

**WELL DECOMMISSIONING
ON THE LUMMI INDIAN RESERVATION
DURING 2008**

Prepared for:

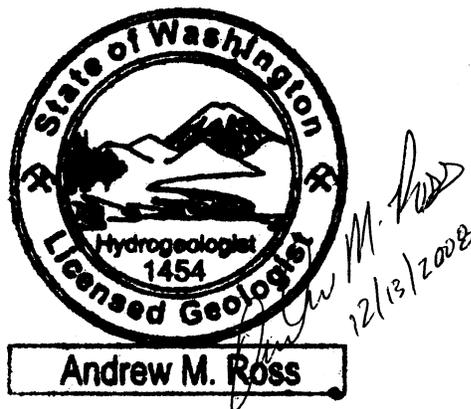
**Water Resources Division
Natural Resources Department
Lummi Indian Business Council**

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Prepared by:

**Andrew M. Ross, LG, LHG
Salix Environmental Services**



December 2008

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1. INTRODUCTION

The Lummi Indian Reservation (Reservation) is located along the Western Boundary of Whatcom County in the northwestern part of Washington State (Figure 1). Ground water is the primary source for domestic, commercial, municipal, and industrial potable water supplies on the Reservation. Individual water supply wells (wells) that served one or more homes and/or facilities were the primary source of water supply prior to the formation of the Lummi Water District in the 1970s. Over time, many of these wells have been abandoned due to unsuitable water quality and/or as the Lummi Water District provided water to homes and other facilities. As an example, wells of the former Gooseberry Point Community and Water Association (now known as the Gooseberry Point Community Association), were transferred to the Lummi Indian Business Council (LIBC) as part of a water system integration project.

Contamination of Reservation ground water is one of the three potential nonpoint source impairments identified in the Lummi Nation Nonpoint Source Management Program (LWRD 2002). Abandoned wells that are not properly decommissioned could lead to direct contamination of ground water through conveyance of pollutants associated with storm water or through other means. Decommissioning of wells is consistent with actions identified in the Lummi Nation Nonpoint Source Management Program to address saltwater intrusion into Reservation aquifers (see Table 3.6 in LWRD 2002) and contamination of Reservation ground water (see Table 3.4 in LWRD 2002).

The Lummi Natural Resources Department (LNR) obtained a grant from the U.S. Environmental Protection Agency (EPA) to decommission abandoned water supply wells on the Reservation (Assistance Identification No. BG-97042602).

The well decommissioning effort was initiated during 2006 and seven wells were decommissioned during calendar year 2006. No wells were decommissioned during 2007. This report is a summary of the well decommissioning effort conducted during the 2008 calendar year. This document is organized into six sections and has two appendices. This first section is the introduction, the second section describes the methods used to decommission the selected wells, the third section presents the results, the fourth section discusses the overall well decommissioning effort, the fifth section contains conclusions, and the sixth section lists the cited references. Appendix A contains the results of the evaluations performed on each well to determine if the well should be decommissioned. Appendix B contains the Water Well Decommissioning Reports completed by B&C Well Drilling for each decommissioned well.

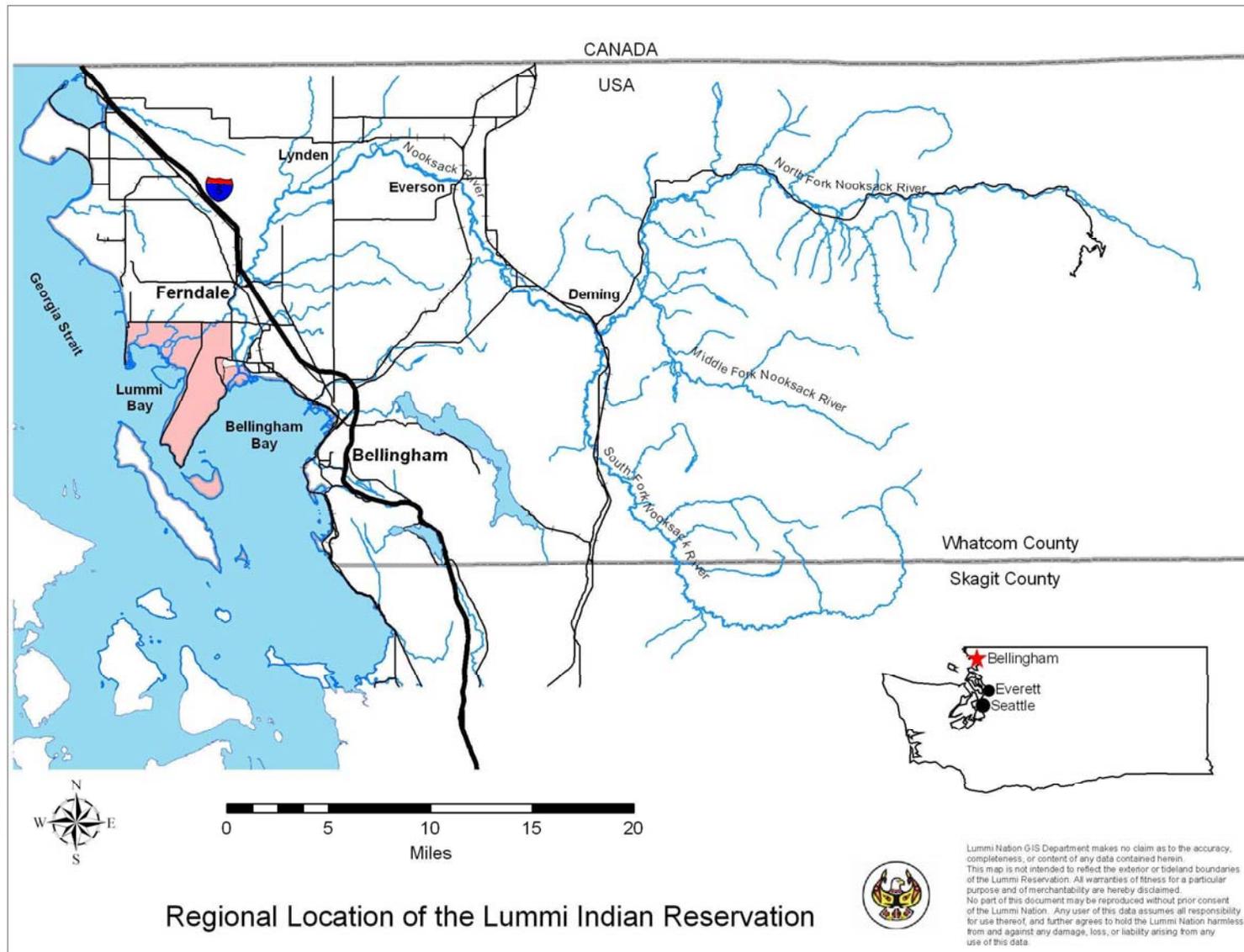


Figure 1. Regional location of the Lummi Indian Reservation.

2. METHODS

Contractors were used to conduct the well decommissioning activities during 2008. The Lummi Natural Resources Department (LWRD) selected B&C Well Drilling, Inc. (B&C) following a competitive bid process during 2006 to perform the decommissioning. Salix Environmental Services (Salix) had been contracted previously by the LWRD to provide water resources management and planning services and was tasked with providing logistical support, coordination, and documentation of the well decommissioning work performed by B&C.

The approach to decommissioning water wells consisted of 1) identifying candidate wells, 2) evaluating each candidate well against criteria to determine if the well should be used as a monitoring well or decommissioned, and 3) decommissioning selected wells.

During the fall of 2008, 34 wells were selected and evaluated. Of the 34 wells initially identified, five appeared feasible candidates for decommissioning during 2008. Reasons that wells were not considered feasible for decommissioning during 2008 included wells that were not abandoned or could not be located on the ground. This initial evaluation was led by Salix and guided by Victor Solomon (Supervisor, Lummi Water District) and Jeremy Freimund (Water Resources Manager, LWRD). The five selected wells were then evaluated to determine if the wells should be decommissioned or used as monitoring wells. These evaluations indicated that each of the wells should be decommissioned. Appendix A contains the results of the evaluations.

As part of the well decommissioning activities, permission was obtained from all well owners to decommission their wells, and well locations were identified in the Lummi Nation Geographic Information System (GIS). The GIS identification effort consisted of locating wells using high resolution (6-inch), ortho-rectified aerial photographs (Pictometry).

The well decommissioning procedures described in the Uniform Joint Technical Requirements adopted as Exhibit G of the settlement to the lawsuit, *United States, Lummi Nation v. Washington State Department of Ecology, et al*, Civil Action No. C01-0047Z (U.S. District Court, Western District of Washington) were used to decommission the wells. The Water Resources Manager reviewed and approved the decommissioning methods for the five selected wells. In general, drilled wells were decommissioned by removing all obstructions, perforating the casing, then placing a bentonite slurry from the bottom of the well to the top, followed by cutting the top of the casing off below the ground surface, placement of a secondary seal, and filling the area immediately over the well with topsoil. In one well the casing was removed and the borehole filled with bentonite slurry as the casing was pulled. At another well, due to logistical constraints, unhydrated bentonite chips were placed by hand in the well followed by placement of a secondary seal. Figures 2 through 6 are pictures of the various steps of decommissioning a drilled well (they are not all of the same well). Figure 7 illustrates a secondary seal.



Figure 2. Removal of the pump and associated plumbing from a well.



(a)



(b)

Figure 3. Well perforation operation (a) and the perforation tool (b).



(a)



(b)

Figure 4. Placement of bentonite slurry (a) and the plug (b) used to compress the bentonite column.



Figure 5. Removal of the top of the casing below the ground surface.



(a)



(b)

Figure 6. Burial and final grade of decommissioned well. Placement of the secondary seal (a) and final grade (b).

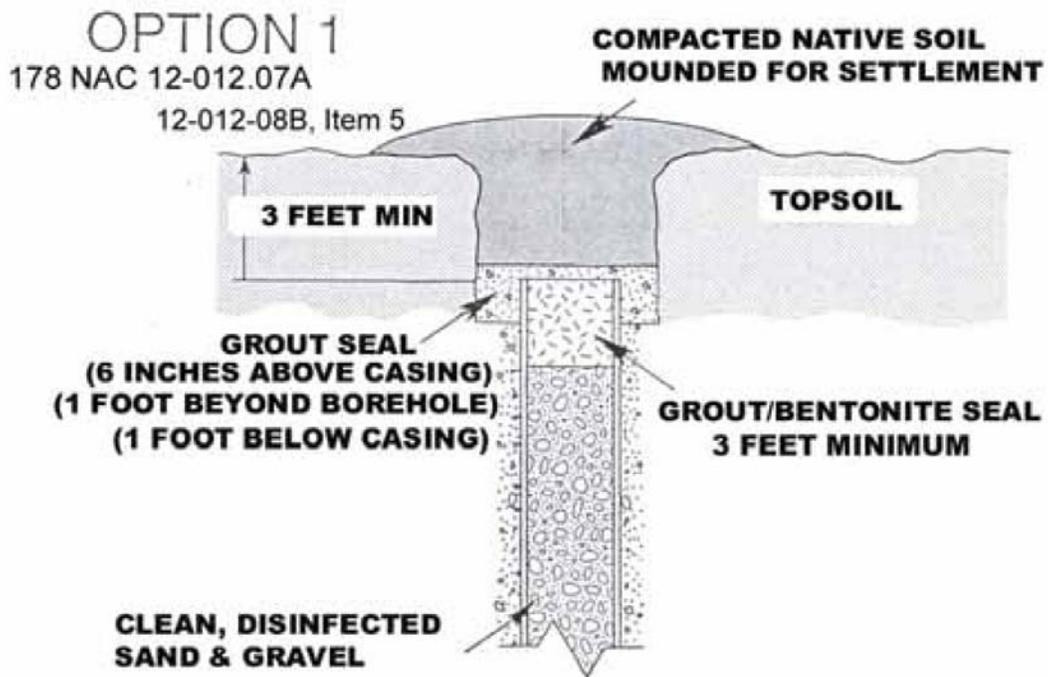


Figure 7. The “Grout Seal” above is the ‘secondary seal’ that was utilized for well decommissioning (from Nebraska Health and Human Services, Title 178, Chapter 12, Figure 11).

3. RESULTS

Five wells were decommissioned during 2008 (Table 1, Figure 8, Appendix A). This section provides summary documentation for each of the five decommissioned wells. Appendix B contains the Water Well Decommissioning Reports completed by B&C for each decommissioned well. Note that the weight of one “bag” of unhydrated bentonite or bentonite slurry is 50 lbs.

Table 1. List of wells selected to be decommissioned.

Lummi No.	TRS Code	Well Decommissioned?	Located with Pictometry?
81	38N/01E-34J01	YES	YES
82	38N/01E-34R01	YES	YES
406	38N/01E-34R02	YES	YES
416	38N/01E-34K05	YES	YES
Unknown (Munson)	37N/01E-02Q ¹	YES	YES

¹ (Number following quarter-quarter-section-letter-identification not yet assigned)

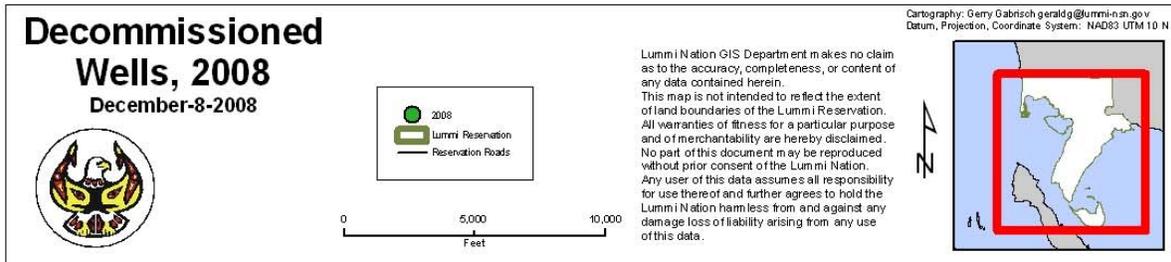
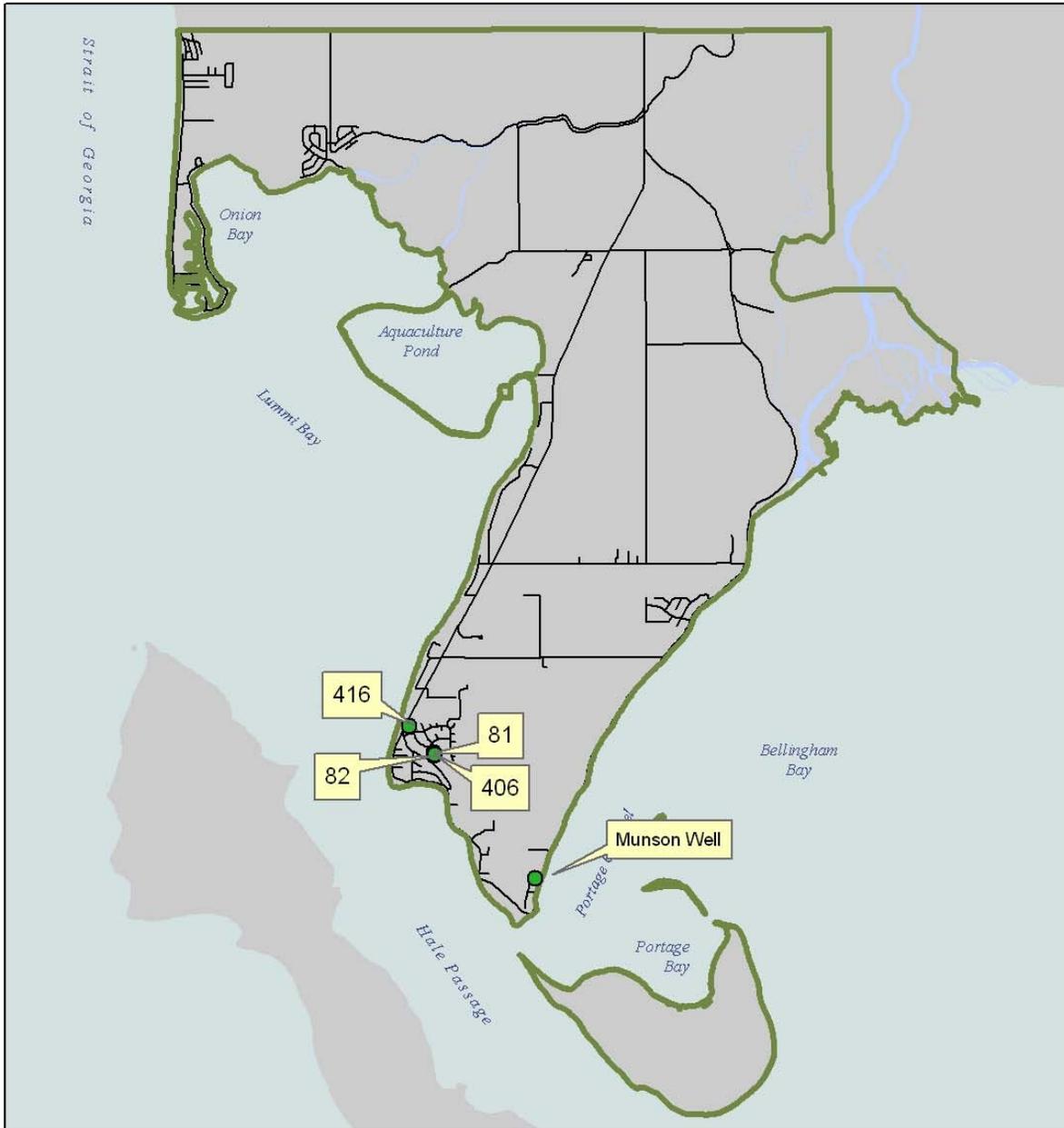


Figure 8. Locations of wells selected for decommissioning in 2008 on the Lummi Indian Reservation.

3.1. Well No. 81

Well No. 82 is located across Mackenzie Road from 2562 Mackenzie Road (the parcel is not an addressed parcel) at the edge of a wooded lot in a residential area. Two other decommissioned wells (Lummi No. 81 and Lummi No. 406) are also located on this lot. Well No. 82 was decommissioned because it was abandoned and in an area vulnerable to contamination from nearby homes (Appendix A). The Well Decommissioning Report (Appendix B) documents the decommissioning of the well. Figure 9 shows the well before and after decommissioning.

No problems were encountered during the decommissioning of the well. The pump and associated plumbing and wiring were removed. The entire length of casing was perforated from the bottom to the top, and bentonite slurry was then placed from the bottom of the well to the top of the well. The level of the slurry was maintained at or near the top of the well as the drillstem (tremie) was raised in the well. After the entire drillstem had been removed, a plug was used to press the top of the bentonite column down 20 feet two different times. Each time the well was refilled with bentonite slurry, and prior to the second time the plug was lowered into the well, one bag of unhydrated bentonite chips was added to the bentonite slurry. Fourteen and a half (14.5) bags of bentonite slurry were used up to this point.

The next day the casing was cut off about 1 foot below ground surface (at a concrete collar). About a half of a 50 pound bag of bentonite slurry and 1.5 bags of unhydrated chips were then used to fill the well to the surface and to place a secondary seal over and around the top of the well. The remaining hole was then filled with native topsoil and grass seed applied.



(a)



(b)

Figure 9. Well No. 81 before (a) and after (b) decommissioning. The shovel marks the location of the decommissioned well.

3.2. Well No. 82

Well No. 82 is located across Mackenzie Road from 2562 Mackenzie Road (the parcel is not an addressed parcel) at the edge of a wooded lot in a residential area. Two other decommissioned wells (Lummi No. 81 and Lummi No. 406) are also located on this lot. Well No. 82 was decommissioned because it was abandoned and in an area vulnerable to contamination from nearby homes (Appendix A). The Well Decommissioning Report (Appendix B) documents the decommissioning of the well. Figure 10 shows the well before and after decommissioning.

The pump and associated plumbing and wiring were removed. The first weld down the casing had to be drilled out before the cutting tool could be lowered into the well. The entire length of the casing was then perforated. During the perforation process, rust and sand to small gravel sediments were observed coming out of the wellhead. After perforation of the casing, the measured depth of the well was 43.5 feet shallower than prior to perforation, with infill of the well by formation materials the apparent cause. Fourteen (14) bags of bentonite slurry were then pumped into the well from the bottom of the well until the slurry rose to the ground surface. The level of the slurry dropped rapidly.

The next day the well was refilled with 5.5 bags of bentonite slurry to within a foot of the ground surface. One bag of unhydrated chips was then poured into the well and a plug attached to the base of the drillstem used to press the top of the bentonite column down about 5 feet below ground surface. The casing was then cut-off about 1.5 feet below the ground surface (where there was a concrete collar around the well). Unhydrated bentonite chips (2 bags) were then placed in the well and the hole immediately around the top of the cutoff casing (secondary seal), and the remainder of the hole was filled with topsoil, slightly mounded, and grass seed spread over the surface.



(a)



(b)

Figure 10. Well No. 82 before (a) and after (b) decommissioning. The shovel marks the location of the decommissioned well in (b).

3.3. Well No.406

Well No. 406 is located across Mackenzie Road from 2562 Mackenzie Road (the parcel is not an addressed parcel) on a wooded lot in a residential area. Two other decommissioned wells (Lummi No. 81 and Lummi No. 82) are also located on this lot. Well No. 406 was decommissioned because it was abandoned and in an area vulnerable to contamination from nearby homes (Appendix A). The Well Decommissioning Report (Appendix B) documents the decommissioning of the well. Figure 11 shows the well before and after decommissioning.

No problems were encountered decommissioning Well No. 406. The pump and associated plumbing and wiring were removed. The entire length of casing was perforated and two bags of unhydrated bentonite chips were poured into the well to seal the screened interval. Bentonite slurry was then placed from the bottom of the well to the surface, and was maintained at or near the surface during the withdrawal of the tremie (drillstem). After the entire drillstem had been removed from the well, a plug attached to the drillstem was used to push the top of the bentonite column 20 feet down. The well was filled with bentonite slurry to near the ground surface, and one bag of bentonite chips was then placed into the well. The plug was used again to push the bentonite column down 20 feet. Bentonite slurry was then placed in the well to the ground surface. Overall, 11.25 bags of bentonite slurry were used.

Two days later, the casing was cut off about 2 feet below the ground surface, and 1.5 bags of unhydrated bentonite chips were placed in the well and around and over the well (secondary seal), then covered with topsoil.



(a)



(b)

Figure 11. Well No. 406 before (a) and after (b) decommissioning. The shovel marks the location of the decommissioned well in (b).

3.4. Well No. 416

Well No. 416 is located at 2690 Haxton Way and was decommissioned because it was abandoned and vulnerable to contamination (Appendix A). The well was about 16 feet in front of the house and bordered the parking area. The Well Decommissioning Report (Appendix B) documents the decommissioning of the well. Figure 12 shows the well before and after decommissioning.

No problems were encountered decommissioning Well No. 416. The pump and associated plumbing and wiring were removed. One bag of unhydrated bentonite chips was placed by hand to fill the screened interval. Bentonite slurry was then pumped into the well from the bottom until the bentonite level rose to the level of the ground surface. The casing was then pulled up in approximately 20 foot sections and the sections cut off just above ground level. As the casing was being raised and removed, slurry was pumped into the well as the base of the submerged tremie tube was also raised. The day following the removal of the casing, 4.5 bags unhydrated bentonite chips were used to fill the hole to within about 6 inches of the ground surface (the bentonite slurry had sunk to a depth of 6.8 ft below ground surface and the hole was larger than the well diameter for the top three feet). Topsoil was then placed over the hole and grass seed applied.



(a)



(b)

Figure 12. Well No. 416 before (a) and after (b) decommissioning. The well was located about 3 feet beyond the small cement pad shown in (12.b).

3.5. Munson Well

The Munson well is located at 2195 Lummi Shore Road under a bedroom. A Lummi well identification number had not been previously attributed to this well and there was not a well drilling log that could be definitively attributed to this well. The well was a 5-inch diameter well with a steel casing that was 51.7 feet deep. This well was decommissioned because it was abandoned and the casing had holes in it above the ground level (it was located in the crawl space under the home). The Well Decommissioning Report (Appendix B) documents the decommissioning of the well. Figure 13 shows the well before and after decommissioning.

No problems were encountered decommissioning the Munson well. The pump and associated plumbing and wiring were removed. Perforating or removing the casing and placing bentonite slurry in the well was not performed because it was impractical due to the location of the well in the crawl space. Unhydrated chips were poured into the well by hand to near to the ground surface. A small hole was excavated by hand around the top of the casing and the casing was then cut-off about 10 inches below the ground surface, but about 4 inches above the bottom of the hole. Unhydrated bentonite chips were then poured into the casing and the hole surrounding it to within a few inches of the ground surface. The soil that had been excavated from around the well was then placed over the bentonite and slightly mounded. Ten and three quarter bags of unhydrated bentonite chips were used to fill the well.



(a)



(b)

Figure 13. The Munson well before (a) and after (b) well decommissioning. The gray lid visible through the trap door in the floor is the well cap.

4. DISCUSSION

Five wells were decommissioned on the Reservation during 2008 bringing the total to 12 wells being decommissioned since 2006 (Figure 14). Overall, the well decommissioning effort conducted during 2008 was successful. Five wells were decommissioned, removing potential sources of contamination to Reservation aquifers. Another benefit of the well decommissioning effort was increasing community awareness about protecting ground water. Well decommissioning is not a subtle activity and many individuals inquired about both how wells are decommissioned and why wells are decommissioned.

The 2008 well decommissioning effort proceeded more smoothly than the 2006 effort, in large part due to lessons learned during 2006. The work was conducted during a dry period, wells were perforated from the bottom to the top, and time was allowed for the settlement of the bentonite slurry. In addition, the well decommissioning contractor brought additional knowledge to the project, which included placement of unhydrated chips in the well screen (to decrease or eliminate bentonite slurry flowing into the formation), and placement of downward pressure on the bentonite column with a plug on the drillstem once the bentonite had reached the surface. The latter step included adding unhydrated bentonite chips to the bentonite slurry before downward pressure was applied, and then refilling the well with bentonite slurry. This activity helped to settle the bentonite slurry in the well and increased the pressure on the bentonite slurry, forcing more bentonite into the annular space outside of the well near the top of the well.

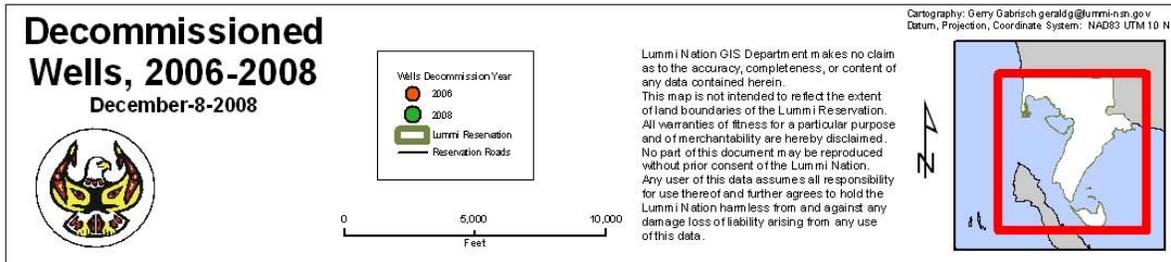
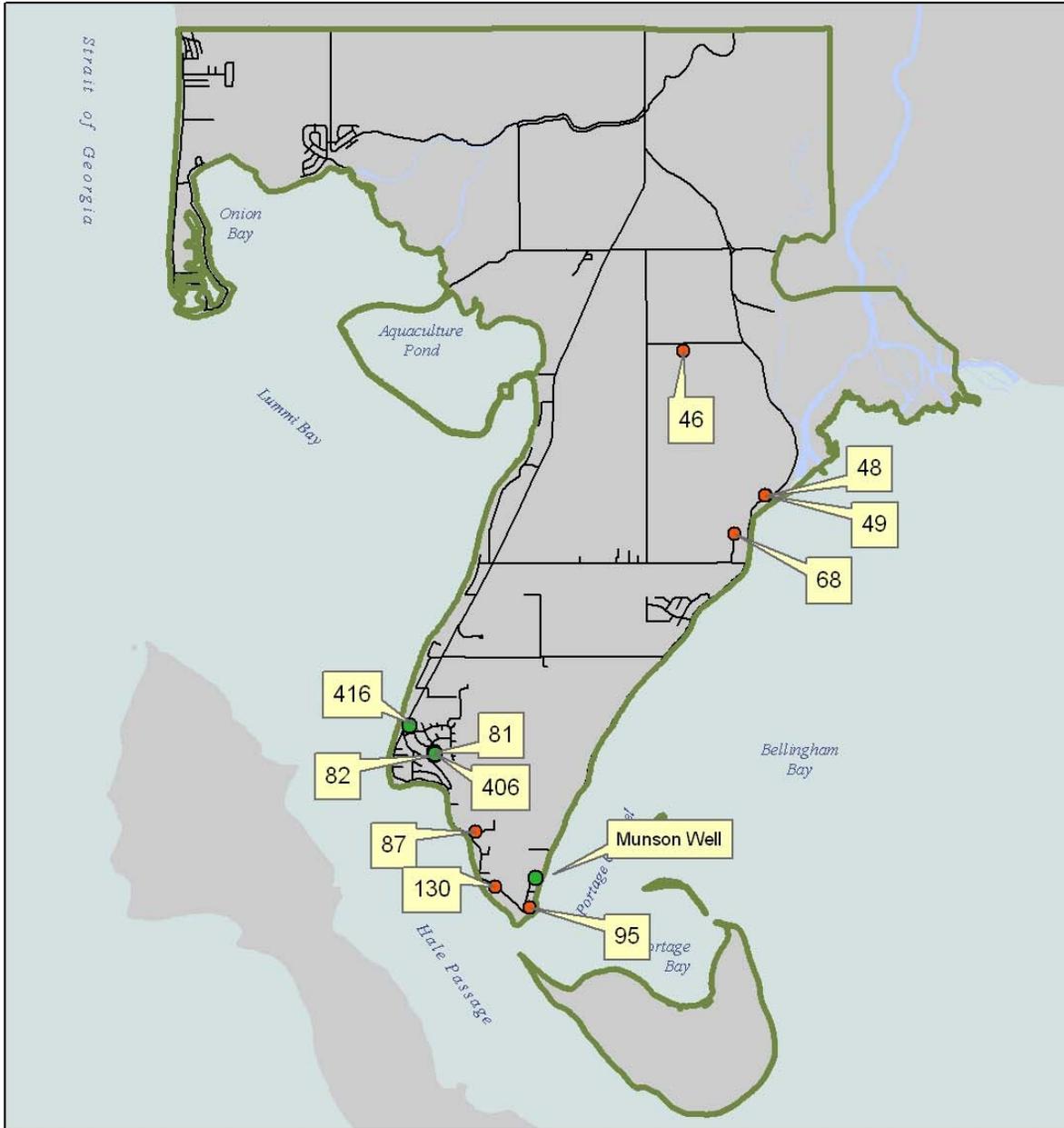


Figure 14. Wells decommissioned in 2006 and 2008 on the Lummi Indian Reservation.

5. CONCLUSION

Five wells were decommissioned on the Reservation during 2008 bringing the total to 12 wells being decommissioned since 2006. As described in the Lummi Nation Non-Point Source Assessment (LWRD 2001) and the associated Non-Point Source Management Program (LWRD 2002), wells are a potential source of contamination to Reservation aquifers. Well decommissioning is a direct and effective method to eliminate potential contamination of Reservation aquifers. Additional wells remain to be decommissioned. The well decommissioning program should be continued.

6. REFERENCES

Lummi Water Resource Division (LWRD). 2001. Nonpoint Source Assessment Report.
Prepared for Lummi Indian Business Council. Lummi Reservation, WA. December.

Lummi Water Resource Division (LWRD). 2002. Nonpoint Source Management Program.
Prepared for Lummi Indian Business Council. Lummi Reservation, WA. January.

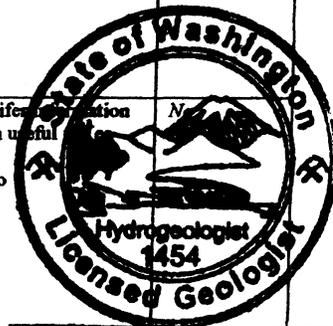
APPENDIX A. WELL DECOMMISSIONING EVALUATIONS

WORKSHEET FOR DETERMINING IF ABANDONED WATER WELLS SHOULD BE MONITORING WELLS OR DECOMMISSIONED

Criteria to determine if abandoned wells should be decommissioned or become candidates for use as a monitoring well. If the answer for questions 1 through 7 is "Yes" then the well is a candidate for use as a monitoring well.

Well number, owner, and street address: *Lummi No.81, Lummi Tribal Sewer and Water District Well (formerly Gooseberry Point Community and Water Association well), not an addressed parcel - located across Mackenzie Road from 2562 Mackenzie Road.*
 Person performing determination and date: *Andrew M. Ross, September 23, 2008*

Criteria Description	Sub-category/ Explanation	Actual Well Information	Evaluation	Answer (Yes or No)
1. Is the well in good condition?	Good, not good, or unknown. In rare situations, unknown condition may not preclude use as a monitoring depending upon location of the well and if sufficient information can be gathered about its condition.	<i>Unknown</i>	Good condition = Yes If unknown but important location and sufficient information gathered about condition = Yes Otherwise = No	<i>No</i>
2. Is the well unlikely to be a source of ground water contamination now or in the foreseeable future?	For example, is the well located at the bottom of a local depression?	<i>Unlikely</i>	Unlikely to be a source of contamination = Yes Otherwise = No	<i>Yes</i>
3. Is the well located a sufficient distance from current and foreseeable sources of contamination?	Case-specific. In general, are sources of contamination located or likely to be proximate to the well (e.g., septic tank, gas station).	<i>Near to a dirt road at edge of developed area.</i>	Sources of current and foreseeable contamination unlikely to be proximate to the well = Yes Otherwise = No	<i>No</i>
4. Is the well unlikely to be influenced by factors which diminish the utility of the well to serve as a monitoring well?	For example, is the well shallow and close to home with a foundation drain?	<i>Unlikely</i>	Unlikely that well influenced by factors that diminish use as a monitoring well = Yes Otherwise = No	<i>Yes</i>
5. Is the well suitable for use as a monitoring well?	For example, is the well conducive to water level measurements or obtaining water quality measurements? Both water level and quality are not necessary, depending upon the location of the well.	<i>Yes</i>	Suitable for use as a monitoring well = Yes Otherwise = No	<i>Yes</i>
6. Is there a Well Log for the well?	<ul style="list-style-type: none"> Well dimensions known? Water level, production known? Well construction details known? Stratigraphy recorded and reliable? Not all information is necessary, depending upon location and need for monitoring well.	<i>No</i>	Sufficient information in well log = Yes Otherwise = No	<i>No</i>
7. Does the well tap an aquifer where additional information would be useful?	For example: <ul style="list-style-type: none"> The aquifer is not tapped by other wells. Are wells that tap the aquifer proximate or distant? There is access to other wells that tap the aquifer. Are aquifer characteristics or uses sufficiently variable or unique to warrant an additional monitoring well? 	<i>Other monitored wells nearby (419 and 420).</i>	Additional aquifer information at well location useful = Yes Otherwise = No	<i>No</i>



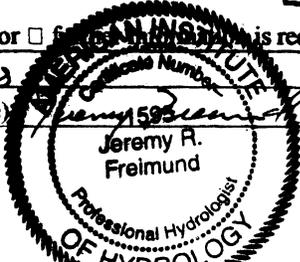
Andrew M. Ross

Check the appropriate result:

decommission well, candidate for use as monitoring well, or further investigation is required.

Assessment Completed by: *Andrew M. Ross* Date: *Oct. 2, 2008*

Concurrence by Water Resources Manager, (Yes) No (circle one) *Yes* Date: *Oct. 3, 2008*

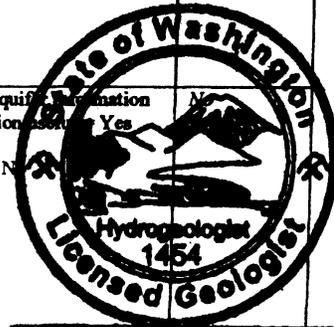


WORKSHEET FOR DETERMINING IF ABANDONED WATER WELLS SHOULD BE MONITORING WELLS OR DECOMMISSIONED

Criteria to determine if abandoned wells should be decommissioned or become candidates for use as a monitoring well. If the answer for questions 1 through 7 is "Yes" then the well is a candidate for use as a monitoring well.

Well number, owner, and street address: *Lummi No.82, Lummi Tribal Sewer and Water District Well (formerly Gooseberry Point Community and Water Association well), not an addressed parcel - located across Mackenzie Road from 2562 Mackenzie Road.*
 Person performing determination and date: *Andrew M. Ross, September 23, 2008*

Criteria Description	Sub-category/Explanation	Actual Well Information	Evaluation	Answer (Yes or No)
1. Is the well in good condition?	Good, not good, or unknown. In rare situations, unknown condition may not preclude use as a monitoring depending upon location of the well and if sufficient information can be gathered about its condition.	<i>Unknown</i>	Good condition = Yes If unknown but important location and sufficient information gathered about condition = Yes Otherwise = No	<i>No</i>
2. Is the well <u>unlikely</u> to be a source of ground water contamination now or in the foreseeable future?	For example, is the well located at the bottom of a local depression?	<i>Unlikely</i>	Unlikely to be a source of contamination = Yes Otherwise = No	<i>Yes</i>
3. Is the well located a sufficient distance from current and foreseeable sources of contamination?	Case-specific. In general, are sources of contamination located or likely to be proximate to the well (e.g., septic tank, gas station).	<i>In residential area.</i>	Sources of current and foreseeable contamination unlikely to be proximate to the well = Yes Otherwise = No	<i>No</i>
4. Is the well <u>unlikely</u> to be influenced by factors which diminish the utility of the well to serve as a monitoring well?	For example, is the well shallow and close to home with a foundation drain?	<i>Unlikely</i>	Unlikely that well influenced by factors that diminish use as a monitoring well = Yes Otherwise = No	<i>Yes</i>
5. Is the well suitable for use as a monitoring well?	For example, is the well conducive to water level measurements or obtaining water quality measurements? Both water level and quality are not necessary, depending upon the location of the well.	<i>Water level</i>	Suitable for use as a monitoring well = Yes Otherwise = No	<i>Yes</i>
6. Is there a Well Log for the well?	<ul style="list-style-type: none"> Well dimensions known? Water level, production known? Well construction details known? Stratigraphy recorded and reliable? Not all information is necessary, depending upon location and need for monitoring well.	<i>Yes</i>	Sufficient information in well log = Yes Otherwise = No	<i>Yes</i>
7. Does the well tap an aquifer where additional information would be useful?	For example: <ul style="list-style-type: none"> The aquifer is not tapped by other wells. Are wells that tap the aquifer proximate or distant? There is access to other wells that tap the aquifer. Are aquifer characteristics or uses sufficiently variable or unique to warrant an additional monitoring well? 	<i>Other monitored wells nearby (#19 and 420).</i>	Additional aquifer information at well location = Yes Otherwise = No	<i>No</i>

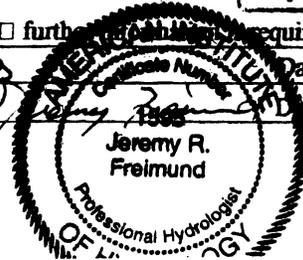


Andrew M. Ross

Check the appropriate result:
 decommission well, candidate for use as monitoring well, or further investigation required.

Assessment Completed by: *Andrew M. Ross* Date: *Oct 2, 2008*

Concurrence by Water Resources Manager, Yes No (circle one): *Yes* Date: *Oct 3, 2008*

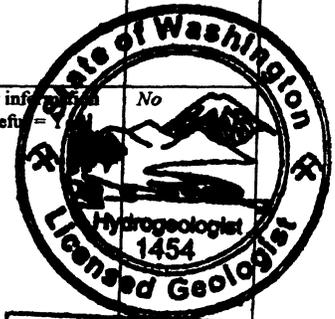


WORKSHEET FOR DETERMINING IF ABANDONED WATER WELLS SHOULD BE MONITORING WELLS OR DECOMMISSIONED

Criteria to determine if abandoned wells should be decommissioned or become candidates for use as a monitoring well. If the answer for questions 1 through 7 is "Yes" then the well is a candidate for use as a monitoring well.

Well number, owner, and street address: *Lummi No.406, Lummi Tribal Sewer and Water District Well (formerly Gooseberry Point Community and Water Association well), not an addressed parcel - located across Mackenzie Road from 2562 Mackenzie Road.*
 Person performing determination and date: *Andrew M. Ross, September 23, 2008*

Criteria Description	Sub-category/ Explanation	Actual Well Information	Evaluation	Answer (Yes or No)
1. Is the well in good condition?	Good, not good, or unknown. In rare situations, unknown condition may not preclude use as a monitoring depending upon location of the well and if sufficient information can be gathered about its condition.	<i>Unknown, but likely good (relatively recently installed).</i>	Good condition = Yes If unknown but important location and sufficient information gathered about condition = Yes Otherwise = No	<i>No</i>
2. Is the well <u>unlikely</u> to be a source of ground water contamination now or in the foreseeable future?	For example, is the well located at the bottom of a local depression?	<i>Unlikely</i>	Unlikely to be a source of contamination = Yes Otherwise = No	<i>Yes</i>
3. Is the well located a sufficient distance from current and foreseeable sources of contamination?	Case-specific. In general, are sources of contamination located or likely to be proximate to the well (e.g., septic tank, gas station).	<i>Near to dirt road close to residential area.</i>	Sources of current and foreseeable contamination unlikely to be proximate to the well = Yes Otherwise = No	<i>No</i>
4. Is the well <u>unlikely</u> to be influenced by factors which diminish the utility of the well to serve as a monitoring well?	For example, is the well shallow and close to home with a foundation drain?	<i>Unlikely</i>	Unlikely that well influenced by factors that diminish use as a monitoring well = Yes Otherwise = No	<i>Yes</i>
5. Is the well suitable for use as a monitoring well?	For example, is the well conducive to water level measurements or obtaining water quality measurements? Both water level and quality are not necessary, depending upon the location of the well.	<i>Water Level</i>	Suitable for use as a monitoring well = Yes Otherwise = No	<i>Yes</i>
6. Is there a Well Log for the well?	<ul style="list-style-type: none"> Well dimensions known? Water level, production known? Well construction details known? Stratigraphy recorded and reliable? Not all information is necessary, depending upon location and need for monitoring well.	<i>Yes</i>	Sufficient information in well log = Yes Otherwise = No	<i>Yes</i>
7. Does the well tap an aquifer where additional information would be useful?	For example: <ul style="list-style-type: none"> The aquifer is not tapped by other wells. Are wells that tap the aquifer proximate or distant? There is access to other wells that tap the aquifer. Are aquifer characteristics or uses sufficiently variable or unique to warrant an additional monitoring well? 	<i>Other monitored wells nearby (419 and 420).</i>	Additional aquifer information at well location useful = Yes Otherwise = No	<i>No</i>



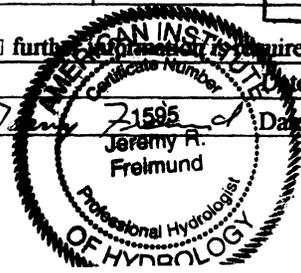
Andrew M. Ross

Check the appropriate result:

decommission well, candidate for use as monitoring well, or further investigation is required.

Assessment Completed by: *Andrew M. Ross* Date: *Oct. 2, 2008*

Concurrence by Water Resources Manager: *Jeremy R. Freimund* (Yes/No (circle one): Yes) Date: *Oct. 3, 2008*

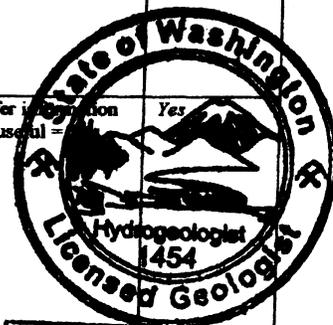


WORKSHEET FOR DETERMINING IF ABANDONED WATER WELLS SHOULD BE MONITORING WELLS OR DECOMMISSIONED

Criteria to determine if abandoned wells should be decommissioned or become candidates for use as a monitoring well. If the answer for questions 1 through 7 is "Yes" then the well is a candidate for use as a monitoring well.

Well number, owner, and street address: *Lummi No. 416, Angelita Ochoa, 2690 Haxton Way*
 Person performing determination and date: *Andrew M. Ross, September 23, 2008*

Criteria Description	Sub-category/Explanation	Actual Well Information	Evaluation	Answer (Yes or No)
1. Is the well in good condition?	Good, not good, or unknown. In rare situations, unknown condition may not preclude use as a monitoring depending upon location of the well and if sufficient information can be gathered about its condition.	<i>Good</i>	Good condition = Yes If unknown but important location and sufficient information gathered about condition = Yes Otherwise = No	<i>Yes</i>
2. Is the well <u>unlikely</u> to be a source of ground water contamination now or in the foreseeable future?	For example, is the well located at the bottom of a local depression?	<i>Adjacent to parking area, may be hit by vehicle.</i>	Unlikely to be a source of contamination = Yes Otherwise = No	<i>No</i>
3. Is the well located a sufficient distance from current and foreseeable sources of contamination?	Case-specific. In general, are sources of contamination located or likely to be proximate to the well (e.g., septic tank, gas station).	<i>No, adjacent to parking area.</i>	Sources of current and foreseeable contamination unlikely to be proximate to the well = Yes Otherwise = No	<i>No</i>
4. Is the well <u>unlikely</u> to be influenced by factors which diminish the utility of the well to serve as a monitoring well?	For example, is the well shallow and close to home with a foundation drain?	<i>Unlikely</i>	Unlikely that well influenced by factors that diminish use as a monitoring well = Yes Otherwise = No	<i>Yes</i>
5. Is the well suitable for use as a monitoring well?	For example, is the well conducive to water level measurements or obtaining water quality measurements? Both water level and quality are not necessary, depending upon the location of the well.	<i>Yes</i>	Suitable for use as a monitoring well = Yes Otherwise = No	<i>Yes</i>
6. Is there a Well Log for the well?	<ul style="list-style-type: none"> Well dimensions known? Water level, production known? Well construction details known? Stratigraphy recorded and reliable? Not all information is necessary, depending upon location and need for monitoring well.	<i>Yes</i>	Sufficient information in well log = Yes Otherwise = No	<i>Yes</i>
7. Does the well tap an aquifer where additional information would be useful?	For example: <ul style="list-style-type: none"> The aquifer is not tapped by other wells. Are wells that tap the aquifer proximate or distant? There is access to other wells that tap the aquifer. Are aquifer characteristics or uses sufficiently variable or unique to warrant an additional monitoring well? 	<i>Location is near shoreline in area with many other monitored wells (74, 127, 128, 129, 143, 419, 420), most are further inland. With retention of pump, chloride monitoring may be helpful.</i>	Additional aquifer information at well location useful = <i>Yes</i> Otherwise = No	<i>Yes</i>



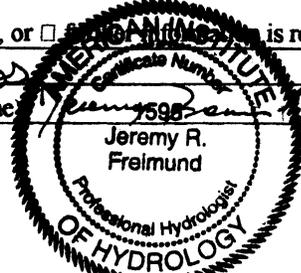
Andrew M. Ross

Check the appropriate result:

decommission well, candidate for use as monitoring well, or additional information is required.

Assessment Completed by: *Andrew M. Ross* Date: *Oct. 2, 2008*

Concurrence by Water Resources Manager: Yes No (circle one) Date: *Oct. 03, 2008*



WORKSHEET FOR DETERMINING IF ABANDONED WATER WELLS SHOULD BE MONITORING WELLS OR DECOMMISSIONED

Criteria to determine if abandoned wells should be decommissioned or become candidates for use as a monitoring well. If the answer for questions 1 through 7 is "Yes" then the well is a candidate for use as a monitoring well.

Well number, owner, and street address: *Lummi No. 96, John and Katherine Munson, 2195 Lummi Shore Road.*

Person performing determination and date: *Andrew M. Ross, September 23, 2008*

Criteria Description	Sub-category/Explanation	Actual Well Information	Evaluation	Answer (Yes or No)
1. Is the well in good condition?	Good, not good, or unknown. In rare situations, unknown condition may not preclude use as a monitoring depending upon location of the well and if sufficient information can be gathered about its condition.	<i>Not good. Exposed portion of casing severely rusted, holes in casing.</i>	Good condition = Yes If unknown but important location and sufficient information gathered about condition = Yes Otherwise = No	<i>No</i>
2. Is the well <u>unlikely</u> to be a source of ground water contamination now or in the foreseeable future?	For example, is the well located at the bottom of a local depression?	<i>Well in crawlspace under house and out of use.</i>	Unlikely to be a source of contamination = Yes Otherwise = No	<i>No</i>
3. Is the well located a sufficient distance from current and foreseeable sources of contamination?	Case-specific. In general, are sources of contamination located or likely to be proximate to the well (e.g., septic tank, gas station).	<i>Potential rodent access to well located under house.</i>	Sources of current and foreseeable contamination unlikely to be proximate to the well = Yes Otherwise = No	<i>No</i>
4. Is the well <u>unlikely</u> to be influenced by factors which diminish the utility of the well to serve as a monitoring well?	For example, is the well shallow and close to home with a foundation drain?	<i>Unlikely</i>	Unlikely that well influenced by factors that diminish use as a monitoring well = Yes Otherwise = No	<i>Yes</i>
5. Is the well suitable for use as a monitoring well?	For example, is the well conducive to water level measurements or obtaining water quality measurements? Both water level and quality are not necessary, depending upon the location of the well.	<i>Exposed casing in poor condition and location in crawl space.</i>	Suitable for use as a monitoring well = Yes Otherwise = No	<i>No</i>
6. Is there a Well Log for the well?	<ul style="list-style-type: none"> Well dimensions known? Water level, production known? Well construction details known? Stratigraphy recorded and reliable? Not all information is necessary, depending upon location and need for monitoring well.	<i>No</i>	Sufficient information in well log = Yes Otherwise = No	<i>No</i>
7. Does the well tap an aquifer where additional information would be useful?	For example: <ul style="list-style-type: none"> The aquifer is not tapped by other wells. Are wells that tap the aquifer proximate or distant? There is access to other wells that tap the aquifer. Are aquifer characteristics or uses sufficiently variable or unique to warrant an additional monitoring well? 	<i>Other wells in area more suited as monitoring wells.</i>	Additional aquifer information at well location useful = Yes Otherwise = No	<i>No</i>



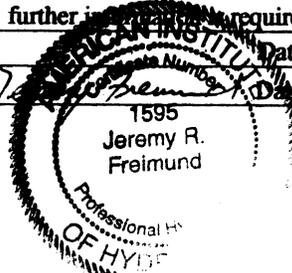
Andrew M. Ross

Check the appropriate result:

decommission well, candidate for use as monitoring well, or further investigation required.

Assessment Completed by: *Andrew M. Ross* Date: *Oct. 2, 2008*

Concurrence by Water Resources Manager, (Yes) No (circle one): *Yes* Date: *Oct. 03, 2008*



Note: The assigned Lummi No. 96 is not correct. Subsequent investigation determined that the well has not previously been assigned a Lummi Number.

APPENDIX B. INDIVIDUAL WELL DECOMMISSIONING REPORTS

WATER WELL DECOMMISSIONING REPORT

Lummi Indian Business Council – Lummi Water Resources Division

Lummi Well No: 82 TRS Code: 38N/OIE-34R01
 Lummi Well Permit No: _____
 Other Identification: _____
 Well Log Attached? Yes No Not Available

Use of Well: Domestic Industrial Municipal
 DeWater Irrigation Test Well Other Community Water Supply

Reason for decommissioning:
Abandoned

Dimensions of Well: Measured diameter of well 6 (in.)
 Measured depth of well 133.5 (ft.)

Construction/Condition of Well: Casing material: Steel
 Casing joint type: welded
 Surface seal present: Yes No Unknown
 Surface seal condition: Appears intact
 Screen Interval: Log indicated 133-138
 Pump and associated materials present? Yes No
 Depth of pump intake from MP: 131 (feet)
 Manufacturer: Goulds Type: Sub H.P. 1
 Type of plumbing (i.e., pitless): through
 Other: Sanitary Seal

Obstructions: All obstructions removed:
 Pump, motor, drop pipe, wiring, & associated materials removed.
 Other: _____
 No obstructions were present in well at time of inspection.
 Not all obstructions removed. Provide explanation and how addressed during decommissioning in "Decommission Procedure" section.

Static Water Level: Water Level below (MP) (within approx. 10 min.) and time:
73.75 ft at 11:20 (time)
73.74 ft at 11:30 (time)
73.74 ft at 11:32 (time)
 Date of water level measurements: 10/16/08
 Elevation of MP above mean sea level: 80.61
 MP Description: Top of Sanitary Seal
 MP Elevation above (+) or below (-) land-surface: +1.71 ft
 Land-surface elevation above mean sea level: 79.9 ft
 Sources of MP and/or land surface elevation AND potential influences on water level: LIDAR for land surface elevation measuring top MP

Water Quality: Water quality sampled? Yes No. If yes, attach results on separate sheet.
 Water quality issues with well? (Provide sources): Poor aesthetics elevated Chloride

Well Production While In Service: Typical production: _____ (gal/min.)
 Drawdown: _____ (feet) after _____ hours.
 Recovery: _____ (feet) after _____ (provide units)
 Source (measured, estimated, owner/operator, documented, verbal, attach additional information): _____
 Maximum production: _____ (gal/min.)
 Drawdown: _____ (feet) after _____ hours.
 Recovery: _____ (feet) after _____ (provide units)
 Source (measured, estimated, owner/operator, documented, verbal, attach additional information): _____
 Changes and causes in production over life of well? _____

Property Owner Name(s): Tribal Lummi Seven and Water District
 Location: _____
 Well Street Address: not addressed parcel across from 2502 Mackenzie Rd Bellingham WA 98226
 Section, Township, Range: SE 1/4-1/4 SE 1/4 Section 24 Township 38N Range OIE

Latitude/Longitude: Lat 48.73542320760 Long 122.66596109300
 (provide units to decimal degrees or minutes)

Source of latitude and longitude:
 USGS Quadrangle Map High Resolution Aerial Image
 Conventional survey Mapping Grade GPS
 Global Positioning System (GPS) Survey Recreational Grade GPS
 GPS Accuracy: \pm _____ feet
 Aerial Image source: Pictometry
 Aerial Image resolution: 6 in (provide units)
 Record datum if not WGS 84: _____

Tax Parcel No. 380134476118 Assignment No. _____

DECOMMISSION PROCEDURE

Document method(s) of well decommissioning, including, but not limited to, methods of placement of sealing material, sealing materials used, quantity of sealing materials used, locations of sealing materials, location and resolution of obstructions that could not be removed, and treatment of well and ground surface at and near the ground surface.
 USE ADDITIONAL SHEETS IF NECESSARY.

Material	From (ft)	To (ft)
Removed pump equipment		
Bentonite starting at bottom to top of casing. Ran tremie pipe to bottom of well filled with bentonite grout to top 1st set of vent pipe topped off cement. placed one bag 3/8 bentonite chips in well and applied down pressure. cut off casing 1.5 ft below surface and filled with 3/8 chips to surface		
19.5 bags slurry (total) 3 bags chips (total)		
Start Date: <u>10/06/08</u> Completed Date: <u>10/23/08</u>		

WELL DECOMMISSIONING CERTIFICATION: I decommissioned and/or accept responsibility for decommissioning of this well, and its compliance with all acceptable well decommissioning standards for the profession. Materials used and the information reported above are true to the best of my knowledge and belief.

Driller Engineer Trainee Name (Print): Bill Chotman
 Driller/Engineer/Trainee Signature: Bill Chotman
 Driller or trainee License No: 0005
 If TRAINEE, Driller's Licensed No: _____
 Driller's Signature: _____

Drilling Company: B+C Well Drilling
 Address: 888 Kelly
 City, State, Zip: Bellingham WA 98226
 Contractor's Registration No: BCWELDP947P6 Date: 11/10/08

The Lummi Indian Business Council does NOT warranty the Data and/or Information in this Well Decommissioning Report.

WATER WELL DECOMMISSIONING REPORT

Lummi Indian Business Council - Lummi Water Resources Division

Lummi Well No: <u>406</u> TRS Code: <u>3BN/01E-34R02</u> Lummi Well Permit No: _____ Other Identification: <u>AEC 507 Ecology Unigue</u> Well Log Attached? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Available	Property Owner Name(s): <u>Lummi Tribal Sewer & Water Dist</u> Location: _____ Well Street Address: <u>Not an addressed parcel across from 2562 Mackenzie Rd</u> Section, Township, Range: <u>SE 1/4-1/4 SE 1/4</u> Section <u>34</u> Township <u>3BN</u> Range <u>01E</u> Latitude/Longitude: <u>N 48.73577015290 W 122.663555360</u> (provide units to decimal degrees or minutes) Source of latitude and longitude: <input type="checkbox"/> USGS Quadrangle Map <input checked="" type="checkbox"/> High Resolution Aerial Image <input type="checkbox"/> Conventional survey <input type="checkbox"/> Mapping Grade GPS <input type="checkbox"/> Global Positioning System (GPS) Survey <input type="checkbox"/> Recreational Grade GPS GPS Accuracy: ± _____ feet Aerial Image source: <u>Pictometry</u> Aerial Image resolution: <u>6 in</u> (provide units) Record datum if not WGS 84: _____																																													
Use of Well: <input type="checkbox"/> Domestic <input type="checkbox"/> Industrial <input type="checkbox"/> Municipal <input type="checkbox"/> DeWater <input type="checkbox"/> Irrigation <input type="checkbox"/> Test Well <input checked="" type="checkbox"/> Other <u>Community Water Supply</u>	Tax Parcel No. <u>38013447618</u> Assignment No. _____																																													
Reason for decommissioning: <u>Abandoned</u>	DECOMMISSION PROCEDURE Document method(s) of well decommissioning, including, but not limited to, methods of placement of sealing material, sealing materials used, quantity of sealing materials used, locations of sealing materials, location and resolution of obstructions that could not be removed, and treatment of well and ground surface at and near the ground surface. USE ADDITIONAL SHEETS IF NECESSARY.																																													
Dimensions of Well: Measured diameter of well <u>6</u> (in.) Measured depth of well <u>131</u> (ft.)	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;">Material</th> <th style="width: 20%;">From (ft)</th> <th style="width: 20%;">To (ft)</th> </tr> </thead> <tbody> <tr> <td><u>Removed pump perforated</u></td> <td></td> <td></td> </tr> <tr> <td><u>from bottom to top of casing</u></td> <td></td> <td></td> </tr> <tr> <td><u>installed tremie pipe + pump</u></td> <td></td> <td></td> </tr> <tr> <td><u>benonite grout from bottom</u></td> <td></td> <td></td> </tr> <tr> <td><u>to top after grout level</u></td> <td></td> <td></td> </tr> <tr> <td><u>stabilized add 3/8 benonite</u></td> <td></td> <td></td> </tr> <tr> <td><u>chip + applied pressure</u></td> <td></td> <td></td> </tr> <tr> <td><u>using drill stem down pusher</u></td> <td></td> <td></td> </tr> <tr> <td><u>tapped at with 3/8 drill</u></td> <td></td> <td></td> </tr> <tr> <td><u>+ cut off casing 2 ft below</u></td> <td></td> <td></td> </tr> <tr> <td><u>grade. filled with 3/8</u></td> <td></td> <td></td> </tr> <tr> <td><u>benonite chips to surface</u></td> <td></td> <td></td> </tr> <tr> <td><u>11.25 bags Slurry to fill</u></td> <td></td> <td></td> </tr> <tr> <td><u>4.5 bags chips to fill</u></td> <td></td> <td></td> </tr> </tbody> </table>	Material	From (ft)	To (ft)	<u>Removed pump perforated</u>			<u>from bottom to top of casing</u>			<u>installed tremie pipe + pump</u>			<u>benonite grout from bottom</u>			<u>to top after grout level</u>			<u>stabilized add 3/8 benonite</u>			<u>chip + applied pressure</u>			<u>using drill stem down pusher</u>			<u>tapped at with 3/8 drill</u>			<u>+ cut off casing 2 ft below</u>			<u>grade. filled with 3/8</u>			<u>benonite chips to surface</u>			<u>11.25 bags Slurry to fill</u>			<u>4.5 bags chips to fill</u>		
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Construction/Condition of Well: Casing material: <u>3" steel</u> Casing joint type: <u>welded</u> Surface seal present: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown Surface seal condition: <u>Good</u> Screen Interval: <u>124-134</u> Pump and associated materials present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Depth of pump intake from MP: <u>132</u> (feet) Manufacturer: <u>Goulds</u> Type: <u>Sub</u> H.P. <u>1</u> Type of plumbing (i.e., pitless): <u>Above Ground</u> Other: <u>Pitless</u>	Start Date: <u>10/6/08</u> Completed Date: <u>10/23/08</u>																																													
Obstructions: <input checked="" type="checkbox"/> All obstructions removed: <input checked="" type="checkbox"/> Pump, motor, drop pipe, wiring, & associated materials removed. <input type="checkbox"/> Other: _____ <input type="checkbox"/> No obstructions were present in well at time of inspection. <input type="checkbox"/> Not all obstructions removed. Provide explanation and how addressed during decommissioning in "Decommission Procedure" section.	WELL DECOMMISSIONING CERTIFICATION: I decommissioned and/or accept responsibility for decommissioning of this well, and its compliance with all acceptable well decommissioning standards for the profession. Materials used and the information reported above are true to the best of my knowledge and belief.																																													
Static Water Level below (MP) (within approx. 10 min.) and time: Water Level: <u>91.83 ft</u> at <u>10:14</u> (time) Level: <u>91.45 ft</u> at <u>10:15</u> (time) Level: <u>91.85 ft</u> at <u>10:19</u> (time) Date of water level measurements: <u>10/6/08</u> Elevation of MP above mean sea level: <u>98.58</u> MP Description: <u>Top of casing</u> MP Elevation above (+) or below (-) land-surface: <u>1.58</u> Land-surface elevation above mean sea level: <u>97.0</u> Sources of MP and/or land surface elevation AND potential influences on water level: <u>LIDAR for land surface measuring tape for MP</u>	Driller/Engineer/Trainee Name (Print): <u>Paul Chorlton</u> Driller/Engineer/Trainee Signature: <u>[Signature]</u> Driller or trainee License No: <u>0000</u> If TRAINEE, Driller's Licensed No: _____ Driller's Signature: _____																																													
Water Quality: Water quality sampled? <input type="checkbox"/> Yes <input type="checkbox"/> No. If yes, attach results on separate sheet. Water quality issues with well? (Provide sources): <u>Poor aesthetic, elevated chlorides</u>	Drilling Company: <u>Bob C Well Drilling</u> Address: <u>888 Kelly</u> City, State, Zip: <u>Bellingham WA</u>																																													
Well Production While In Service: Typical production: _____ (gal/min.) Drawdown: _____ (feet) after _____ hours. Recovery: _____ (feet) after _____ (provide units) Source (measured, estimated, owner/operator, documented, verbal, attach additional information): _____ Maximum production: _____ (gal/min.) Drawdown: _____ (feet) after _____ hours. Recovery: _____ (feet) after _____ (provide units) Source (measured, estimated, owner/operator, documented, verbal, attach additional information): _____ Changes and causes in production over life of well? _____	Contractor's Registration No: <u>BCWELDR94716</u> date: <u>11/20/08</u>																																													

The Lummi Indian Business Council does NOT warranty the Data and/or Information in this Well Decommissioning Report.

WATER WELL DECOMMISSIONING REPORT

Lummi Indian Business Council – Lummi Water Resources Division

Lummi Well No: 416 TRS Code: 30N/OIE-34K05
 Lummi Well Permit No: _____
 Other Identification: _____
 Well Log Attached? Yes No Not Available

Use of Well: Domestic Industrial Municipal
 DeWater Irrigation Test Well Other: _____

Reason for decommissioning:
Abandoned

Dimensions of Well: Measured diameter of well 6 (in.)
 Measured depth of well 98.7 (ft.)

Construction/Condition of Well: Casing material: Steel
 Casing joint type: Welded
 Surface seal present: Yes No Unknown
 Surface seal condition: Good
 Screen Interval: 73-78 FT
 Pump and associated materials present? Yes No
 Depth of pump intake from MP: 74.3 (feet)
 Manufacturer: FCW Type: 505 H.P. 1/2
 Type of plumbing (i.e., pitless): Pitless
 Other: _____

Obstructions: All obstructions removed:
 Pump, motor, drop pipe, wiring, & associated materials removed.
 Other: _____
 No obstructions were present in well at time of inspection.
 Not all obstructions removed. Provide explanation and how addressed during decommissioning in "Decommission Procedure" section.

Static Water Level below (MP) (within approx. 10 min.) and time:
56.68 FT at 9:32 (time)
56.68 FT at 9:34 (time)
56.68 FT at 9:36 (time)
 Date of water level measurements: 10/6/08
 Elevation of MP above mean sea level: 61.98
 MP Description: Top of Casing
 MP Elevation above (+) or below (-) land-surface: +1.88
 Land-surface elevation above mean sea level: 61.1
 Sources of MP and/or land surface elevation AND potential influences on water level: LIDAR for land surface elev. Measuring tape for MP

Water Quality: Water quality sampled? Yes No. If yes, attach results on separate sheet.
 Water quality issues with well? (Provide sources):
None reported

Well Production While In Service: Typical production: _____ (gal/min.)
 Drawdown: _____ (feet) after _____ hours.
 Recovery: _____ (feet) after _____ (provide units)
 Source (measured, estimated, owner/operator, documented, verbal, attach additional information): _____
 Maximum production: _____ (gal/min.)
 Drawdown: _____ (feet) after _____ hours.
 Recovery: _____ (feet) after _____ (provide units)
 Source (measured, estimated, owner/operator, documented, verbal, attach additional information): _____
 Changes and causes in production over life of well? _____

Property Owner Name(s): Angelita Ochoa
 Location:
 Well Street Address: 2690 Haxton Way
Bellingham WA 98226
 Section, NW 1/4-1/4 SE 1/4 Section 34
 Township, Range Township 30N Range OIE
 Latitude/ Longitude Lat 48.7842369852 Lon -122.6697669080
 (provide units to decimal degrees or minutes)
 Source of latitude and longitude:
 USGS Quadrangle Map High Resolution Aerial
 Conventional survey Image
 Global Positioning Mapping Grade GPS
 System (GPS) Survey Recreational Grade GPS
 GPS Accuracy: \pm 4.4 feet
 Aerial Image source: Pictometry
 Aerial Image resolution: 0.1m (provide units)
 Record datum if not WGS 84: _____

Tax Parcel No. 380134329247 Assignment No. _____

DECOMMISSION PROCEDURE		
Document method(s) of well decommissioning, including, but not limited to, methods of placement of sealing material, sealing materials used, quantity of sealing materials used, locations of sealing materials, location and resolution of obstructions that could not be removed, and treatment of well and ground surface at and near the ground surface. USE ADDITIONAL SHEETS IF NECESSARY.		
Material	From (ft)	To (ft)
<u>Placed one bag 3/8 bentonite</u>		
<u>chips in screen interval</u>		
<u>Filled casing with bentonite</u>		
<u>grout using tremie casing</u>		
<u>was withdrawn approximately</u>		
<u>20' at a time while maintaining</u>		
<u>slurry level to surface</u>		
<u>after slurry level stabilized</u>		
<u>the remaining 7ft was filled</u>		
<u>to 15 ft with 3/8 bentonite</u>		
<u>chips and covered with</u>		
<u>topsoil.</u>		
<u>11 bags slurry total</u>		
<u>4.5 bags chip total</u>		
Start Date: <u>10/6/08</u>	Completed Date: <u>10/23/08</u>	

WELL DECOMMISSIONING CERTIFICATION: I decommissioned and/or accept responsibility for decommissioning of this well, and its compliance with all acceptable well decommissioning standards for the profession. Materials used and the information reported above are true to the best of my knowledge and belief.

Driller Engineer Trainee Name (Print) Bill Ochoa Drilling Company: B+C Well Drilling
 Driller/Engineer/Trainee Signature: [Signature] Address: 888 Kelly
 Driller or trainee License No: 0085 City, State, Zip: Bellingham WA
 If TRAINEE, Driller's Licensed No: _____ Contractor's Registration No: SCWELDP94726 Date: 11/20/08
 Driller's Signature: _____

The Lummi Indian Business Council does NOT warranty the Data and/or Information in this Well Decommissioning Report.

