geological Service
WLA	Wasteload allocation
WET	Whole effluent toxicity
WQCC	New Mexico Water Quality Control Commission
WQMP	Water Quality Management Plan
WWTP	Wastewater treatment plant

I. CHANGES FROM THE PREVIOUS PERMIT

Changes from the previous permit issued October 24, 2008, with an effective date of December 1, 2008, and an expiration date of November 30, 2013, are:

1. Influent TSS, SS and effluent TSS, SS are removed from the proposed permit based on no correlation among the data sets.
2. The daily monitoring requirement for Turbidity has been changed to weekly monitoring requirement based on past performance.
3. Electronic DMR requirements have been included in the proposed permit.
4. The New Mexico narrative standards for suspended and settleable solids have been established in the proposed permit.

II. APPLICANT LOCATION and ACTIVITY

As described in the application, the plant site is located at 341 Caja Del Rio Road, Santa Fe, Santa Fe County, New Mexico. Under the SIC Code 4941, the applicant operates a Water Treatment plant. This permitting action is specifically restricted to the discharge of materials back to the Rio Grande River by the BDD.

The Buckman Direct Diversion (BDD) project diverts water from the Rio Grande through a large intake structure to provide up to 15 MGD of drinking water to the City and County of Santa Fe. Diverted water is pumped from the river approximately 11 miles to the Buckman Regional Water Treatment Plant. Water intake operations occur at varying dates and times depending on variables such as river flow and upstream turbidity. After water is drawn through the intake structure, it travels to Building 2A where water is passed through a series (9 total) of gravity centrifuges or vortex turbines which run in parallel to remove sediments from the water. After passing through the gravity centrifuges, the water from which sediments have been removed continue through the drinking water process. The concentrated sediment effluent generated from the gravity centrifuge process is collected in a sump which is then batch discharged utilizing additional dilution water from the river. The discharge occurs at Outfall 001, which utilizes a submerged diffuser, into the river.

The sand (about 40 % of total sediment) is mechanically separated at the near-river removal facility and returned to the Rio Grande, which is expected to increase the sediment concentration (TSS) by less than 2%. The near-river diversion facilities consist of a raw water pump station and a co-located booster station and sediment removal facility

The discharge from the near-river facilities consists of sand-sized sediment removed from the diverted river water, return flow from the continuous samplers in the mechanical building, and water from the sumps in the raw water lift station.

The discharge is located at Latitude 35° 50' 10" North, Longitude 106° 9' 43" West. The discharge from the facility is to receiving waters named Rio Grande, in Waterbody Segment Code No. 20.6.4.114 of the Rio Grande Basin. The general and specific stream standards are provided in "New Mexico State Standards for Interstate and Intrastate Surface Waters," (20.6.4 NMAC, amended through June 5, 2013).

The known uses of the receiving water(s) are irrigation, livestock watering, wildlife habitat, marginal coldwater aquatic life, primary contact, and warmwater aquatic life; and public water supply on the main stem of the Rio Grande.

III. EFFLUENT CHARACTERISTICS

The pollutants shown in Table I below was obtained in Section C of the Permit Application Form 2C dated June 3, 2013. Section C of the permit form is a statistical summary of the monitoring data.

TABLE 1: OUTFALL 001 POLLUTANTS

Parameter	Max	Avg
	mg/l unless noted	
Flow, million gallons/day (MGD)	0.28	0.15
pH, minimum, standard units (SU)	7.7	
pH, maximum, standard units (SU)	8.7	
Turbidity, Downstream, NTU	778	53.07
Turbidity, Upstream, NTU	871	54.17
Total Suspended Solids (TSS)	9,500	964.4
Settleable Solids*, Ml/L	200	3.6
Nitrate plus Nitrite Nitrogen	1.8	0.95
Alpha, Total, pCi/L	3.64	3.118
Beta, Total, pCi/L	19.38	19.38
Radium, Total pCi/L	3.46	3.46
Radium 226, Total, pCi/L	1.0	1.0
Aluminum, Total, mg/L-dissolved	0.16	0.063
Barium, Total mg/L-dissolved	0.1	0.073
Boron, Total mg/L-dissolved	0.038	0.027
Cobalt, Total mg/L-dissolved	0.05	0.017
Iron, Total	0.11	0.074
Molybdenum, Total	0.01	0.0063
Manganese, Total	0.019	0.0106
Antimony, Total	0.01	0.0028
Arsenic, Total	0.0022	0.0018
Chromium, Total	0.01	0.0047
Copper, Total	0.0031	0.0016
Lead, Total	0.001	0.00042
Mercury, Total	0.000013	0.000009
Nickel, Total	0.0047	0.0013
Zinc, Total	0.03	0.019
1,1-Dichloroethylene	0.00028	0.0019
Ethylbenzene	0.00091	0.0019
Methyl Chloride	0.0019	0.0022
Methylene Chloride	0.0019	0.00249
Toluene	0.048	0.0098

Trichloroethylene	0.018	0.0050
Vinyl Chloride	0.0025	0.0018

Footnote

* Based on email from Mr. Shannon Jones dated 9/19/2013

The previous permit requires the permittee to conduct four quarterly samples during the first year that the facility discharges (2011). The Buckman Direct Diversion provided data from an additional two sampling events – one in 2010 during the testing period before formal operations began and one in August, 2012 to provide data to address public concerns. A total of six samples were collected, analyzed, and reported on DMRs. The averages of these six data sets (shown in Table 2 below) were used in determining the reasonable potential. In addition, the permittee re-sampled for PCBs because the conducted analysis in November, 2010 did not meet the permit requirements of EPA Method 1668A, and the other five analyses of PCBs sampling events indicated QA/QC problems, such as blank contaminations and recovery of internal standards outside the allowable limits. In addition to the six sampling events submitted as part of the permit application for Toxaphene, additional six sampling events for Toxaphene performed in March-April, 2014 was also submitted. The results of all these pollutants are shown in Table 2 below.

TABLE 2: OUTFALL 001 POLLUTANTS

Parameter	Max	Avg
	Ug/l unless noted	
Flow, million gallons/day (MGD)	0.28	0.15
Aluminum, dissolved	160	62.77
Barium, dissolved	81	56.65
Boron, dissolved	38.3	26.72
Cobalt, dissolved	25	8.605
Uranium, dissolved	2.98	1.795
Vanadium, dissolved	25	10.698
Ra-226 and Ra-228 (pCi/l)	3.46	1.621
Strontium (pCi/l)	0.55	0.329
Tritium (pCi/l)	391.29	126.649
Gross Alpha (pCi/l)	3.64	3.118
Asbestors (fibers/l)	29500000	7174000
Total Residual Chlorine	50	25
Nitrate as N (mg/l)	1.8	0.5187
Nitrite + Nitrate (mg/l)	1.8	0.90333
Antimony, dissolved	5	1.462
Arsenic, dissolved	2.2	1.805
Chromium, dissolved	5	2.867
Copper, dissolved	3.08	1.645
Lead, dissolved	1	0.338833
Manganese, dissolved	19	10.6
Mercury, dissolved	0.1	0.033667
Mercury, total	0.0131	0.007793

Parameter	Max	Avg
	Ug/l unless noted	
Molybdenum, dissolved	6.84	4.6067
Nickel, dissolved	4.71	1.25583
Silver, dissolved	1.06	0.1767
Thallium, dissolved	0.53	0.08833
Zinc, dissolved	30	15.76
Carbon Tetrachloride	5	0.83333
Clorodibromomethane	5	1.8333
Dichlorobromomethane	5	1.8393
1,1-Dichloroethylene	2.5	0.956
Ethylbenzene	2.5	1.0195
Methylene Chloride	2.5	1.43
Toluene	48	8.877
1,1,1-Trichloroethane	5	1.83
Trichloroethethylene	18	4.0956
Vinyl Chloride	2.5	1.125
Aldrin	0.1	0.0167
Alpha-BHC	0.1	0.0167
Beta-BHC	0.1	0.0167
Gamma-BHC	0.1	0.0167
Dieldrin	0.1	0.0167
Alpha-Endosulfan	0.1	0.03333
Beta Endosulfan	0.1	0.03333
Endosulfan sulfate	0.1	0.0167
Endrin	0.1	0.0167
Heptachlor	0.1	0.0167
Heptachlor Epoxide	0.1	0.0167
PCBs**	5.442E-05	5.348E-05
Toxaphene**	ND	ND
Dioxin	0.000001	0.0000004

Footnote:
** Based on 6 data sets submitted as part of the Permit application plus 6 additional samples for PCBs and Toxaphene submitted by the permittee in a letter dated April 16, 2014, & April 18, 2014 respectively.

IV. REGULATORY AUTHORITY/PERMIT ACTION

In November 1972, Congress passed the Federal Water Pollution Control Act establishing the NPDES permit program to control water pollution. These amendments established technology-based or end-of-pipe control mechanisms and an interim goal to achieve “water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water,” more commonly known as the “swimmable, fishable” goal. Further amendments in 1977 of the CWA gave EPA the authority to implement pollution control

programs such as setting wastewater standards for industry and established the basic structure for regulating pollutants discharges into the waters of the United States. In addition, it made it unlawful for any person to discharge any pollutant from a point source into navigable waters, unless a permit was obtained under its provisions. Regulations governing the EPA administered NPDES permit program are generally found at 40 CFR §122 (program requirements & permit conditions), §124 (procedures for decision making), §125 (technology-based standards) and §136 (analytical procedures). Other parts of 40 CFR provide guidance for specific activities and may be used in this document as required.

It is proposed that the permit be reissued for a 5-year term following regulations promulgated at 40 CFR §122.46(a). This is a renewal of an existing permit. An NPDES Application for a Permit to Discharge (Form 1 & 2C) was received on June 3, 2013, and was deemed administratively incomplete on December 11, 2013. The application was deemed administratively complete on January 29, 2014. Additional permit application information was received on January 14, 2014 and April 16, 2014.

V. DRAFT PERMIT RATIONALE AND PROPOSED PERMIT CONDITIONS

A. OVERVIEW OF TECHNOLOGY-BASED VERSUS WATER QUALITY STANDARDS-BASED EFFLUENT LIMITATIONS AND CONDITIONS

Regulations contained in 40 CFR §122.44 require that NPDES permit limits are developed that meet the more stringent of either technology-based effluent limitation guidelines, numerical and/or narrative water quality standard-based effluent limits, or the previous permit.

Technology-based effluent limitations are not established in the proposed draft permit. Water quality-based effluent limitations are established in the proposed draft permit for turbidity, pH,

B. TECHNOLOGY-BASED EFFLUENT LIMITATIONS/CONDITIONS

1. General Comments

Regulations promulgated at 40 CFR §122.44 (a) require technology-based effluent limitations to be placed in NPDES permits based on ELGs where applicable, on BPJ in the absence of guidelines, or on a combination of the two. In the absence of promulgated guidelines for the discharge, permit conditions may be established using BPJ procedures. EPA establishes limitations based on the following technology-based controls: BPT, BCT, and BAT. These levels of treatment are:

BPT - The first level of technology-based standards generally based on the average of the best existing performance facilities within an industrial category or subcategory.

BCT - Technology-based standard for the discharge from existing industrial point sources of conventional pollutants including BOD, TSS, fecal coliform, pH, and O&G.

BAT - The most appropriate means available on a national basis for controlling the direct

discharge of toxic and non-conventional pollutants to navigable waters. BAT effluent limits represent the best existing performance of treatment technologies that are economically achievable within an industrial point source category or subcategory.

2. Effluent Limitation Guidelines for TSS and Settleable Solids

There are currently no federal effluent limitation guidelines for a water treatment plant for water taken directly from a River. The Buckman Direct Diversion (BDD) mechanically removes sediment out of water taken directly from the Rio Grande, with no chemical treatment of sediment prior to discharge, limits established in this permits are based on BPJ of the permit writer.

In order to further evaluate the relationship of turbidity, TSS, and settleable solids associated with the discharge from this facility, the following data sets were plotted and analyzed: TSS versus downstream turbidity, TSS versus turbidity change, TSS versus SS, upstream SS versus change in SS, upstream TSS versus change in TSS; and upstream turbidity versus turbidity change, flow versus turbidity change, flow versus downstream turbidity, flow versus turbidity change, flow versus effluent TSS, SS versus turbidity change and SS versus down downstream turbidity. The plots of these data sets are shown in the attachment. Analyses of the plots show little or no correlations. The plot of TSS versus downstream turbidity shows an R^2 (coefficient of determination) of 0.4111. This implies that over a limited period, TSS increased with increased Turbidity. TSS has the ability to obstruct the transmittance of light in a water sample, when TSS concentration increases; light scattering intensifies. A plot of upstream TSS versus TSS change shows an R^2 of 0.5294. The result show higher concentration of TSS being discharged downstream and is attributed to the fact that the facility is discharging sediments back to the river. Also a raining event may add more sediment in the river due to some erosion of river sites that carried some sediment from the upstream and increases TSS concentration in the downstream. Rainfall could cause soil erosion upstream, bringing loads of suspended solids into the river. The increased flow rate caused by the storm would also keep lighter materials in suspension than in a stable flow in the river during a dry period. Furthermore, since sediments are being discharged to the river, this may have attributed to very high TSS readings.

There were cases of negative turbidity readings (i.e turbidity downstream is less than upstream turbidity) that paired up with positive TSS readings (i.e TSS downstream is greater than TSS upstream). This might be due to a sample of fine sand-sized fraction which quickly settled below the zone monitored by turbidimeter.

Select data points based on the highest effluent TSS, lowest effluent TSS, lowest influent TSS, and negative turbidity readings are summarized below:

Date	TSS Influent, mg/l	Effluent TSS, mg/l	Relative % Diff	Influent SS, mg/l	Effluent SS, mg/l	Relative % Diff	Upstream Turbidity, NTU	Downstream Turbidity, NTU	Relative % Diff
8/8/2012	490	6400	172	0.4	1.1	93	402	177	56
7/30/12	140	9500	194	0.15	200	200	85.7	97.3	14
1/31/2011	0	69	200	0.05	0.05	0	27.00	27.70	2.6
1/6/2013	120	20	-143	0.05	0.35	150	12.40	12.20	-2

Date	TSS Influent, mg/l	Effluent TSS, mg/l	Relative % Diff	Influent SS, mg/l	Effluent SS, mg/l	Relative % Diff	Upstream Turbidity, NTU	Downstream Turbidity, NTU	Relative % Diff
6/8/2011	120	1200	164	0.20	0.10	-67	66.6	70.2	5

Note: Relative % difference is the absolute value of the difference over the mean times 100.

The data sets on the settleable solids (SS) were very low compared to the TSS and Turbidity data. This may be attributed to the fact that the Rio Grande River has some fast moving currents.

Effluent concentrations of TSS and settleable solids are high in the effluent samples compared to correlated upstream background samples, likely due to the dewatering of the intake water as part of the diversion process and return of solids to the river.

Correlation between TSS concentration and turbidity level was not established after applying a linear regression model. Since there is no correlation between TSS, SS and turbidity, the monitoring requirements for TSS and SS are discontinued in the proposed permit. However, the discharge shall meet the New Mexico narrative standards as stated in subsection A, NMAC 20.6.4.13 which states that:

(1) Surface waters of the state shall be free of water contaminants including fine sediment particles (less than two millimeters in diameter), precipitates or organic or inorganic solids from other than natural causes that have settled to form layers on or fill the interstices of the natural or dominant substrate in quantities that damage or impair the normal growth, function or reproduction of aquatic life or significantly alter the physical or chemical properties of the bottom.

(2**)** Suspended or settleable solids from other than natural causes shall not be present in surface waters of the state in quantities that damage or impair the normal growth, function or reproduction of aquatic life or adversely affect other designated uses.

C. WATER QUALITY BASED LIMITATIONS

1. General Comments

Water quality based requirements are necessary where effluent limits more stringent than technology-based limits are necessary to maintain or achieve federal or state water quality limits. Under Section 301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on federal or state WQS. Effluent limitations and/or conditions established in the draft permit are in compliance with applicable State WQS and applicable State water quality management plans to assure that surface WQS of the receiving waters are protected and maintained, or attained.

2. Implementation

The NPDES permits contain technology-based effluent limitations reflecting the best controls available. Where these technology-based permit limits do not protect water quality or the designated uses, additional water quality-based effluent limitations and/or conditions are included in the NPDES permits. State narrative and numerical water quality standards are used

in conjunction with EPA criteria and other available toxicity information to determine the adequacy of technology-based permit limits and the need for additional water quality-based controls.

3. State Water Quality Standards

The general and specific stream standards are provided in "New Mexico State Standards for Interstate and Intrastate Surface Waters," (20.6.4 NMAC, amended through June 5, 2013). General criteria are applicable as specified in 20.6.4.13 NMAC. The discharge is to Rio Grande, in Waterbody Segment Code No. 20.6.4.114 of the Rio Grande Basin. The known uses of the receiving water(s) are irrigation, livestock watering, wildlife habitat, marginal coldwater aquatic life, primary contact, and warmwater aquatic life; and public water supply on the main stem Rio Grande.

4. Permit Action - Water Quality-Based Limits

Regulations promulgated at 40 CFR §122.44(d) require limits in addition to, or more stringent than effluent limitation guidelines (technology based). State WQS that are more stringent than effluent limitation guidelines are as follows:

a. pH

There were no violations of the permit limits for pH in the last permit cycle. The limitation and monitoring requirements for pH of 6.6 to 9 are continued in the draft permit.

b. Turbidity

According to 20.6.4.13.J. NMAC, which states that discharges shall not cause turbidity to increase more than 10 NTU over background turbidity when the background turbidity, measured at a point immediately upstream of the activity, is 50 NTU or less, nor to increase more than 20% when the background turbidity is more than 50 NTU.

1. Reporting Turbidity Measurements at Instream Sample Points 01U and 01D

Instream upstream sample point, 01U is located at least 30-feet upstream but not greater than 100-feet of Outfall 001. Instream downstream sample point, 01D is located at least 100-feet downstream but not greater than 150-feet of Outfall 001. There are no other discharges or tributaries within this area that would add sediments or affect turbidity, so the difference in measurements are expected to be due primarily, if not exclusively to the BDD discharge.

The permittee shall report <u>all</u> turbidity measurements taken at Instream Sample Points 01U and 01D within the reporting period. Instream Sample Point 01U shall be reported as STORET Code No. 52330 and Instream Sample Point 01D shall be reported as STORET Code No. 52350. These values shall not be averaged for reporting purposes.

2. Determining Turbidity Test Results

(a) If turbidity reported at Instream Sample Point 01U is 50 NTU or less:

If the difference of the measured turbidity at Instream Sample Points 01U and 01D is greater than 10 NTU, assign a "1" to the turbidity test; otherwise, assign a "0."

(b) If turbidity reported at Instream Sample Point 01U is greater than 50 NTU:

If the difference of the measured turbidity at Instream Sample Points 01U and 01D is greater than 20% of the turbidity recorded from Sample Point 01U, assign a "1" to the turbidity test; otherwise, assign a "0."

3. Reporting Total Turbidity Test Failures

(a) If turbidity test failures occur during the reporting period:

Sum the numerical values assigned to each turbidity test taken within the reporting period. Enter this amount for STORET Code No. 51517 in the report.

(b) If no turbidity test failures occur during the reporting period:

Enter a "0" for STORET Code No. 51517 in the report.

4. Example Calculations

In this example, the permittee is required to sample four (4) times within a reporting period:

Sample 1

Instream Sample Point 01U turbidity measurement: 20 NTU
Instream Sample Point 01D turbidity measurement: 25 NTU

Instream Sample Point 01U turbidity is less than 50 NTU, therefore b.2(a) criteria will be used. The difference of the turbidity at Instream Sample Points 01U and 01D is 5 NTU, which is less than the 10 NTU criteria. Therefore, this sample is a "Pass" and would have a value of "0."

Sample 2

Instream Sample Point 01U turbidity measurement: 20 NTU
Instream Sample Point 01D turbidity measurement: 40 NTU

Instream Sample Point 01U turbidity is less than 50 NTU, therefore b.2(a) criteria will be used. The difference of the turbidity at Instream Sample Points 01U and 01D is 20 NTU, which is greater than the 10 NTU criteria. Therefore, this sample is a "Fail" and would have a value of "1."

(c) Sample 3

Instream Sample Point 01U turbidity measurement: 100 NTU
Instream Sample Point 01D turbidity measurement: 115 NTU
Instream Sample Point 01U turbidity is greater than 50 NTU, therefore b.2(b) criteria will be used. Twenty percent (20%) of Instream Sample Point 01U turbidity is 20 NTU. The difference of the turbidity at Instream Sample Points 01U and 01D is 15 NTU, which is less than the 20 NTU criteria. Therefore, this sample is a "Pass" and would have a value of "0."

(d) Sample 4

Instream Sample Point 01U turbidity measurement: 100 NTU
Instream Sample Point 01D turbidity measurement: 150 NTU
Instream Sample Point 01U turbidity is greater than 50 NTU, therefore b.2(b) criteria will be used. Twenty percent (20%) of Instream Sample Point 01U turbidity is 20 NTU. The difference of the turbidity at Instream Sample Points 01U and 01D is 50 NTU, which is greater than the 20 NTU criteria. Therefore, this sample is a "Fail" and would have a value of "1."

(e) Sample Reporting

The permittee will report all turbidity measurements from Instream Sample Points 01U and 01D.

The permittee shall also sum each pass/fail test result. In this example,

Sample 1: 0
Sample 2: 1
Sample 3: 0
Sample 4: 1
Total: 2

Therefore, the permittee would enter a "2" for STORET Code No. 51517.

c. TOXICS

The CWA in Section 301 (b) requires that effluent limitations for point sources include any limitations necessary to meet water quality standards. Federal regulations found at 40 CFR §122.44 (d) state that if a discharge poses the reasonable potential to cause an in-stream excursion above a water quality criteria, the permit must contain an effluent limit for that pollutant.

The facility is a major industrial with a design flow greater than 1 MGD. The receiving water has been identified to be a classified perennial stream with a 4Q3 of 367 cfs. The CD for this facility is evaluated as follows:

Qe/(FQa+Qe), where:

Qe = facility flow (0.28 MGD or 0.434 CFS)
Qa = critical low flow of the receiving waters (Qa = 367 CFS)
F = fraction of stream allowed for mixing (1.0)

Critical Dilution = 0.434 CFS/[(1.0)(367) +0.434]
= 0.00118
= 0.12 %

The acute to chronic ratio of 10:1 shall be used to allow acute biomonitoring in lieu of chronic. Therefore, acute toxicity is proposed to be evaluated at a critical dilution of 1.2%. The critical dilution will be used for further toxic and WET permitting evaluations and requirements.

The toxics identified in Table 2 above that were greater than the MQL were evaluated using the RP spreadsheet, Appendix A of the fact sheet (attached), in accordance with the NMIP. Based on Appendix A, no pollutants were found at levels that would demonstrate a reasonable potential to exceed WQS.

Total Residual Chlorine.

The Buckman Direct Diversion (BDD) does not use chlorine in the processes that contribute to the discharge at Outfall 001.

On November 4, 2010, two samples (one from Outfall 001 and one from upstream sample sample point O1U) were analyzed for Total Residual Chlorine. TRC was not detected in the upstream sample or the Outfall sample. As a result of this confirmation on the absence of chlorine, the discharger is not required to meet total residual chlorine requirements.

d. Human Health Parameters

The previous permit requires the permittee to conduct quarterly samples for the human health parameters as well as those pollutants with numeric criteria that have been adopted to protect domestic water supply. The results of those human health parameters above the MQL are also summarized in Table 2 above. Based on Appendix A, no human health parameters were found at levels that would demonstrate a reasonable potential to exceed WQS.

e. Stream Bottom Deposits

NM WQS 20.6.4.13.A states that “Surface waters of the state shall be free of water contaminants including fine sediment particles (less than two millimeters in diameter), precipitates or organic or inorganic solids from other than natural causes that have settled to form layers on or fill the interstices of the natural or dominant substrate in quantities that damage or impair the normal growth, function or reproduction of aquatic life or significantly alter the physical or chemical properties of the bottom.”

The previous permit required the permittee to conduct physical and biological assessments of the stream. These assessments were to evaluate the impact of the BBD discharge on aquatic species

and streambed morphology. The permittee was required to monitor the physical and biological effects on the Rio Grande from downstream sediment discharge during the operation of the BDD project. The physical assessment consists of the surveyed cross sections upstream and downstream of the outfall to monitor the accumulation of sediment and the formation of other depositional features. The biological assessment consists of fish and aquatic invertebrate sampling at the same permanent stations upstream and downstream of the outfall. A total of ten surveys were completed, with the first two conducted in August and November 2010 as pre-operation surveys. The next eight surveys were conducted in March, July, September, and November/December 2011 and 2012, and represent the first year and second years of post-operation surveys.

The permittee established three upstream transects (control sites) and three downstream transects plus one transects at the diversion (four impact sites). Survey transects extended across the river from bank to bank. During the second year of data collection, the BDD area was affected by the Los Conchas fire which occurred during summer of 2012, and was the largest wildfire in New Mexico's history. In 2012, effects from the fire were still notable within the project area, as ash-laded sediment was observed moving through the river after a summer rainstorm that occurred upstream of the project area during the evening of July 5, 2012.

The results of the physical geomorphic assessment revealed that there is little difference in geomorphology at control sites between surveys with some over bank deposition of fine clay and sand noted at the second (control) transect during survey 10. At the third control transects, some sediment deposition occurred between pre- and post-operation surveys. The sediment was deposited from an alluvial fan upstream of the project area. At impacts transects, sediment deposition occurred between surveys 1 and 2 and between surveys 9 and 10 and was most notable at the third and fourth impact sites. A notable change occurred at the fourth impact site between surveys 9 and 10 where a significant amount of sediment was deposited on the east bank of the river channel, presumably due to the October 12 and 13, 2012 flows. The sediment originated from Canada Ancha, which flows into the river just upstream of the fourth impact site. The influx of sediment moved the channel thalweg west, washing away a mound of deposited sediment that was observed along the west bank during surveys 2 and 9. A thalweg is the line of lowest elevation within a valley or watercourse.

Pebble counts indicate that fine sediments progressively increased at the first and second impact sites after operations at the BDD began. An increase in fine sediments was not observed at the third and fourth impact sites during post operation surveys; however an increase in particle size at the fourth impact site was observed during survey 10. This increase in particle size is likely from sand and gravel deposited from the Canada Ancha just upstream of the transect. Pebble counts and channel cross sections during post-operation surveys indicated that discharging sediment back into the main channel of the Rio Grande may affect the vicinity of the project area immediately upstream of the diversion, but the effects are minimal relative to sediment contributions resulting from monsoon rainstorms and spring runoff flows.

The results of the biological assessments reveals that fewer fish were collected from the BDD during post-operation surveys (2011 and 2012) than during pre-operation (2010) surveys and all the tested fish community response variable were lower during post-operation surveys than

during pre-operation surveys. The decrease in fish community indices occurred at both control and impact transects and could not be attributed to sediment discharge from the BDD.

Macroinvertebrate collections were also different during pre- and post operation surveys for all measured response variables except Ephemeroptera, Plecoptera, and Trichoptera taxa. Macroinvertebrate diversity (H') and evenness (J') were greater during pre-operation surveys than during post-operation surveys, while taxa richness (number of taxa) and Hilsenhoff's Index of Biotic Integrity actually increased between pre- and post-operation surveys.

Surveys conducted during 2010, 2011, and 2012 indicate that the fish and aquatic invertebrate community varied between the two survey periods, among surveys, and for some measured response variables between control and impact transects. No interactions were observed for measured response variables between pre- and post-operation surveys period and control and impact transects sites. This indicates that differences between response variables suggest no impact on the aquatic community is occurring from sediment discharge into the Rio Grande.

Based on the results of the physical and biological assessment, there is little impact on the species composition and counts except in the burnt areas where there was appreciable species composition and counts. As a result, the requirement to conduct the physical and biological assessment of the effects of sediment discharge from the BDD is discontinued in the draft permit.

5. Monitoring Frequency for Limited Parameters

Regulations require permits to establish monitoring requirements to yield data representative of the monitored activity, 40 CFR §122.48(b), and to assure compliance with permit limitations, 40 CFR §122.44(i)(1). Sample frequency is based on the March 12, 2012, NMIP and the previous permit.

Flow is proposed to be measured and reported continuously consistent with the current permit, using a totalizing meter. The pollutant pH shall be sampled and reported weekly using grab samples.

The results of the DMR data from the last permit cycle shows that there were only 2 exceedances out of 736 turbidity samples of the permitted effluent limit for turbidity. The previous permit had a daily monitoring for turbidity. Since the compliance rate is over 99%, turbidity shall be monitored weekly, using grab samples.

D. WHOLE EFFLUENT TOXICITY

Procedures for implementing WET terms and conditions in NPDES permits are contained in the NMIP. In Section V.C.4.c. above; "Critical Conditions", it was shown that the critical dilution, CD, for the facility is 0.12%. Because the CD is ≤10%, an acute-to-chronic ratio of 10:1 referenced in footnote 6 of Table 11 of the NMIP is used. As a result the CD is 12%. Based on the nature of the discharge; industrial, the estimated average flow; 0.28 MGD, the nature of the receiving water; perennial stream, and the critical dilution; 12%, the NMIP directs WET test to be an acute test using Daphnia pulex and Pimephales promelas at a quarterly frequency for the first

year of the permit. If all WET tests pass during the first year, the permittee may request a monitoring frequency reduction for the either or both of the test species for the following 2-5 years of the permit. The species (Daphnia pulex) may be reduced to twice per year and the species (Pimephales promelas) may be reduced to once per year. If any tests fail during that time the frequency will revert back to the once per three months frequency for the remainder of the permit term. The both test species shall resume monitoring at a quarterly frequency on the last day of the permit.

The proposed permit requires five (5) dilutions in addition to the control (0% effluent) to be used in the toxicity tests based on a 0.75 dilution series. These additional effluent concentrations shall be 5%, 7%, 9%, 12%, and 16%.

The previous permit had a 48-hour acute WET testing and over the term of the permit had zero failures. Appendix B of the fact sheet (attached) shows the WET RP for those results. Based on the test results, the permit does not require WET limits. EPA concludes based on the nature of the discharge described in activity section of this document that this effluent will not cause or contribute to an exceedance of the State water quality standards. Therefore WET limits will not be established in the proposed permit.

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No WET tests have failed for the *Daphnia pulex* and *Pimephales promelas* test species. Therefore RP does not exist and WET limits will not be required for these test species.

During the period beginning on the effective date of the permit and lasting through the expiration date of the permit, the permittee is authorized to discharge from Outfall 001 - the discharge to Rio Grande, in Waterbody Segment Code No. 20.6.4.114 of the Rio Grande Basin. Discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTIC	DISCHARGE MONITORING	
	30-DAY AVG MINIMUM	48-Hr. MINIMUM
Whole Effluent Toxicity Testing (48 Hr. Static Renewal) 1/		
Daphnia pulex	REPORT	REPORT
Pimephales promelas	REPORT	REPORT

EFFLUENT CHARACTERISTIC	MONITORING REQUIREMENTS	
	FREQUENCY	TYPE
Whole Effluent Toxicity Testing (48 Hr. Static Renewal) 1/		
Daphnia pulex	1/quarter	24-Hr. Composite
Pimephales promelas	1/quarter	24-Hr. Composite

FOOTNOTES
1/ Monitoring and reporting requirements begin on the effective date of this permit. See PART II, Whole Effluent Toxicity Testing Requirements for additional WET monitoring and reporting conditions.

F. FINAL EFFLUENT LIMITATIONS

See the draft permit for limitations.

VI. FACILITY OPERATIONAL PRACTICES

A. WASTE WATER POLLUTION PREVENTION REQUIREMENTS

The permittee shall institute programs directed towards pollution prevention. The permittee will institute programs to improve the operating efficiency and extend the useful life of the treatment system.

B. OPERATION AND REPORTING

The applicant is required to operate the treatment facility at maximum efficiency at all times; to monitor the facility's discharge on a regular basis; and report the results monthly. The monitoring results will be available to the public.

VII. TMDL REQUIREMENTS

The reach (Cochiti Reservoir to San Ildefonso boundary) into which the Buckman Direct Diversion Project discharges to the Rio Grande Basin is listed on the "2012-2014 State of New Mexico Integrated Clean Water Act Section 303 (d) / 305 (b) Report." The 303(d) list indicates that marginal coldwater aquatic life, warmwater aquatic life, and primary contact fishery are not supported in the stream segment. The probable causes of impairment are E.coli, Gross Alpha – Adjusted, PCBs, PCBs in fish tissue, turbidity, which has a TMDL Schedule of 2016. E. coli is not expected in the facility's discharges; therefore no further requirement is necessary in the draft permit. Information and data provided in the application indicate that PCBs have no reasonable potential to cause or contribute to the exceedance of the NMWQS. Because the existing effluent quality does not exceed the water quality standards for Gross alpha at the end-of-pipe (point-of-discharge), EPA believes there is no reasonable potential for the discharge to cause or contribute

to violation of water quality standards. Therefore, no additional monitoring requirements are established for Gross alpha and PCBs in the proposed permit.

The facility will meet the published water quality standards for turbidity, which states that turbidity shall not exceed 10 NTU over background turbidity when the background turbidity is 50 NTU or less, or increase more than 20 percent when the background turbidity is more than 50 NTU in order to meet the requirements of 40 CFR Part 122.44 (d). Meeting the water quality standards meets the regulatory requirement to not "cause or contribute" as discussed above.

The "PCB in fish tissue" listing is based on NM's current fish consumption advisories for this water body. According to the USEPA guidance, these advisories demonstrate nonattainment of CWA goals stating that all waters should be "fishable." Therefore, the impaired designated use is the associated aquatic life even though human consumption of the fish is the actual concern. RACER data were used to determine the PCB and adjusted gross alpha 2012 listings. Additional data would be helpful prior to TMDL development.

The 303(d) listed shows that warmwater aquatic life is not supported and is classified as an integrated report (IR) code 5/5C. The 5/5C classification means that the stream segment is impaired for one or more designated or existing uses and additional data will be collected before a TMDL is scheduled. Assessment units are listed in this category if there is not enough data to determine the pollutant of concern or there is not adequate data to develop a TMDL. Currently there is not enough information that would require additional pollutants that need to be addressed in the draft permit. The permit has a standard reopener clause that would allow the permit to be modified if at a later date additional requirements on new or revised TMDLs were completed.

A permit reopener clause has been added to the permit stating "This permit may be reopened to establish effluent limitations for the parameter(s) to be consistent with that approved State standards in accordance with 40 CFR 122.44(d). Modification of the permit is subject to the provisions of 40 CFR 124.5." Additionally, language has been added stating that the permit may be reopened and modified during the life of the permit if relevant portions of the State WQS are revised or remanded. The permit may be reopened to include conditions of the completed TMDL. There are no additional permit requirements to be placed in the permit at this time.

VII. ANTIDEGRADATION

The NMAC, Section 20.6.4.8 "Antidegradation Policy and Implementation Plan" sets forth the requirements to protect designated uses through implementation of the State water quality standards. The limitations and monitoring requirements set forth in the proposed permit are developed from the State water quality standards and are protective of those designated uses. Furthermore, the policy sets forth the intent to protect the existing quality of those waters, whose quality exceeds their designated use. The permit requirements and the limits are protective of the assimilative capacity of the receiving waters, which is protective of the designated uses of that water, NMAC Section 20.6.4.8.A.2. There are no increases of pollutants being discharged to the receiving waters authorized in the proposed permit.

VIII. ENDANGERED SPECIES CONSIDERATIONS

According to the most recent county listing available at US Fish and Wildlife Service (USFWS), Southwest Region 2 website, http://ecos.fws.gov/ipac/wizard/trustResourceList!prepare.action two species in Santa Fe County are listed as endangered (E) or threatened (T). The two species are avian and include the Mexican spotted owl, and Southwestern willow flycatcher. In the last permit cycle, four species in Santa Fe County were listed as Endangered or Threatened. The four species are the Mexican spotted owl, Southwestern willow flycatcher, Rio Grande silvery minnow and the Black-footed ferret.

The Final EIS states that the "…Rio Grande silvery minnow, while not occurring in the area, could experience an effect from the proposed diversion of native Rio Grande water, coupled with the regional mitigation measures would serve to avoid an adverse effect to the silvery minnow population." In order to ensure the commitment made in the EIS, the applicant must continue to monitor the flow of the Rio Grande and is prohibited from discharging if the flow in the Rio Grande is 150 cfs or less.

A research on the two current listed species (Mexican spotted owl and Southwestern willow flycatcher) reveals that the primary cause for the population decreases is the destruction of habitat. EPA concluded "no effect" for the Mexican spotted owl and Southwestern willow flycatcher during the previous issuance of the permit on October 24, 2008, and has received no additional information since then which would lead to revision of that "no effect" determination. The permit limits are consistent with water quality standards and designated uses appropriate for the discharge and receiving waters. Therefore, EPA concludes that reissuance of this permit will have "no effect" on the two listed species and/or designated critical habitat.

IX. HISTORICAL and ARCHEOLOGICAL PRESERVATION CONSIDERATIONS

The reissuance of the permit should have no impact on historical and/or archeological sites since no construction activities are planned in the reissuance.

X. PERMIT REOPENER

The permit may be reopened and modified during the life of the permit if State Water Quality Standards are promulgated or revised. In addition, if the State amends a TMDL, this permit may be reopened to establish effluent limitations for the parameter(s) to be consistent with that TMDL. Modification of the permit is subject to the provisions of 40 CFR §124.5.

XI. VARIANCE REQUESTS

No variance requests have been received.

XII. CERTIFICATION

The permit is in the process of certification by the State Agency following regulations promulgated at 40 CFR §124.53. A draft permit and draft public notice will be sent to the District Engineer, Corps of Engineers; to the Regional Director of the U.S. Fish and Wildlife

Service and to the National Marine Fisheries Service prior to the publication of that notice.

XIII. FINAL DETERMINATION

The public notice describes the procedures for the formulation of final determinations.

XIV. ADMINISTRATIVE RECORD

The following information was used to develop the proposed permit:

A. APPLICATION(s)

EPA Application Form 2A and 2C received June 3, 2013, and was deemed administratively complete on January 29, 2014.

B. 40 CFR CITATIONS

Citations to 40 CFR are as of December 6, 2013.
Sections 122, 124, 125, 133, 136

C. STATE OF NEW MEXICO REFERENCES

New Mexico State Standards for Interstate and Intrastate Surface Water, 20.6.4 NMAC, as amended through June 5, 2013.

Procedures for Implementing National Pollutant Discharge Elimination System Permits in New Mexico, March 15, 2012.

State of New Mexico 303(d) List for Assessed Stream and River Reaches, 2012 - 2014.

D. MISCELLANEOUS REFERENCES

http://ecos.fws.gov/ipac/wizard/trustResourceList!prepare.action

http://bddproject.org/archive/ROD.pdf

Record of Decision for the Buckman Direct Diversion Project by Santa Fe National Forest and Taos Field Office of the BLM in Santa Fe County, New Mexico.

Email from Daniela Bowman, Buckman Direct Diversion to Maria Okpala, EPA, dated April 17, 22, & 30, 2014, on PCBs and Toxaphene samples results and analysis.

Letter from Dorothy Brown, EPA, to Mr. Nick Schiavo, Buckman Direct Diversion, dated January 29, 2014, informing the applicant that its NPDES application received on June 3, 2013 is administratively complete.

Letter from Jenaie Franke, EPA, to Mr. Nick Schiavo, Buckman Direct Diversion, dated December 11, 2013, informing the applicant that its NPDES application received on June 3,

2013 is administratively incomplete.

Email from Kelly Collins, Consultant for the City of Santa Fe, to Maria Okpala, EPA, dated November 15, 18, 2013, December 2, 6, 9, 20, & 27, on additional facility information.

Email from Alex A. Puglisi, City of Santa Fe, on additional to Maria Okpala, EPA, dated November 18, 2013, on additional facility information.

Email from Sandra Gabaldon, NMED, to Maria Okpala, EPA, dated October 22, 2013, on critical conditions information.

Email from Shanon Jones, City of Santa Fe, to Maria Okpala, EPA, dated September 19, 24, 2013, on additional facility information.