

March 20, 2000

Response To Comments

Draft NPDES Permit for:

McCain Foods, Incorporated
(Burley Factory)
NPDES No.: ID-000061-2

On December 30, 1999, the Environmental Protection Agency (EPA) issued a draft National Pollutant Discharge Elimination System (NPDES) permit for McCain Foods, Incorporated (Burley Factory). McCain Foods processes raw potatoes at two adjacent facilities (Plant Nos. 1 and 2) and manufactures frozen potato products. The facilities are located on the south bank of the Snake River, approximately two miles west of Burley, Idaho. Process wastewater is treated prior to discharge into the Snake River (mid-channel) at River Mile 648.8. The public comment period for the draft permit extended from December 30, 1999 to January 28, 2000.

EPA received two comment letters during the public comment period: 1) Don Nichols, State of Washington Department of Ecology, to the Director of EPA Region 10, Office of Water, dated January 6, 2000, and 2) Douglas Hahn, Manager - Environmental Engineering, McCain Foods, Inc., to the Director of EPA Region 10, Office of Water, dated January 20, 2000.

This document represents EPA's response to comments received during the comment period. The comments are summarized below followed by EPA's response.

Comment 1. Receiving Water. The Washington Department of Ecology (WDOE) suggest that "It would be helpful to know which selected toxic pollutants the Snake River is listed for in the Final Toxics Rule." (Page 4 of the fact sheet)

Response: The Idaho Water Quality Standards contain the following criteria which apply to this stretch of the Snake River: "All toxic substance criteria set forth in 40 CFR 131.36(b)(1), Column D2, revised as of December 22, 1992, effective February 5, 1993 (57 FR 60848, December 22, 1992), 40 CFR 131.36(b)(1) is hereby incorporated by reference in the manner provided in subsection 250.07, provided, however, the standard for arsenic shall be fifty (50) Fg/L for Column D2." Column D2 cited above are the human health criteria for consumption of organisms only.

Comment 2. Calculation of Limitations. WDOE states that it would be helpful for EPA to include in the fact sheet a brief statement on the basis for effluent limitation calculation including flow and concentration values. Alternatively, WDOE suggest that the 1994 and 1999 fact sheets should be appended to the current fact sheet.

Response: EPA Region 10 agrees with the WDOE suggestion that for permits which are being reissued with no change in the effluent limitations, such as the McCain Foods permit, the previous fact sheet should be included as an appendix. Region 10 plans to do this for future reissuances of this nature and also plans to include the previous response to comment document as an appendix as well. In this particular case, a modification was completed just months before this proposed permit reissuance, therefore, the basis for the limitations for this permit would include both the original and modified fact sheets and response to comments documents. Including four appendixes to a fact sheet which was not modifying any permit limitations was too much information and EPA instead opted for a reference in the fact sheet that the documents are available upon request. The fact sheet also contained directions for obtaining all the supporting materials.

Comment 3. Dilution Zone. WDOE asked in their comment letter whether there is an authorized dilution zone for the J.R. Simplot outfall. WDOE states that if there is a dilution zone, a description should be provided.

Response: There is an authorized dilution zone for this discharge and a description has been included in the 1994 fact sheet. As discussed in the fact sheet, the effluent limitations are based on an average discharge flow of 1.858 mgd from the facility and the following 7Q10 (seven day/ten year) low flow conditions in this portion of the Snake River: 213 mgd for October 1 through April 30, and 2140 mgd for May 1 through September 30. An allowable mixing zone consisting of 25% of the volume of the 7Q10 flow was authorized by the State of Idaho as provided by the Idaho Water Quality Standards. This is a flow-based mixing zone and no specific dimensions are specified in the fact sheet or in the State of Idaho certification.

Comment 4. Temperature Units. The WDOE commented that units have not been specified in the permit for the temperature limitations and that the limit should be expressed as both degree Centigrade (EC) and degree Fahrenheit (EF).

Response: The final permit will be edited to include the units of EC for the temperature limitation. Since the limitation has historically been in EC, and the state water quality criteria is in EC, EPA sees no need to include Fahrenheit at this time.

Comment 5. Temperature Limitation. McCain Foods USA, Inc. request that the temperature limitation be expressed as a monthly average instead of a daily maximum. The letter from McCain Foods cites proposed EPA Water Quality Planning and Management Regulations to support the request. The McCain Foods letter states that “the proposed revisions suggest that a discharge temperature may be more appropriately expressed as a seasonal or monthly average in order to maintain temperature ranges in the River which are key to aquatic life through different seasons and climatological events.”

Response. The temperature limitation is a water quality based limit developed to insure compliance with State of Idaho Water Quality Criteria. Idaho temperature criteria for this

receiving water requires water temperatures of 33EC or less with a maximum daily average not greater than 29EC. A criteria that requires compliance with a specific temperature (33EC) at all times supports inclusion of a daily limitation versus a longer term averaging period for discharges to this portion of the Snake River. EPA regulation at 40 CFR 122.45(d) also require that all permit effluent limitations shall be stated as maximum daily and average monthly discharge limitations unless impracticable. The permittee has not shown the maximum daily limit to be impracticable. Review of recent monitoring reports demonstrates continued compliance with this limitation. For these reasons, EPA will retain the daily temperature limitation as listed in the draft permit.

Comment 6. Ambient Receiving Water Quality Monitoring. McCain Foods “request elimination of the ambient receiving water quality monitoring due to negligible demonstrable impacts to the water body, significant ambient water quality research on the Mid-Snake River by State authorities, and lack of participation in ambient water quality monitoring by other point source and non-point source dischargers.”

Response. EPA Region 10 considers the ambient receiving water quality monitoring to be an important element of the permit and necessary to continue to demonstrate and verify that the discharge is not resulting in exceedances of the applicable Idaho Water Quality Criteria. The ambient results, for example, were reviewed by EPA and considered in the decision to reauthorize the permit with no changes to effluent limitations. With consideration of the volume of the discharge, the water quality concerns for the receiving water, and the fact that the monitoring is conducted jointly with another food processor in the area, EPA Region 10 determines the ambient monitoring program to be a valuable and reasonable requirement which will be retained in the final permit as proposed. Annual ambient monitoring for a facility of this size is generally consistent with other NPDES permits issued by EPA Region 10.

Comment 7. Phosphorus Limitation. McCain Foods commented that the monthly average and maximum daily phosphorus limitations of the permit “would be more appropriately expressed as an annual average for the purpose of meeting TMDL requirements and in consideration of best practical treatment concepts.” The McCain Foods letter cites the EPA Proposed Revisions to the Water Quality Planning and Management Regulations to support the annual average position. The letter states: “... the proposed revisions suggest that for a pollutant like phosphorus, the average annual load is the best indicator of actual conditions in a lake or reservoir and the best way to express the allocations established in a TMDL. McCain Foods also provided a number of example permits from other states where averaging periods other than daily has been used. McCain also stated it’s position “...that the application of biological phosphorus removal as a wastewater treatment design change, may be eliminated as a treatment method due to the variability of performance in removing phosphorus...”

Response. The proposed Water Quality Planning and Management Regulation cited by the commentor is applicable to EPA’s regulatory requirements for establishing TMDL’s under the Clean Water Act. The example cited in the preamble to the regulation is relevant to the

development of TMDL's for phosphorus, under certain conditions and not necessarily to development of permit limits. Even if a TMDL is finalized with an annual load, the permitting authority would still need to evaluate the appropriate permit limitations to ensure that the load is implemented effectively. For facilities in the Middle Snake River watershed, the phosphorus limits were developed under the terms of the 1997 TMDL that expressed the load as pounds per day without specifying an averaging period.

Along with the proposed Water Quality Planning and Management Regulations, EPA also proposed a companion rule amending the NPDES Permit Regulations. The NPDES permit regulation changes were proposed to support the TMDL regulation. Neither the TMDL nor the NPDES proposed regulations revise the requirement at 40 CFR 122.45(d) that NPDES permit limitations be expressed as maximum daily limitations for industrial facilities.

Similar comments regarding the need for daily limitations were received during the comment period on the modification to the NPDES permit which was issued final in 1999. EPA's response to the daily limitation comments received during the modification process provides EPA's justification for the daily limit:

“The NPDES regulations at 40 CFR 122.45(d) require that all permit limits be expressed, unless impracticable, as both average monthly limits (AMLs) and maximum daily limits (MDLs) for all discharges other than publicly owned treatment works (POTWs), and as average weekly limits (AWLs) and AMLs for POTWs.

The objective in setting effluent limits is to establish limits that will result in the effluent meeting the wasteload allocation (WLA) under normal operating conditions virtually all the time. While not possible to guarantee, through permit limits, that a WLA will never be exceeded, it is possible to use procedures which can account for extreme values. Permit limits can be established that will have low statistical probability of exceeding the WLA and will achieve the desired loading. The statistical procedures used by EPA to determine effluent limitations are described in the *Technical Support Document for Water Quality-based Toxics Control* (EPA March 1991). As discussed in the fact sheet accompanying the draft permit, EPA followed the statistical procedures of the TSD in developing the AML and MDL for facilities in the Middle Snake River watershed.

Developing both an average monthly limit and a maximum daily limit (average weekly limit for POTWs) meets the requirements of EPA regulations and also assures that the long-term average loading requirements of total phosphorus to Middle Snake River system, as specified in the management plan, is being met. Having both an AML and MDL also ensures good performance of the treatment system. Setting a MDL establishes an upper bound on effluent values used to determine the monthly average and provides a measure of effluent compliance

during operational periods between monthly sampling.”

Aquaculture facilities and food processing facilities in the Middle Snake River watershed received daily and monthly limits for phosphorus while all publically owned treatment works in the watershed received weekly and monthly limits. Also, the regulation at 40 CFR 122.45(d) does not distinguish between toxic and non-toxic pollutants.

McCain states in it's comment letter that the daily phosphorus limitation will limit the best practical treatment method for phosphorus removal. Specifically, McCain states that the application of biological phosphorus removal as a wastewater treatment design change may be eliminated as a treatment method due to the variability of performance in removing phosphorus. Site specific analysis would need to be conducted to determine if biological treatment is precluded by the inclusion of a maximum daily limitation. Previous information submitted during development of the phosphorus limits showed biological treatment capable of reducing phosphorus by 80-85%. The Management Plan requires a 20% reduction in phosphorus for the food processors at the end of five years, small relative to biological treatment capabilities. No data was provided which indicates whether biological treatment is eliminated by the reductions required by the Management Plan and permit. Since no evidence was provided that the daily limitation precludes this treatment option, EPA is unable to further evaluate this comment. Even if it was shown that biological treatment was precluded by the daily limitation, the limit is required by NPDES regulations “unless impracticable”. Exclusion of one potential treatment method would not necessarily show the daily limitation is impracticable since other control options are available. The final permit will retain the daily phosphorus limit as proposed.

Comment 8. Phosphorus Daily Limitation. J.R. Simplot and McCain Foods operate potato processing facilities within the same watershed. EPA has historically issued permits to both of these facilities on identical schedules and has determined limitations in a consistent manner for both facilities. Proposed NPDES permit reissuance was issued for both permits on December 30, 1999. The TMDL also required identical phosphorus requirements for both facilities although the loadings vary slightly. The J.R.Simplot Company, like McCain Foods, disagrees with the inclusion of a daily phosphorus limit in the permit, however, they did provide comment on EPA's calculation of the daily limitation for the Simplot permit. EPA has made an adjustment to J.R. Simplot's daily phosphorus limitation, based on the comment. EPA has reviewed the McCain Foods phosphorus data and believes a similar adjustment is appropriate for the McCain Foods permit based on the arguments presented in the J.R. Simplot comment letter. The procedure to adjust the daily limitation for the McCain permit is outlined below and in the appendix to this document.

Simplot reanalyzed the 2-year phosphorus data base that was used to develop the TMDL. Simplot first found that the data fits a normal distribution curve versus the lognormal distribution that was assumed by EPA during derivation of permit limits. Simplot then reduced each value in the 2-year data set by 20%, which is the stated goal for food processing facilities under the TMDL agreement. Statistics performed on this reduced data set showed that 2.1% of the data is

expected to exceed the permit maximum daily limit (MDL) of 750 lbs/day. This result corresponds to the facility being in compliance with the MDL 97.9% of the time. Similar reductions and analysis of the McCain Foods data base shows that 2.3% of the data is expected to exceed the permit MDL of 770 lbs/day. This result corresponds to the McCain phosphorus values expected to be in compliance with the MDL 97.7% of the time, after reducing the values by 20% (see Appendix for details). As discussed in the fact sheet for the phosphorus permit modification, EPA Region 10 uses 99.0% as the probability basis when establishing a maximum daily limit. This is also the probability basis recommended in EPA's guidance document for water quality-based permitting (TSD, March, 1991, page 110). With the sample statistics of the reduced data set, the MDL can be adjusted upward until a probability that 99.0% of the data will be less than the MDL is attained. For the McCain Foods 2-year data set, a MDL set equal to 820 lbs/day is expected to result in compliance 99.0% of the time. Therefore, using the statistics of the reduced 2-year data set, the TMDL 20% reduction target, and a 99.0% probability assumption results in a MDL of 820 lbs/day versus the 770 lbs/day in the draft permit. EPA will revise the final permit and include a MDL of 820 lbs/day. No change in the monthly limit will be made.

Response to Comment Appendix:
Statistical Calculations for Daily Phosphorus Limitation

The 2-year data base which was used to establish the TMDL limitations was reanalyzed to determine compliance with the proposed phosphorus daily limitation. Every value in the 2-year data set was reduced by 20%, the stated goal for food processors under the TMDL agreement. After the 20% reduction, the mean value of the data set is 470 lbs/day and the standard deviation is 150 lbs/day. The maximum daily limitation (MDL) of the permit is 770 lbs/day.

To investigate the probability of compliance, the Z equation was utilized, which is a statistical relationship employed to determine the area of the normal distribution curve:

$Z = (X - F) / *$, where X is a value, F is the sample mean, and * is the sample standard deviation.

For a MDL of 770 lbs/day as the X, a mean of 470 lbs/day, and a standard deviation of 150 lbs/day, the resultant Z score is 2.00. With this Z score, the area under the normal curve, or the $f(Z)$, is equal to 0.9772 (Standard Normal Curve Area Table, Source: Probability and Statistics for Engineering and the Sciences, Second Edition, Jay L. Devore). This implies that 97.7% of the data falls within the MDL of 770 lbs/day or that the value is expected to exceed the MDL 2.3% of the time.

As discussed in the fact sheet for the phosphorus permit modification, EPA Region 10 uses 99.0% as the probability basis when establishing a maximum daily limit. This is also the probability basis recommended in EPA's guidance document for water quality-based permitting (TSD, March, 1991, page 110). With an assumed $f(Z)$ probability and with sample statistics, the Z equation can be solved for an X value, or daily limit, that will result in compliance 99.0% of the time. With $f(Z)$ set equal to 0.990, Z is equal to 2.33 (Source: Probability and Statistics for Engineering and the Sciences, Second Edition, Jay L. Devore). Using the sample statistics (mean of 470 lbs/day, standard deviation of 150 lbs/day) and solving for X yields an X value of 819.5 which is rounded to 820 lbs/day. The X value represents the MDL within which 99.0% of the data will fall below. For the McCain Foods 2-year data set, a MDL set equal to 820 lbs/day is expected to result in compliance 99.0% of the time.