Cameco

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May 1, 2014

CERTIFIED MAIL # 7012 1640 0000 2326 6233

Mr. Miles Bennett, Uranium Coordinator
Land Quality Division, District 3
Wyoming Department of Environmental Quality
2100 West 5th Street
Sheridan, WY 82801

NSR for Monitor Well KMO-007 UCL Adjustments, Cameco Resources, Smith Ranch-Highland Uranium Project, Permit 603 and 633

Dear Mr. Bennett:

Power Resources, Inc. d/b/a/ Cameco Resources (Cameco) is submitting the Non-significant revision (NSR) for the adjustment of Monitor Well KMO-007 Upper Control Limits (UCL). Wyoming Department of Environmental Quality (WDEQ) – Land Quality Division (LQD) and Cameco agree that the confirmed excursion, as defined by Chapter 11, Section 12 of LQD Rules and Regulations, at Monitor Well KMO-007 on March 11, 2013 was atypical. In Wyoming Environmental Quality Act §35-11-103(f)(ii) "Excursion" means any unwanted and unauthorized movement of recovery fluid out of the production zone as a result of in situ mining activities. The increase in concentrations at Monitor Well KMO-007 appears to be isolated and not indicative of production fluid movement. LQD and Cameco agreed that an increase in UCL was justified.

The following provides a history of the event:

- March 11, 2013 - Monitor Well KMO-007 was confirmed on excursion, as defined in Chapter 11, Section 12 of LQD Rules and Regulations.
- July 1, 2013 - 90 day Compliance Plan and Schedule was submitted with the June 2013 Month Excursion Report.
- August 20, 2013 - LQD provided a review of the 90 day Compliance Plan and Schedule.
- August 28, 2013 - Cameco presented investigation findings for the excursion at KMO-007 and discussed with LQD a suitable path forward. It was acknowledged that the excursion at KMO-007 was atypical, isolated, not indicative of production fluid, and most likely the result of natural variability.

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- October 2, 2013 – Cameco responded to LQD review comments and concluded based on discussions from the August 28, 2013 meeting that both Cameco and LQD agreed that the excursion was atypical and that continued monitoring of the well would be maintained without any corrective actions for the remainder of 2013. At the end of 2013 the excursion would be reevaluated based on the following:
    - If the parameter concentrations remained stable a UCL adjustment would be made.
    - If the parameter concentrations gradually trend downward over time, weekly monitoring would continue, unless concentrations dropped below the UCL's, then regular compliance monitoring would resume.
    - If the parameter concentrations trend up over time, further investigative actions would be needed with an updated Compliance Plan and Schedule provided to LQD.
- February 20, 2014 - Cameco presented proposed UCL adjustments for Monitor Well KMO-007, together with graphs demonstrating stability in the parameter concentrations. Graphs for water quality in adjacent wells, KMO-006 and KMO-008, were also presented to again demonstrate that they are not being affected and that the concentration increase is isolated to KMO-007. Attached are the table and graphs presented to LQD.

Proposed UCL Adjustment

The table below offers the current UCL's for Monitor Well KMO-007 together with, Cameco's proposed UCL's adjustments for Monitor Well KMO-007.

Monitor Well KMO-007	Alkalinity (mg/l)	Chloride (mg/l)	Conductivity (umhos/cm)
Current UCL	218	18	684
Proposed UCL	309	27	1013

Referencing the attached table and graphs, presented to LQD in the February 20, 2014 meeting; the following details how the proposed UCL were calculated.

Chloride = mean chloride +15
Alkalinity = mean alkalinity + (5*STD)
Conductivity = mean conductivity + (5*STD)

where:
mean = the average concentration for one year from confirmation of the excursion
STD = Standard Deviation of the data set for one year from confirmation of the excursion

This method is followed by Cameco when developing UCL's for all mine units and is described in LQD Guideline 4 and accepted by LQD as adequate. Cameco feels that the calculated UCL's proposed for the adjustment are appropriate and practicable.

Additionally, it is Cameco's practice to assign "internal exceedance limits" to all monitor wells. These limits are used internally to flag wells with potential increasing trends, in an effort to avoid future excursions and are initially assigned based on the following:

Chloride Internal Exceedance Limit = 50% of Chloride UCL
Alkalinity Internal Exceedance Limit = 80% of Alkalinity UCL
Conductivity Internal Exceedance Limit = 80% of Conductivity UCL

Using this strategy, the new internal limits for Monitor Well KMO-007 will be 14 for Chloride, 249 for Alkalinity and 810 for Conductivity. As can be seen in the attached table these limits are just higher than the average of each parameter used for the proposed UCL calculations. This will ensure that should Monitor Well KMO-007 start to trend upward, the well would immediately be flagged and assessed.

Please contact me at 307-358-6541, ext. 476 or Kenneth_Garoutte@cameco.com if you have questions.

Respectfully,

Ken Garoutte
Safety, Health, Environment, Quality (SHEQ) Manager

KG/vg

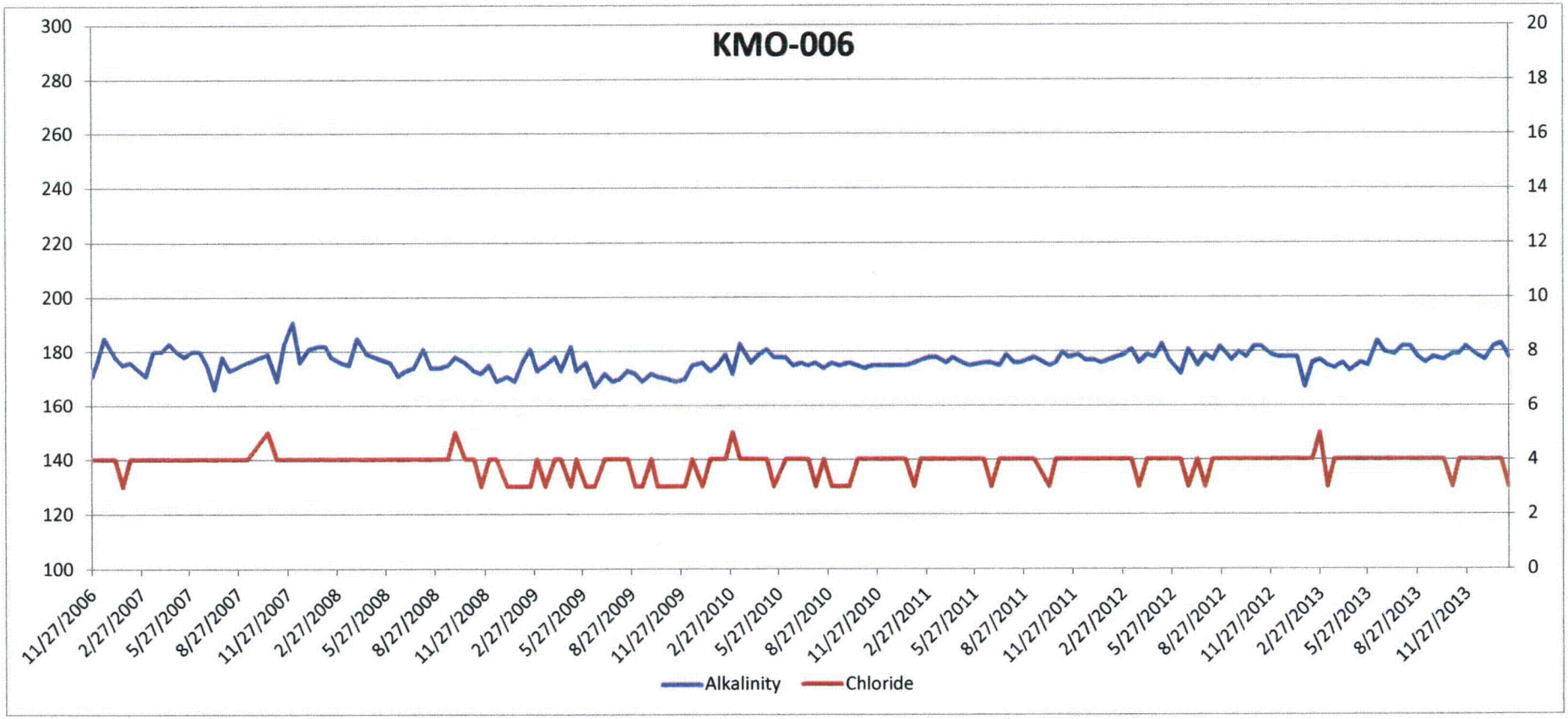
Attachment: Table and Graphs presented to LQD in February 20, 2014 Meeting
Index of Change with associated permit changes

cc: File SR 4.3.3.1
Doug Mandeville, NRC Certified Mail # 7012 1640 0000 2326 6240
Document Control Desk, NRC Certified Mail # 7012 1640 0000 2326 6257

ec: Cameco-Cheyenne

xc: Cheyenne LQD Files

Monitor Well KMO-007	Alkalinity	Chloride	Conductivity
Current UCL	218	18	684
Current Internal Limit	200	8	600
% Current Internal Limit is of UCL	92%	44%	88%
Average (since confirmed excursion 3/8/2013)	243	12	769
Proposed UCL	309	27	1013
Proposed Internal Limit	249	14	810
% Proposed Limit is of UCL	80%	53%	80%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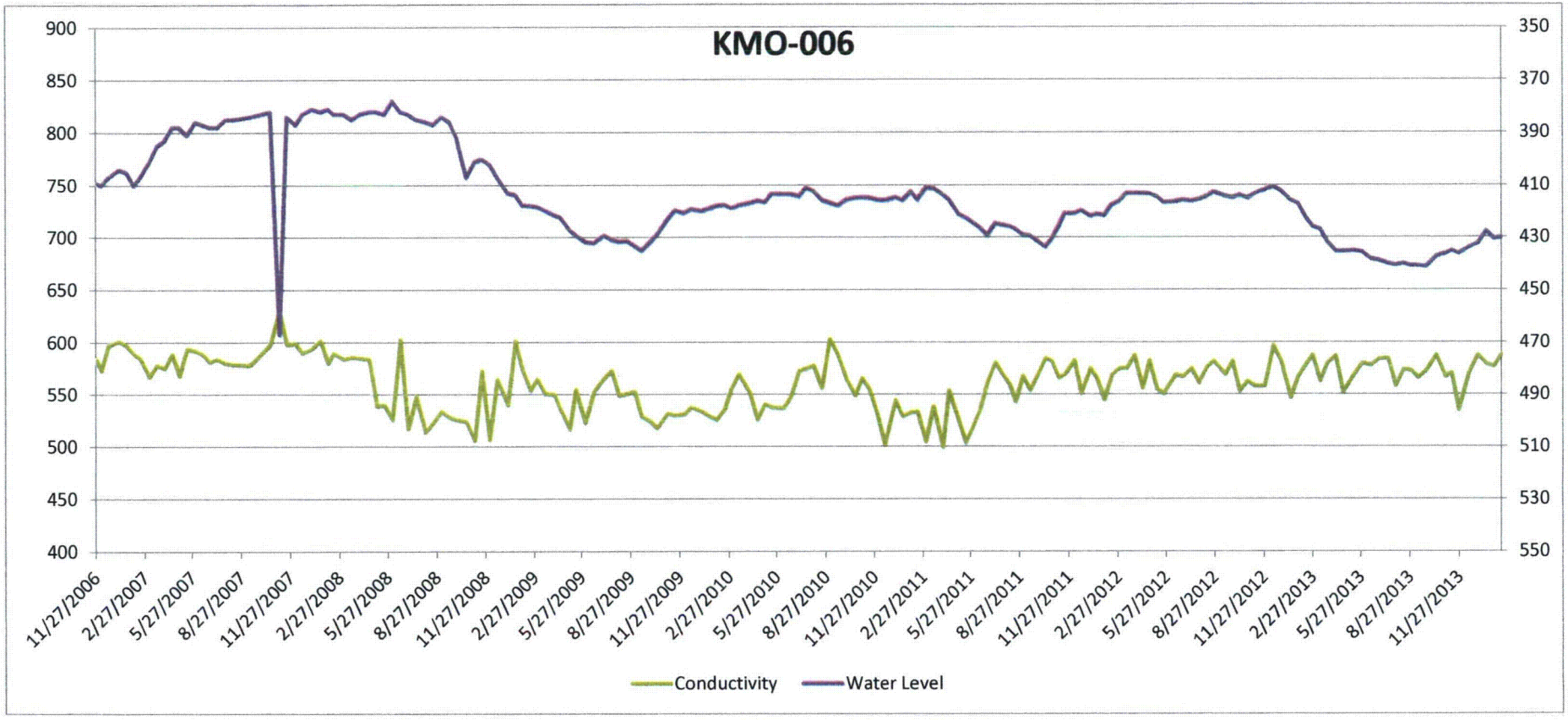
Alkalinity
Chloride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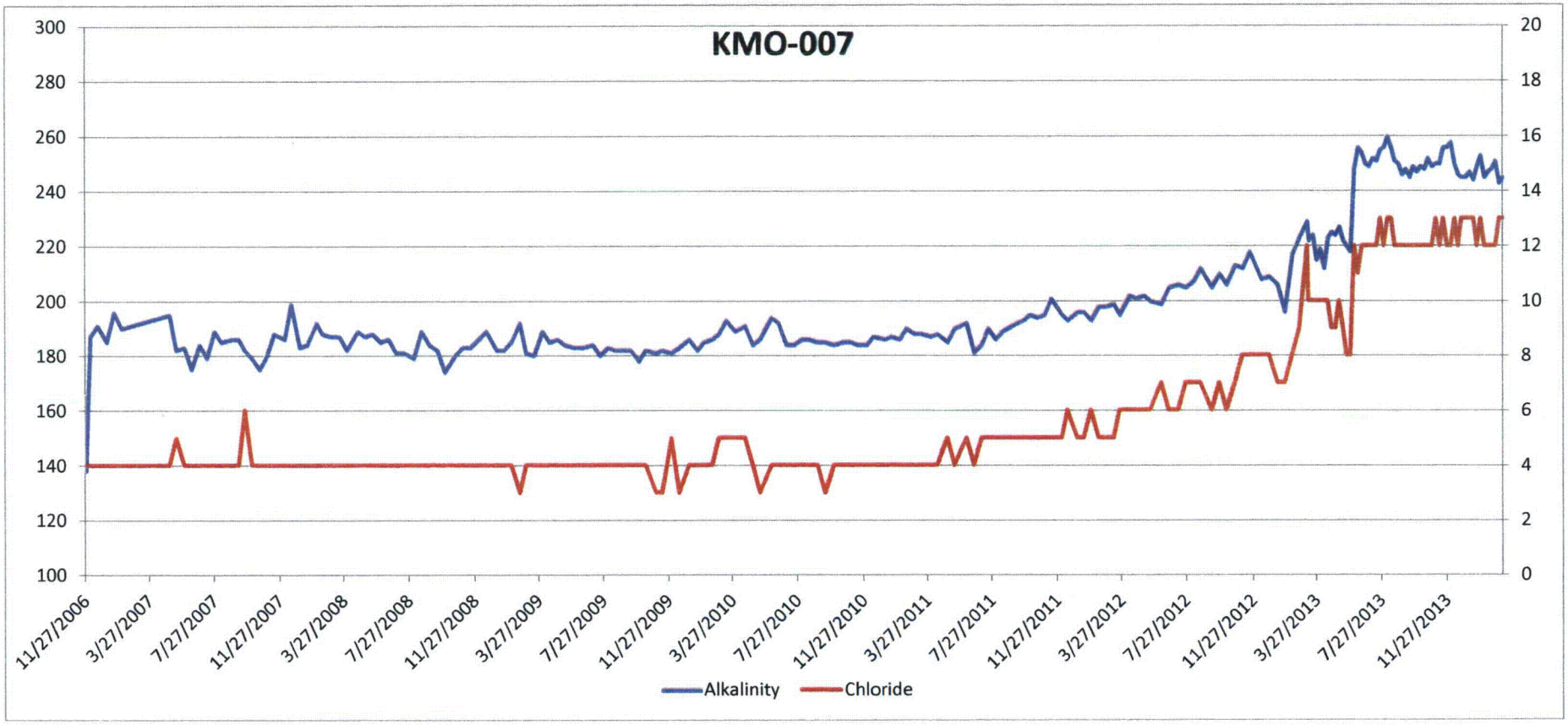
Conductivity
Water Level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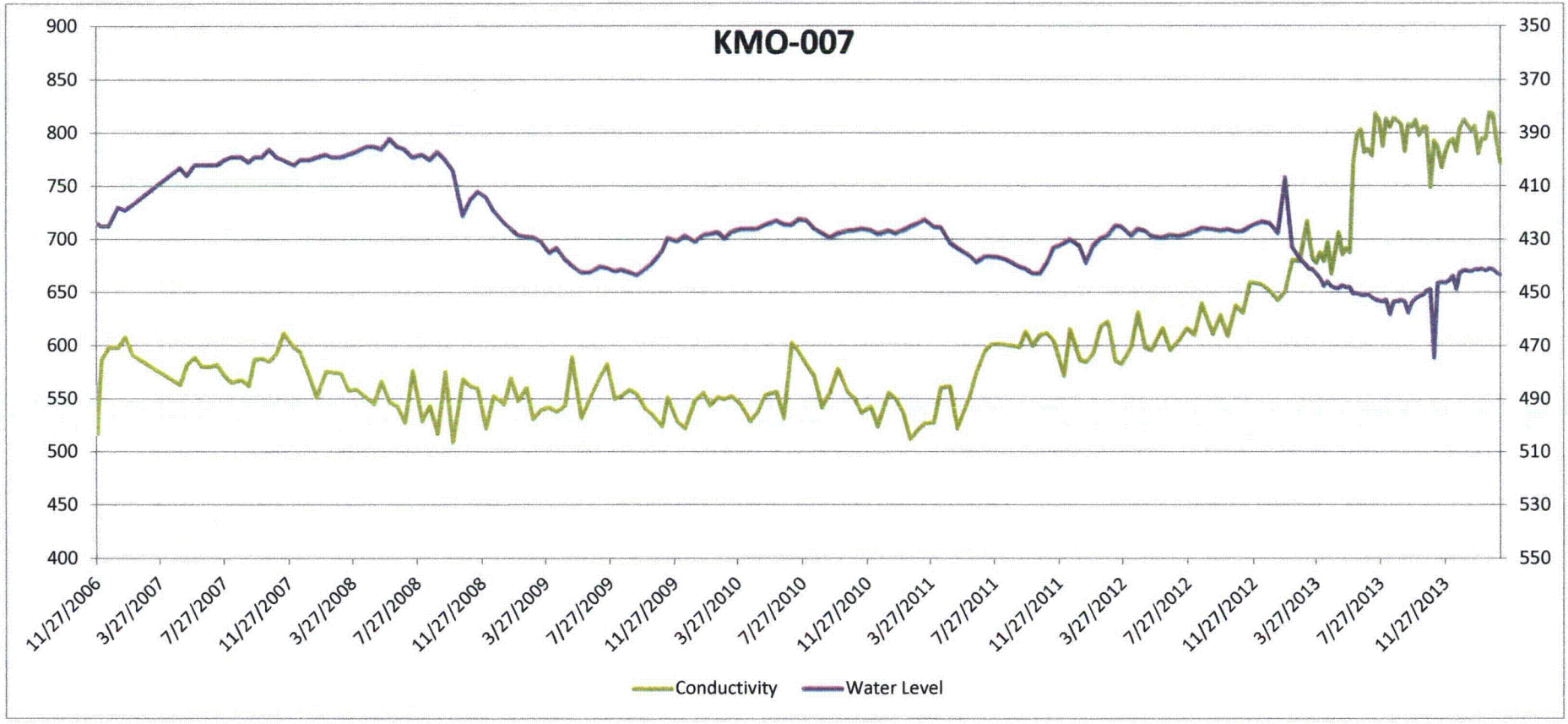
Alkalinity
Chloride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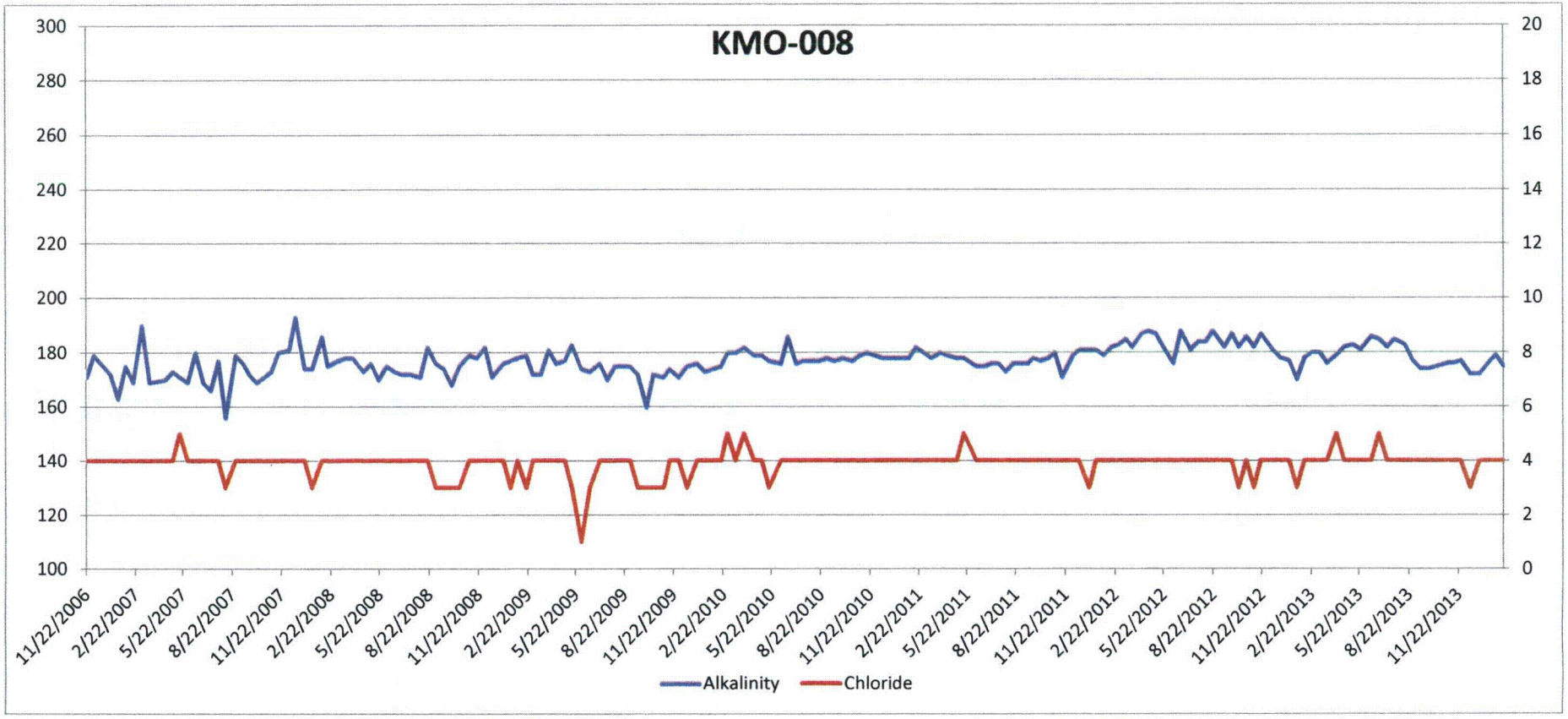
Conductivity
Water Level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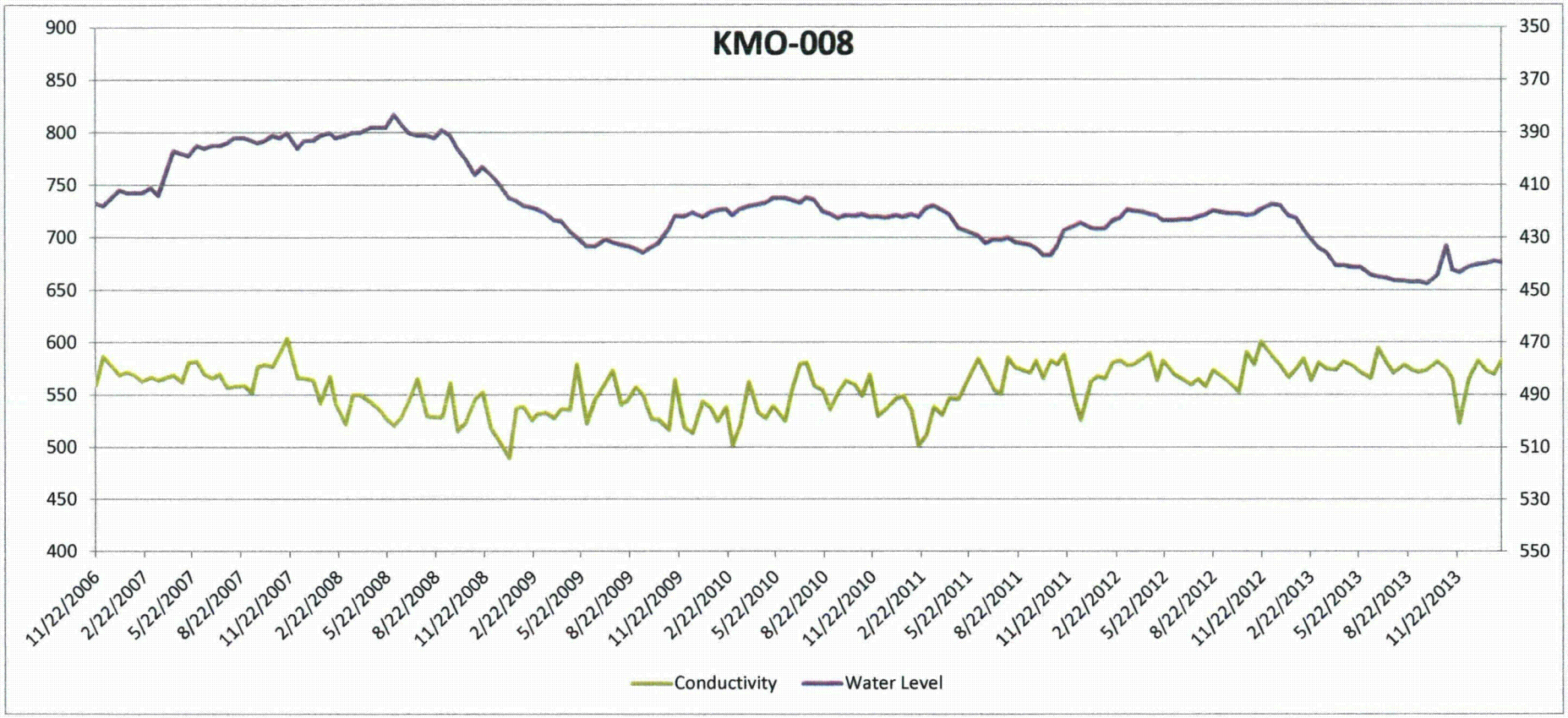
Alkalinity
Chloride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Conductivity
Water Level

INDEX SHEET FOR MINE PERMIT AMENDMENTS OR REVISIONS

Date: May 1, 2014
TFN: N/A
PERMIT NO.: 633

MINE COMPANY NAME: Power Resources Inc. dba Cameco Resources
MINE NAME: Smith Ranch – Highland Operation

Statement: I, Ken Garoutte, SHEQ Manager, an authorized representative of Power Resources, Inc. d/b/a Cameco Resources declare that only the items listed on this and all consecutively numbered Index Sheets are intended as revisions to the current permit document. In the event that other changes inadvertently occurred due to this revision, those unintentional alterations will not be considered approved. Please initial and date. KG 5/1/14

Volume Number	Page, Map or other Permit Entry to be REMOVED	Page, Map or other Permit Entry to be ADDED	Description of Change
Vol. III-P (previously Vol. III-K, Permit 633)	Page 1, Appendix F (UCL's)	Page 1, Appendix F (UCL's)	Appendix F of Volume III-P (previously Volume III-K, Permit 633), Mine Unit K Hydrologic Test Report contains Upper Control Limits (UCL's) established for Mine Unit K Monitor Wells. Specifically, page 1 contains Table 1, which lists the UCL's for all monitor wells within Mine Unit K. Table 1 has been revised to demonstrate the adjustment to the UCL's for Monitor Well KMO-007 along with, additional information being added to Page 1 as reference for the non-significant revision to the permit due to Monitor Well KMO-007 UCL adjustment.

TABLE 1

Upper Control Limits (UCLs) for Mine Unit K Monitoring Wells

		Upper Control limits (UCLs)		
Well Numbers	Zone Monitored	Chloride (mg/l)	Alkalinity **(mg/l)**	Conductivity **(umhos/cm)**
KM-001 – 028	Production Zone	17	218	1038
KMO-002 - **006** **KMO-008** - 012	Overlying Aquifer	18	218	684
KMO-007*	**Overlying Aquifer**	**27**	**309**	**1013**
KMU-002 – 012	Underlying Aquifer	18	329	1014
KMU-003D	Underlying Aquifer	23	386	2726

***Correspondence dated May 1, 2014, NSR for Monitor Well KMO-007 UCL Adjustment. LQD and Cameco agree that the confirmed excursion, as defined by Chapter 11, Section 12 of LQD Rules and Regulations, at Monitor Well KMO-007 on March 11, 2013 was atypical and not indicative of production fluid and that an increase in UCL was justified.**